Paula Hupponen

EXPLORING THE CONCEPTIONS OF QUALITY IN PUBLIC ONLINE SERVICES

This study explores the ways how the issue of quality is understood in the context of public online services. The study is carried out by the means of a research material that consists of literature on the quality of public and other types of online services. The aim of the study is to analyse how quality is defined in the online context, how it is characterised in public online services particularly and in online services generally, and how it is perceived within Finnish public online services. As a method of analysis the tools of qualitative and quantitative content analysis were applied.

It was found that the conceptions of online quality are often vague. They resemble the general notions and uses of the concept of quality. The four main approaches made to define online quality stated that it is about achieving the goals set for the service, about listening to the users and serving their needs, about fulfilling certain quality requirements, and most distinctively, about realising the potential benefits of the Internet to the user.

The results of the study indicate, moreover, that the conceptions of quality in public online services are characterised by certain themes. These are: content, ease of use, accessibility, openness, interactivity, appearance, scope for participation, security and privacy, findability, and service depth. Of these, accessibility, openness, scope for participation, and service depth were typical especially for public online services, whereas the other themes were typically used to characterise also the quality of other types of online services. The view of quality emerging from the material on Finnish public online services was found to be fairly similar to that above. Yet the efforts to accurately define online quality, except for the use of quality themes, were even more remote.

The results of the study present a variety of conceptions that are prevalent for the issue of quality in public online services. They can be utilised in elaborating the discussion around online quality, and in constructing or recognising the conception of quality concerning the online services of a certain service provider.

The quality themes addressed in this study particularly express both the characters of the Web as a service platform and the special obligations and features of public administration as a service provider. They involve valuable information on the nature of online services that should be acknowledged and applied in the development of public online services intended to be profitable and worth using.

PREFACE

With this Master's Thesis I complete my studies in the Master's Programme on Information Society started in autumn 2002 in the University of Tampere. My Thesis addresses the information society development from a point of view in which the use of the concept of quality and the need to develop public online services are conjoined. The question of what constitutes high-quality online services was the major source of inspiration and motivation in the study. Moreover, for me the exploration of this question provided an opportunity to acquire new, useful information on the field of my professional interests. This was an important goal that I had from the start posed for my Master's Thesis.

Another aim set beforehand was to accomplish the Thesis in a fairly rapid schedule. To fulfil this aim an intensive period of work was required from September 2003 to January 2004. This period involved many enjoyable and enlightening moments but also uncertainty and trouble. Luckily, I did not have to manage it all alone; I would like to thank Professor Ari Heinonen for his regular and insightful guidance, Professor Kaarle Nordenstreng for his contribution to the final stage of the work, Professor Ari-Veikko Anttiroiko for his valuable advice, Ms. Virginia Mattila for checking the language of the Thesis, and the Information Society Institute for financial support.

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1 INTRODUCTION

Like other actors in society, public administration aims to utilise the potential of the information society development in the best possible way. Consequently, more and more public services are provided on the Internet in addition to the conventional forms of service. The provision of online services, however, is still in its infancy, and the question of their actual benefits remains open. Basically, the potential benefit of the online services is most dependent on users and their interest in using the services available online. Hence, reaching the critical masses of users has become a real challenge for online service providers, and along with this the quality of the online services has come under the spotlight.

Indeed, quality is one of the terms popularly used in the discussion of what an ideal online service should be like. It is also a fashionable concept nowadays used indiscriminately in the most diverse contexts. In Finnish public administration the concept of quality has been used in connection with traditional forms of public services since the 1990s when the tools of quality management were adopted from the business sector.

In many countries, public administrations have in recent years created specific quality criteria for public online services to improve the level of quality of the services and to facilitate their assessment and comparison. In Finland, quality criteria for all Finnish public online services are being prepared at the time of writing this study.

Despite the topicality of the issue, research and discussion on the quality of public online services in Finland have been fragmentary. The concept of quality is still fairly new in the context of online services, and definitions of what 'online quality' truly means in public online services have not been evinced. One reason for this is perhaps the ambiguity and confusion that is typical for the use of the concept of quality: its meaning depends very much of the context and of the definer's point of view.

Inspired by this fact and by the general topicality of the issue, my aim in this study is to explore the various conceptions of quality in public online services. I also consider how the issue of quality is addressed in the Finnish context. The research is descriptive in nature. The research material consists of a selected group of studies, reports, and other

written documents on quality in public online services and – for the sake of comparison – also in other types of online services. The method of analysis is qualitative and quantitative content analysis.

The study begins with an examination of the conceptual background for the question of quality in public online services. There my aim is to ascertain the conditions from which this question has derived and to present the main factors that affect it. The key concepts of the study are also defined. The conceptual background is followed by a short review of the case of Finland, describing the development and the recent state of public online services in my country.

After that I present a more precise definition of my research task and explain how this task was realised. First, I describe how the research material was collected. Second, I present the material piece by piece, also aiming to familiarise the reader with different types of research made around the topic of online quality. After presenting the material, I introduce the method of analysis applied in the study and describe the progress of analysis in detail. Then I proceed towards a view of online quality by presenting the results of the study. Finally, I examine the value and the reliability of this view and assess the way of realisation of the study.

2 THE QUESTION OF QUALITY IN PUBLIC ONLINE SERVICES

The conceptual framework applied in this study includes four main issues. First, there is the role of *public administration* as a service provider. Online service production is one way for public administration to perform its duties, and it is affected by the laws and principles that govern all the actions of public organisations. Second, there are *public online services* as such, varying from simple information services to complete transaction services. Third, there is the online platform for services: *the Internet*, with an ever-growing role in society. As a platform for online services it has huge potential, but it also poses several challenges for the service providers and the users alike. Finally, there is the role of *quality* in public online services. Quality management has been applied in public organisations for some time now, but the issue of quality has only recently become topical also in public online services.

2.1 Public Administration as a Service Provider

What is special in public online services is that they are provided by public administration. To illustrate this feature, I now present an overview of what public administration and public services are about and describe some basic principles that govern all actions of public organisations – on the Internet and elsewhere.

Public administration can be defined as a multidimensional system of organisations constructed and maintained in society. Within the limits of legislation, public administration has a unilateral right to control the actions of the citizens (Määttä & Ojala 1999, 28). In this study public administration refers similarly to central, regional, and local administration.

Public administration exists because there are certain public functions that have to be taken care of. These functions can be divided into four groups which are: traditional public functions, administrative functions, infrastructural functions, and supply of individual services (Grönroos 1987, 20).

Traditional public functions are based on the general need of society, and they aim to secure the operation of society and the actions of public authorities. They involve for

instance defence, maintenance of law and order, and tax administration. *Administrative functions* typically include granting of licences, treatment of applications, and receipt of announcements. *Infrastructural functions* aim to ensure the physical conditions of operation in society, and s*upply of individual services* refers mainly to health, education and culture. (ibid.)

For citizens, the public functions usually appear in the form of public services, but not all of them, such as many of the traditional public functions. However, one may generally conclude that public services are the visible part of the public administration's work in carrying out the public functions. Furthermore, a central duty of public administration is to ensure that these basic services are available equally to all members of society (Määttä & Ojala 1999, 28).

The conception of what constitutes the public services varies in different contexts. The historical development, social and political values, and the role of the state are factors that in each country have influenced the understanding of the concept of public service (Krajewski 2001, 4). Grönroos (1987, 20) states that it is actually not very practical or even possible to unambiguously define what a public service is about.

In the Finnish context, the development of public services has been influenced by the ideas of the Nordic welfare state. Finnish society is characterised by an extensive service system maintained by the public sector. The responsibility for organising this system is divided between state and local administration. Two thirds of all public services are provided by local administration which takes care, for instance, of social and health care services, majority of education, and technical infrastructure. The services provided by state administration are usually of a collective nature: they are meant for all citizens irrespective of their place of residence. (Huuskonen, Ijäs & Lehtoranta 1997, 6–7.)

Public services differ from private services by being part of social policies and by being produced under political guidance. They are mainly based on laws and statutes, their amount is directed by regulations, and they are financed with taxes. (ibid., 7–9.) Moreover, public services often affect such matters that private business for one reason or another cannot properly deal with. This may be due to the inability of market

mechanisms to function in a way that benefits society as a whole or to the need for such large resources that only the public sector is able to provide. (Lillrank 1998, 89.)

On the other hand, the division between public and private services is no more as distinctive as it used to be since the production of public services has gradually moved closer to the policies of private markets, and the ways of producing public services have become more diverse. The alternative ways of production may nowadays include buying the service from a private company or privatising the service totally. (Huuskonen et al. 1997, 11–13.)

The variety of public services is wide. In fact, the complexity of public service delivery makes any classification of these services difficult (Taylor & Webster 1996, 6). Moreover, typologies of public services can be based on different grounds. The division proposed by Taylor and Webster (1996, 11) emphasises the notion of to whom and under which conditions the services are supplied. The division is the following:

- need services
- protective services
- amenity services
- facility services
- communication services
- utility services.

Need services are provided to all. Education, health, and social services are the main examples of these. *Protective services* can be described as national "public goods" provided for the security and safety of individuals and society. Use of these services by one person does not, in principle, affect the availability to others. Police and fire services are examples of these. *Amenity services* are regarded as local "public goods" provided to local communities to meet the individual needs of that community. Street lightning and parks are the examples. *Facility services* are local services available for individuals to use if they choose to. Libraries and leisure services are examples of these. *Communication services* are provided to safeguard democracy and citizenship at a local and national level. Examples of these services include voting mechanisms and the provision of information. Finally, there are *utility services*, which are key strategic services in a sense that the citizens could not reasonably do without them. The levels

and charges of these services are controlled by a regulatory body. Examples include water, waste management, energy and telecommunications. (ibid.)

As demonstrated, the nature of public services may vary a lot. A public service may be of a dominating or controlling nature or, on the other hand, a genuine service based on the desire of the customer. It may be a complete product delivered to a customer or produced during the interaction process between the customer and the provider. It may also consist of a simple routine or include complex individual service.[1] (Ala-Harja 1993, 29.)

However, there are some general features that characterise all kinds of public services. These features can be separated into those that concern service production and those that are related to the consumption of public services. The features concerning service production include coverage, reach, uniformity, and equity. The consumption of services is affected, for instance, by access, cost, fairness, usefulness, and trust in integrity. (Taylor & Webster 1996, 12.)

Moreover, as stated earlier, public services are affected by the prevailing legislation. One major principle that affects all the actions of public organisation is the principle of openness. It is a leading principle of public sector communication that refers to a process in which the public authorities receive, deliver and acquire information. The principle of openness means that all administrative documents are public – unless directed to the contrary by law – and available for every citizen. (Valtionhallinnon viestintä 2000-luvulla -työryhmä 2001, 1.)

In many countries, including Finland, this principle is prescribed in the law. The Act on the Openness of Government Activities entered into force in Finland in 1999 reforming the legislation on access to government activities. The aim of the reform was to increase the openness of government activities, to enhance the implementation of the principle of openness, and to improve the possibilities of the citizens to participate in the public

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[1] A service is a complicated phenomenon that is in general difficult to define. However, the definition by Grönroos aims to take into account as many as possible of the characteristics of services that are normally mentioned when defining them: "A service is an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between the customer and service employees and/or physical resources or good and/or systems of the service provider, which are provided as solutions to customer problems." (Grönroos 1990, 25–27.)

debate and thus to influence the management of common issues. (Ministry of Justice 1999.)

The new act means not only that the authorities have to ensure that documents central to their activity are easily available, but also that they have to actively produce information and publications on these activities. The authorities are obliged to ensure sufficient availability of this information by providing it, for instance, in libraries and on the Internet. The availability of such information creates a basic condition for the citizens to be able to freely form their opinion on public matters, to influence the exercise of public authority, and to protect their rights and interests. (Ministry of Justice 1999.) Thus, the fundamental aim of the principle of openness is to promote and realise democracy. The openness in government is also likely to enhance the reliance of the citizens to public administration (Valtionhallinnon viestintä 2000-luvulla –työryhmä 2001, 15).

Important legal provisions for the delivery of public services are also set out in the new Administrative Procedure Act that entered into force at the beginning of 2004. The new act aims to promote good administration and access to justice in administrative matters. It also aims to enhance the quality and productivity in public services. (Ministry of Justice 2003.)

The Act states fundamental principles for good administration that have not so far been included in the legislation. They emphasise especially the role of the customer in administrative processes. The principles include the requirements of equal treatment of customers and appropriateness of service and the duties to give necessary advice for customers and to use proper language. (ibid.)

In summary, public services form a large and diverse group of activities that derive from the functions of public administration. The production of these services can be organised in different ways, but public administration is ultimately responsible for financing the production. Public services are usually provided for all citizens and they are characterised by equal cost and access, legality and uniformity. The role of public administration as a service provider is affected by principles of law, and the principles of openness and good administration are among the most important of these.

2.2 Public Online Services

The information and communication technologies (ICTs) provide new opportunities for the production and distribution of public services. Many types of official business can be transacted online, and online versions of services may even be easier, quicker, and more convenient than traditional forms of service (Ministry of Finance 2004). A general definition of public online services is that they are *digital services that the public sector provides via the Internet to citizens, companies, communities, and governmental units* (Tietoyhteiskunta-asiain neuvottelukunta 2002a, 8)[2]. Here I consider how public online services are related to the issue of e-government, what types of public online services there exist, what is the supposed development process of these services, and what is the added value they provide.

2.2.1 E-government and Public Online Services

While this study addresses the services that public administration provides online, a brief discussion of *e-government* is also appropriate. This concept refers to the increasing and more strategic use of ICTs in the public sector (Grönlund 2002, 24). E-government has several dimensions related, for instance, to management, administrative processes, service production, politics and democracy (Anttiroiko 2002, 3). Its focus is typically on external services, but it also includes the internal use of ICTs in the public sector (Grönlund 2002, 24).

The definitions of e-government are many, but they usually include the following aspects of ICT use (Anttiroiko 2002, 3; Grönlund 2002, 24):

ICTs
- provide easier access to government information to citizens, organisations and business also making the interaction between these actors more effective.
- increase the quality of services, for instance by increased speed, process efficiency, and reduced expenses.

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[2] Correspondingly, 'online services' can be defined as digital services that are provided via the Internet to the customers. A 'Web site', on the other hand, refers to a collection of hypertext documents published on the Web. Thus, it is a more general term than online service. In this study, I use the term 'Web site' in the contexts where I refer to the documents published on the Web more generally and where the service aspect of the Web documents is not emphasised.

- give citizens new opportunities to participation and influencing – increasing democracy.
- make the internal operations in the public sector more efficient.

An example of an 'official' definition of e-government is the following, emphasising the interaction between citizens and government:

> *"E-government is a way for governments to use the new technologies to provide people with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in our democratic institutions and processes"* (Government of New Zealand 2000, 1).

In summary, the use of ICTs in the public sector aims to restructure operations and institutions, and to achieve more efficient processes, better service, and more democracy. However, the degree and the nature of these changes vary. (Grönlund 2002, 27.)

Public online services and e-government are sometimes used as synonyms. But as demonstrated above, in this study the term 'e-government' is considered to cover a more extensive area than just online service production. Anttiroiko notes that the core dimension in the discussion on e-government is in the administrative functions and the running of these functions. Thus, he concludes, online services are included in the discussion on e-government in the sense of how public sector should produce and organise these services to citizens and how these services should be developed. (Anttiroiko 2002, 7.)

2.2.2 Classification of Public Online Services

The variety of public online services is wide. Some public online services may be only of supplementary value, some are used to replace or reform traditional forms of services. Obviously, the online platform cannot be utilised in the provision of all kinds of public services but only of certain types of them. For instance, if one considers the classification of public services introduced by Taylor & Webster (1996) it may be noted that online services can be mainly arranged in the categories of need services, facility services, and especially that of communication services.

Those public services that public administration is able to provide online can be divided into three groups according to the main functions they serve. The groups are information services, communication services, and transaction services. (Taavila 2000; see also European Commission 1998, 8.) The three groups also characterise the different levels of the development of online services.

Online *information services* are broadly available. They offer information on the public organisations as well as on the services these organisations provide. Online information services are one way for public administration to practise the principle of openness, that is, to create the necessary conditions for the citizens to be able to participate and influence the social actions. (Taavila 2000, 30–35.) Although the Internet is not nearly available to anyone, online services are easily reachable for many who might not normally use the traditional channels of public sector information.

Online *communication services* include e-mail, posting lists, discussion boards and other online communication systems. Of these e-mail is most commonly available. Online communication services aim to promote the interaction between public administration and citizens. In a democratic society, the authorities are obliged to provide citizens with ways of sending feedback, questions, proposals, and comments on common affairs so that they can, for instance, participate public functions at a preparatory stage. Online communication services support this principle. (Taavila 2000, 41.) If not very many types of these services have yet gained success, sending e-mail has anyhow proved to be very successful as a communication channel between authorities and citizens.

Online *transaction services* enable citizens to perform various transactions online, such as to view data concerning them in the public administration systems, to print or fill out forms, or to follow the progress of their proposals or submissions. Today, electronic forms are still the most common area of transaction services. (Taavila 2000, 46–48; Asikainen, Oittinen, Paasikallio & Majava 2003, 75.) However, due to the problems in client identification and data security, even these are not operating in the best way (Asikainen et al. 2003, 75).

Consequently, transaction services in general are still the rarest of the three groups of public online services. The natural reason for this is that offering these services is difficult both in a technological and organisational sense (Anttiroiko 2003, 6).

In the following table (European Commission 1998, 8) the previous classification of public online services is further illustrated through examples of these services under three different themes which are everyday life, tele-administration, and political participation.

	Information Services	Communication Services	Transaction Services
Everyday life	Information on work, housing, education, health, transport etc.	Discussion for dedicated questions of everyday life	Ticket reservation, course registration
Tele-administration	Public service directory Guide to administrative procedures Public registers and databases	E-mail contact with public servants	Electronic submission of forms
Political Participation	Laws, political programme Background information in decision-making	Discussion on political issues E-mail contact with politicians	Referenda, elections, opinion polls

TABLE 1. Classification of Public Online Services (European Commission 1998, 8).

Altogether, public online services can be classified mainly from two slightly different points of view. One is to look the level of development of a service: Many online services only provide information on some public matter, whereas some enable the user to handle a whole transaction process or parts of it online. On the other hand, public online services can be distinguished according to their main functions. These two ways of classification lead partly to same results.

2.2.3 Development of Public Online Services

Various models for the development of public online services have been drafted. Kekki's (2000, 13) model is a moderate one. It describes what is assumed to be the typical development of public online services. Kekki has divided this development into

four generations of which – according to my interpretation – one is already passed, one is more or less prevalent in public online services at the moment of writing this study, one is partly within the reach of the present society, and one still mainly looming in the future.

The first generation in Kekki's model is more or less about passive presence on the Internet (ibid.). For most public online services this is already history, whereas the second generation that involves providing online forms, feedback systems, and development of service level (ibid.) seems to be the one where most of the public services find themselves now. The third generation is about having more and more two-way online communication with various interest groups and providing self-service options. Kekki notes that the shift to this generation requires quite a leap from the previous one. In the year 2000 only a few forerunner organisations had already moved to this generation. (ibid.)

Now, three or four years later, the number of these organisations is presumably greater but still not remarkable. Kekki (2000, 13) points out that within this generation for instance reliable identification is needed. Major changes are also needed in the operative systems and in the policies of the public organisations as the users become active parties in the internal service processes. The highly developed online services also demand that legal provisions and other norms are up-to-date and that the services have gained trust among the users. (ibid.)

Kekki does not even discuss the fourth, the most developed, generation of his model more deeply but only mentions some characteristics of it, such as citizen influence on decision-making processes, and interactive education (ibid.). This phase of development is typically characterised with the rise of the features of online democracy. This is illustrated also in the following Figure 1 (JUNA 2000). It presents a detailed view of the proposed development of e-government in Finland (referring mainly to the development of public online services).
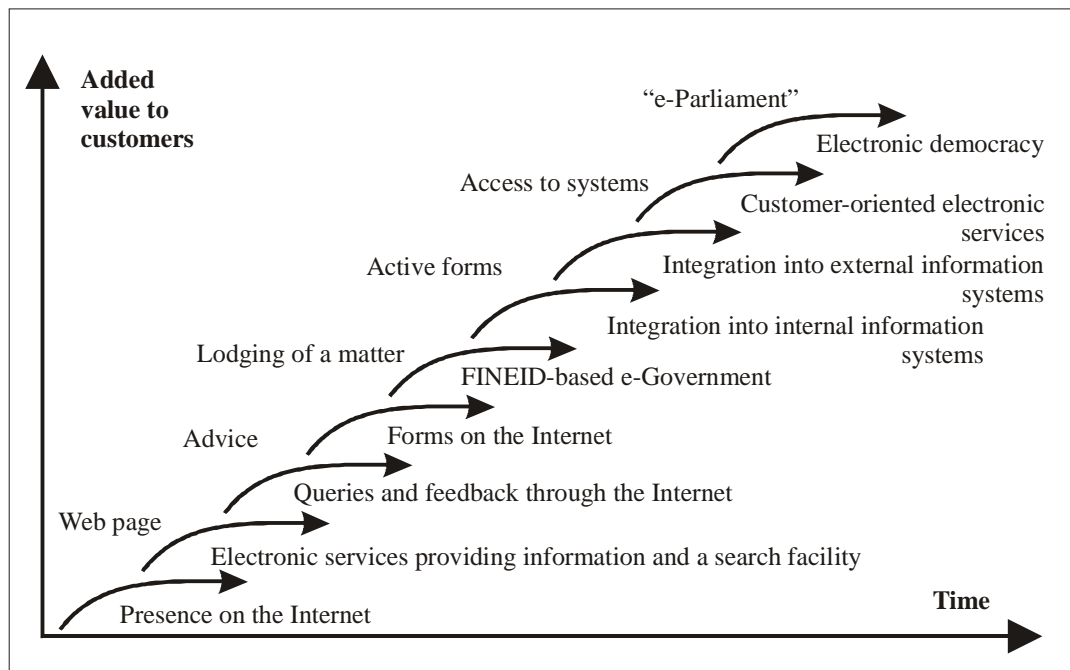
FIGURE 1. Creation of E-Government Step by Step (JUNA 2000).

In the higher stages of the development the production of online services calls for growing competence and responsibility from the service provider. For now, it is suggested that true advantages both for the customers and for the service providers are not acquired until the service processes have become digitalised and integrated into internal information systems, data security is verified, and 'online thinking' has become internalised in the general policies and management in the public sector. (JUNA 2001, 21.)

2.2.4 Added Value of Online Services

The basic motive for building public online services is in the added value these services can provide. On the basis of this value the customer may decide whether to use traditional public services available or to run one's errands online. The following list includes some of the main value added to online services (JUNA 2001, 21):

- Repeated performances and data input can be carried out as self-service.
- A certain level of service can be provided 24 hours and 7 days a week.
- There is geographical equality and reachability.
- There is almost limitless space for the material online.
- New customers can be reached.

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- New kinds of services can be provided.
- It is easy to keep the information up-to-date.

For users the public online services often mean saving the trouble, money, and time as the services can be reached from their own computers. They can also acquire better means for interaction and participation. (JUNA 2001, 21.)

From the provider's point of view, the establishment of public online services is decisively affected by the prevalent demographic factors. The Finnish population – like the people in other Western countries – is aging rapidly. This implies a growing need for more social and medical services while no increase in resources is in sight. Thus, there is a clear need for savings in other areas of government and for higher productivity overall. This is what the production of online services is aiming at. Light and efficient government is also mentioned as an important factor for national competitiveness. (Tietoyhteiskunta-asiain neuvottelukunta 2002a, 14.)

The implementation of online services is suggested to help the future situation in public sector because cost savings are likely to be acquired as many functions of civil service departments can be handled electronically, even as self-service. As the online services often put more responsibility on the user than before, resources are released on the side of the provider and they can be utilised in other areas, such as in more demanding, personal service of customers. (ibid.)

For the time being, it is still unsure whether the hopes of remarkable cost savings created by public online services will come true (Hintikka 2001, 19; see also Taavila 2000, 14). But again, the public sector does not have many choices. In addition to trying to find ways to keep the level of services adequate in the future, the public sector also has to be sort of a role model for other actors in society in building online services.

Indeed, it should be noted that the hope of cost savings and the need to prepare for shortage of employees cannot be regarded as the sole motives for public administration to develop online services. Another important aim is to adapt to the transformation that is caused by the information society development, and simultaneously to take full advantage of its potential. Online service production is also planned to improve the

quality of public services in general. (Tietoyhteiskunta-asiain neuvottelukunta 2002a, 14.)

2.2.5 Obstacles to the Success of Public Online Services

There are, however, many reasons why the success of public online services cannot be taken as self-evident. These reasons can be found both on the side of the service provider and that of the user. First of all, service providers in the public sector do not necessarily have the needed financial, technical, and human resources for building and maintaining online services. This affects especially the minor units in this sector. For instance, the issue of appropriate online data security calls for special efforts from the side of the service provider. Moreover, the potential volume of users is in general still likely to be too small in relation to the investments the public organisations have to make for online services. (Taavila 2000, 72–77.)

In fact, another serious question is how to reach the critical mass of users. This leads us to look the situation from the user's point of view. Why public online services are not used may be due to the user not knowing that they exist, not having the facilities to reach them, or being reluctant to use them because of extra costs (e.g. costs for acquiring an identification system or a new computer). The user may also lack the skills to use services provided online, or the online service may be too difficult or disagreeable to use even for those who are familiar with using the Internet. (ibid., 70–78; see also Korpela 2003.)

One way of removing these obstacles affecting the user's adoption of public online services, is to follow the so-called 5A principles created in the PROMISE project of the EU[3]. These principles are awareness, availability, accessibility, affordability, and appropriateness. They aim for the creation of such online services that are appropriate and usable for all kinds of users independent from the user's age, skills, or the place of residence. (Promise Consortium 1997.)

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[3] The PROMISE (PROMoting an Information Society for Everyone) project aims to encourage especially the inclusion of older people and disabled people in the information society by means of exchanging experience and examples of good practice in this area (Promise Consortium 1997).

Awareness refers to the user's knowledge of the existence of online services and of their potential. Availability concerns both the sufficient supply of online services and the necessary terminal equipment. Accessibility refers to the extent to which online services are designed to be accessible for all kinds of users, also those with disabilities. Affordability is a principle that aims to ensure that lack of income does not prevent the participation of those who would otherwise use the online services. Finally, the appropriateness of online services for certain purposes is very essential. It calls for user involvement in the design, development and evaluation of the services. (ibid.)

Indeed, these five principles offer a good view of what the provision of public online services should most probably be like to gain masses of users. Complete adherence to these, however, may prove to be difficult. At least at the moment of writing this study, these principles appear more like future ideals than something that can be automatically associated with the present supply and use of public online services – in spite of the fact that they were created already years ago.

In summary, the issue of public online services is still quite new. The range and the level of the online services that already exist vary a lot. In many public organisations the development of online services calls for extra resources that might not be available, whereas some organisations have been able to move in the vanguard of the development. The potential that is provided by the online service platform is a factor that in any case is likely to speed up the development also among those that at the moment have left behind. At any rate, for public administration the successful implementation of online services is critical as these services can help it to cope with the future problems caused by the ageing of a large group of the population.

2.3 The Online Service Platform

The Internet is a phenomenon that the general public gradually became to know during the 1990s. It has been the main driver of the technological change in the last decade and a dynamic that has touched almost every aspects of social life. Here I first briefly view the history of the Internet. Then I describe those characteristics of the Internet which constitute its communicative potential and also see what challenges it may pose for the service provider.

2.3.1 Development of the Internet

Online services are delivered on the Internet, which is a worldwide system of computer networks – a network of networks. Its origins lie in the work of the Advanced Research Projects Agency (ARPA) of the U.S. government who put the first computer network, ARPANET, online in 1969. The aim behind designing the network was that it could continue to function even if parts of it were destroyed in the event of a military attack or other disaster because messages could be routed in more than one direction. (Castells 2000, 45.)

Simultaneously, it was a network that allowed users of a research computer at one university to be able to contact with research computers at other universities. This action became very popular, and in the next few decades the network gained more and more users. In 1995, the growth of private corporate networks and non-profit, co-operative networks finally led to the full privatisation of the network, now called the Internet. (ibid., 45–46.)

However, by 1990 this network of networks was still somewhat difficult to use as there was a limited capability to transmit graphics and it was very hard to locate and retrieve information. A new technological invention, the World Wide Web (often abbreviated WWW or the Web), removed these obstacles by organising the content of the Internet rather by information than by location. It would also provide users with an easy search system to locate the needed information. Furthermore, the adoption of graphical Web browsers eventually allowed the diffusion of the Internet into mainstream society. (ibid., 46–50.)

Today, the Internet does not have any actual supervisory authority. It is a public facility accessible to hundreds of millions of people worldwide. It has gradually grown to be a central part of the infrastructure in developed societies, including Finland, and it has a powerful impact on the ways people communicate and acquire information.

2.3.2 Communicative Potential of the Internet

The success of the Internet is related to its various characteristics. Here I briefly review these. There are three elements that can be regarded as the technical basis of the Internet: digitalisation, networking, and computerisation. All information on the Internet is *digital*, neutral to the type of information and allowing the integration of various media elements, such as text, sound and images, within a common digital environment. *Networking* refers to the capacity of transferring contents via information networks. Being connected to the world-wide network opens huge communication possibilities to the users. *Computerisation* means that on the Internet the information processing, sending, and receiving is carried out with computers. (Heinonen 1999, 37–40; 2002, 163–167.)

The technical characteristics of the Internet lead further to various communication potential provided by the online environment. *Multimediality* is one of these, enabled by the digital form of online information. *Hyperlinking* is another one, referring to the capacity of the World Wide Web to link content elements to each other. It allows the creation of multi-layered online products. *Interactivity* is one of the most discussed features of the Internet. It is based on the networking characteristic of the Internet that makes the communication two-way traffic. Thus, the interactive feature of the Internet blurs the distinction between sender and receiver. (Heinonen 2002, 169–172.)

Extended time-span refers both to the real-time nature of the Internet as a communication tool and to the possibility for storing the online contents in online archives. Because the contents are stored, the users are also able to make searches of them. Furthermore, the real-time nature of the Internet means that the online information is easy to keep up-to-date. *Globality* is a generally known feature of the Internet referring to the potential of delivering and receiving online contents in a global scale. This has removed major obstacles of time and space of the global communication. (ibid., 171–173.)

Personalisation is a feature of the Internet that has not yet been utilised extensively. It refers to the potential of the networked media to provide certain kinds of products for certain users – in comparison to the traditional media where one product is produced for all. Another characteristic of the Internet that has not yet proved to be a very successful

is the potential of *multi-channel delivery* referring to the possibility for delivering online contents via various terminals and devices other than computer. For the time being this is not very common as only a part of the online contents is convenient to access with a mobile phone, just for instance. (ibid., 170–171.)

2.3.3 Challenges for the Online Service Provider

A major aspect where online services differ from other ways of providing services or publishing products is that in the online service production the producer lacks the control over how the final product will be viewed. This lack of control concerns various issues, including the presentation of the document and the ability to use the service. (Egan 2003, 5; Cunliffe 2000, 1.)

Reasons for the lack of control are in the diverse group of software and hardware available for the users. There are, for instance, a number of Web browsers and multiple versions of them, each having different capabilities. There are different kinds of monitors, which may be unable to display the page at the same size or using the same range of colours as the designer has aimed. Furthermore, there are great differences in Internet access speed among users, and the site may well be accessed from devices other than computers, which usually have their own limitations. (Egan 2003, 5; Mielonen & Hintikka 1998, 18.)

Another major challenge for the online service providers is posed by the diversity of capacities and skills among the users (Egan 2003, 5). This is an issue that especially concerns the public online services, which are basically meant for all. They should be accessible, in every sense, to individuals with varying understanding of computers, of the Internet, and of public administration.

Moreover, the lack of standard models in online service design is still a fact, and it is not making the situation for the service provider any easier (Mielonen & Hintikka 1998, 18). What should also be realised is that the material published on the Web is usually not a finished product but a dynamic, open-ended publication (Cunliffe 2000, 2). To answer the needs of the users and to respond to the changes in the technological environment, it should be made possible to change and renew the material without

major effort. Much alertness and attention are required from the service provider as the speed of development seems not to be remarkably slower in the future.

In summary, the Internet provides the users an online service platform that is reachable 24 hours a day and that is not affected by spatial limits. It also enables users to interact more easily with public authorities. The public authorities, on the other hand, have in the Internet a platform for services that has almost limitless space, that is easily updated, and that provides new kinds of features to be utilised in the service production, for instance, in terms of multimediality, hyperlinking, personalisation, and online archives.

In addition, the Internet also enables the public authorities to improve the two-way communication with the people, make government more open, and thus enhance the state of democracy in society. Yet, it is not clear if the potential of the Internet will ever be seriously utilised for this goal. I assume that the challenges concerning the development of all-accessible public online services are those issues that take the major attention of public administration at the moment of writing this study. If these are overcome, then the time may be right for real efforts to have more citizen participation and more open and democratic government with the help of online potential.

2.4 The Role of Quality in Public Online Services

'Quality' is a popular term in a wide range of contexts. Often its meaning is assumed rather than accurately defined. In this chapter I provide an overview of the different attempts made to define the concept of quality. I also describe its connection with public service production, and more accurately, with public online services.

2.4.1 Defining Quality

"*One of the most difficult tasks in studying quality is defining quality*" (Lindroos 1997, 831).

This is definitely true. The concept of quality can be understood and defined in many different ways. Typically, it has been used to refer to the correctness of a product, but obviously, this conception is no longer valid as nowadays the concept of quality can be

associated with all actions of an organisation. In fact, one can say that it simply no longer has unambiguous explanatory power. (Huuskonen 1997, 28.)

A generally acknowledged definition for quality (Ala-Harja 1993, 8) is the ISO 8402 definition, which determines quality as *the total features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs* (Huuskonen 1997, 28)[4]. This definition emphasises the fulfilment of promises given or presumed to have been given. In the context of this study, these promises can be taken to refer to the functions of the public administration and to the way in which these functions are expected to be taken care.

Other well-known definitions of quality are presented, for instance, by Crosby (1985, 59) who states that quality is "conformance to requirements" and Juran (1989, 15) who defines quality as "fitness for use". But inevitably, the meaning of the concept of quality depends on who is defining it and which point of view is taken.

However, among the definitions of quality Garvin (1998) has identified five popular approaches. First one is *transcendent* regarding quality as both absolute and universally recognised: as a mark of uncompromising standards and high achievement. The second approach is *product-based* viewing quality as a precise and measurable variable. Differences in quality thus reflect differences in the quantity of some ingredient or attribute possessed by a product. The third conception of quality is *user-based* implying that 'quality lies in the eyes of the beholder'. In this conception of quality individual consumers are assumed to have different wants and needs, and the goods that best satisfy their preferences are the ones they regard as having the highest quality. (ibid., 40–44.)

The fourth approach to quality is *manufacturing-based*. In this view the focus is on the supply side, and it is primarily concerned with engineering and manufacturing practices where quality is regarded as conformance to requirements. Finally, there is the *value-based* approach defining quality in terms of costs and prices. According to this view, a quality product is one that provides performance or conformance at an acceptable price or cost. (ibid., 44–46.)

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[4] ISO (International Organisation for Standardisation) is a non-governmental body promoting standardization developments globally. The ISO 9000 family of quality management standards has earned a global reputation as a basis for establishing quality management systems (ISO).

In addition to the general concept of quality, the term 'service quality' is commonly used. Obviously, it focuses on the quality of services, whereas the general concept of quality is used in the context of all kinds of issues. In the literature on service quality, the user-based view of quality is strongly emphasised. For instance, Grönroos (2000) states that service quality is always whatever the customer perceives it to be. (ibid., 63.)

According to Grönroos, the quality of a service from the point of view of the customers has two dimensions. One is technical and the other is functional. The technical dimension describes the outcome of the service: *what* the customer receivers in the service process. The functional dimension refers to the way in which the outcome of the process is transferred to the customer: *how* he or she receives the service. In addition to these two dimensions the total quality of the service is affected by the image that the customer has got on the service provider. (ibid., 63–65.)

Here the aim has been to provide an overall view of what the discussion and research around the popular concept of quality is typically about. In this occasion, it can be noted that the literature on this topic is surprisingly large and diverse. Definitions to capture the nature of quality are being made and lists of quality requirements are drafted. The question of what is quality remains still rather obscure because in the various contexts it can be understood in so many different ways. In this study, no definition of quality is put higher than another but the ground is left open to diverse conceptions of this subject.

2.4.2 Quality in Public Services

In the last few decades, quality management strategies have evolved into an issue that affects not only the economic actors in society but also public administrators and educational institutes (Valtiovarainministeriö 1998, 78).

It has been suggested that in the context of public administration the concept of quality should be considered in three different levels. First, there is the quality of working community, which refers to the internal quality of an organisation. Second, there is the level of quality that is directed out of the organisation and covers the collaboration between service provider and consumer, that is, between demand and supply. On this level the central factor is the demand referring to the needs of consumer/citizen. Third

level of quality in public administration is manifested in the relationship between society and its citizens. On this level the emphasis is on the quality of life on the citizens and on improving this quality. (ibid., 44.)

One may conclude that the delivery of public services is mainly related to the second and third levels of this description. Indeed, the quality of public services has been developed in Finland systematically since the 1990s by means of applying quality control (Ala-Harja & Salminen 2003, 21). Moreover, the factors of quality in public services have been analysed and a list representing quality characteristics of public services has been formed. Here are examples of them (Valtiovarainministeriö 1998, 27):

- availability of services
- legal protection and justice
- reliability and security
- independence and pertinence
- equal treatment of customers
- accuracy and topicality of information
- confidentiality.

The quality of public service provision has been examined for instance by Mäki & Sorri (1999). Their aim was to create an overall view of the development work of Finnish public services during the 1990s and of the quality and competitiveness of these services in the end of the same decade. Their study indicates that in general the competition potential of the public services is fairly good. However, a major problem is that although high-quality work and improving quality are considered important, the officials in public service units feel that there often is simply no time to concentrate on this aspect. Furthermore, on the basis of the results of the study, Mäki & Sorri emphasise that the heterogeneity of public service units must be taken into consideration when developing the quality and the competitiveness of public services. (ibid., 9.)

In Finland the quality evaluation of public services does not yet concern online services, but the need for online quality evaluation and quality criteria is recognised. The official initiative for developing the issue was made in the end of the year 2001 in the

Programme of Action to Promote Online Government 2002–2003 prepared by the Information Society Advisory Board. (Tietoyhteiskunta-asian neuvottelukunta 2002a.)

At the time of writing this study, the Finnish Ministry of Finance is carrying out this initiative. Criteria for quality evaluation of public online services are being prepared, and a quality competition for public online services is being planned. (Ala-Harja & Salminen 2003.) The idea is to combine the quality evaluation of traditional public services with the special requirements posed by the Internet as a service platform (ibid., 23).

Altogether, the role of the issue of quality in Finnish public online services is not yet established, but it is constantly evolving. On the one hand, this is due to the policies of quality management adopted in public administration. On the other hand, the implementation of the concept of quality in public online services implies the realised need to improve the general level of the online service delivery.

2.5 Summary of the Conceptual Framework

Above, I have discussed four main issues: the role of public administration providing services, public online services as such, the Internet as a service platform, and the role of quality in the context of public services. These issues complement each other in the following ways:

- The principles and functions governing the actions of public administration influence the types and contents of public online services.

- Inevitably, the characteristics of the Internet largely determine the concept of online quality also in the context of public online services.

- Simultaneously, the characteristics of the online service platform make it rather different from the platforms of traditional services. This implies for the need to introduce new conceptions of quality.

- The potential of the Internet as a service platform is suggested to give public administration better ability to follow its duties in a more open way – for the citizens' benefit.

- The production of public online services is also suggested to improve the state of public service quality in general as the availability of services enhances and certain resources can be moved to those traditional forms of services where they are really needed.

Not all the aspects presented in this list will be thoroughly examined in this study. The focus of the study is on the question of how quality can be viewed in the context of public online services. The four issues discussed above construct the needed basis for the exploration of this topic: the special characteristics of public administration as a service provider together with the characteristics of the Internet as an online service platform build a framework through which I view the main object of interest: quality in public online services.

3 PUBLIC ONLINE SERVICES IN FINLAND

To illustrate the significance of the question of quality in public online services and to exemplify the area of the topic, I now have a brief look on Finnish public online services specifically. First, I view the policy directions that have affected the development of these services and then describe how the services have progressed in the last few years and what is the present provision of public online services in Finland.

3.1 Underlying Policy Directions

A general framework for the use of ICTs in the Finnish public sector has been laid down in the national Finnish information society strategies of which the first one was published in 1995 and the second one in 1998. Along with the general aims of improving the use of ICTs in Finnish society, these strategies included the aim of developing public online services.

However, a policy document that really started the progress in this field was the Government decision on online services and paperwork reduction in 1998 (Taavila 2000, 13) that formed a basis for the development of public online service production. The following step after this decision was the Act on Electronic Service in the Administration that entered into force in 2000 aiming to enhance the smoothness and rapidity of the service in public administration, and to improve data security by promoting the use of electronic data interchange[5]. (Oikeusministeriö 1999.)

Other important policy goals were set in the programme of Lipponen's second government in 1999 and in the strategy documents of the Association of Finnish Local and Regional Authorities in 2000 and 2001. For the part of public online services, the following goals set in these documents are of particular relevance (Tietoyhteiskunta-asioiden neuvottelukunta 2002a):

- more effective and transparent public sector processes
- better regional balance in the dissemination of information society services

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[5] The act was reformed in 2003. There were no major changes, but for instance the scope of application of the law is now broader. (Oikeusministeriö 2003.)

- establishment of service strategies and quality policies in each administrative branch
- "one-stop shopping" and "self-service government" via generic service interfaces.

The most recent policy document concerning the development of Finnish public online services is the information society programme of the present Government published in September 2003. This programme proposes the ways in which the Government wishes to promote the information society development in Finland. Moving services online is named as one of these ways. The aim is to provide more and more services online and to concentrate to the customer-orientation, ease of use, and data security of these services. (Valtioneuvosto 2003.)

In addition to the national policy directions, there are also EU directions that the public administration in Finland is bound to follow. Of these the eEurope 2002 and 2005 Action Plans are most important. The Action Plan 2002 had three main objectives: to provide cheaper, faster and secure Internet access for all citizens in EU Member Countries, to invest in people and skills in the digital age, and to stimulate the use of the Internet. The last objective also included the aim of providing online access to public services. (Council of the European Union & Commission of the European Communities 2000.)

The Action Plan 2005 continues to work with the same goals. The key targets under this plan are, for instance, to continue bringing interactive public services online, to address the gaps that exist in Internet use among different groups and regions, and to encourage and support the move to high-speed broadband connectivity. (Commission of the European Communities 2002.)

In summary, after the end of the 1990s the development of public online services in Finland has been consistently directed with various national and EU policy documents. Although the detailed aims of these documents vary, the general goal is evident: to make the online distribution of public services more extensive and versatile. In the latest policy documents also the quality of services is emphasised.

3.2 Development and Present State of Public Online Services

Let us now go several years back in time to see what actually has happened around the public online services. After the government decision in 1998, real development work for public online services started in Finland. There was much enthusiasm in the air, and numerous development projects for public online services were set. However, the progress was not so easy and fast as it was expected to be. For example, at the turn of the century, Finland was first in the world to launch the electronic ID card, but actually the implementation of the card was a disappointment as the integration of the ID card applications into existing systems proved to be difficult. (Tietoyhteiskunta-asiain neuvottelukunta 2002a, 9–10.)

After the first enthusiastic years the speed of development has been somewhat moderate. In fact, in the Programme of Action to Promote Online Government that was composed in the end of the year 2001, it was estimated that truly comprehensive online service provision is still five to ten years away. (ibid., 10.)

The National Information Society Board has evaluated how the goals of the Lipponen's second government (1999–2003) have come true regarding the public online services. According to the evaluation report, the amount of public online services that the state administration provides for private companies has increased a lot, whereas the services designed for citizens are still few. One reason for this is evinced: it is the slowness of actions on the administration side. It is also noted that in the amount and quality of online services provided by local governments there is remarkable variation. Furthermore, the use of identification systems has still not progressed in the desired way. (Tietoyhteiskunta-asiain neuvottelukunta 2002b, 48.)

What is the provision of public online services at the moment of writing this study? Unfortunately, the most recent information on this provision describes the situation in the year 2002. The review on ICT within the Government of Finland, which is published annually by the Ministry of Finance, describes the use of ICT in the state administration. According to the review, almost every organisation (90 %) in the Finnish state administration has a Web site. Online forms are provided by three quarters of these organisations, which is a larger amount than in the year 2001 (64 %). Over a third of the organisations provide an online transaction service, but an identification

method based in Public Key Infrastructure (PKI) is in use only in every tenth organisation. Online payment and mobile services are provided nearly as rarely. (Valtiovarainministeriö 2003a, 28–29.) However, as for these services, it should be remembered that many of the organisations do not even have the need to implement them.

Examples of the best practices in the online services of state administration are also named in the review. One example is the online law database Finlex, and another is the online service provided by the Ministry of Labour on vacant jobs and education facilities. More recent services that have gain success among the users in the year 2002 are the national portal Suomi.fi and the portal for online forms, Lomake.fi. (ibid., 17.)

What about local administration? In autumn 2003, only three of the 442 Finnish local authorities *did not* have their own Web site (Suomen Kuntaliitto 2003). In 2002, 13 % of those who had an own Web site had also online transaction services available on the site. Most of these were in library services. Electronic forms were provided by nearly two thirds of local authorities. (Aho 2003.)

In summary, the development of public online services in Finland has made decent progress. The availability of basic online services is quite extensive and also the minor units of public organisations are catching up the speed of the development. However, problems are still posed for instance by the issue of identification in which experiences are few. [6]

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[6] For more detailed information both on the underlying policies in the development of Finnish public online services and on the recent state of these services see the study "E-government in Finland" published by OECD in 2003 (OECDa 2003).

4 DEFINITION OF THE RESEARCH TASK

The aim of this study is to explore the conceptions of quality in the context of public online services. To realise this exploration I have collected research material consisting of selected studies, reports, and other relevant documents treating online quality. Two thirds of the material concerns public online services. One third is related to other, more general aspects of online quality. This minor part of the research material has two functions. First, it gives a general view of the academic research on online quality issues. Second, it serves as a comparative material for the quality studies of public online services.

The underlying aim of the study is to clarify the grounds for the discussion of quality in public online services, and to produce background information for the quality criteria for Finnish public online services that will be published in the winter 2004. A more specific aim is to find answers to the following research questions:

1. How is the concept of quality defined in the context of online services?

2. What are the main themes of online quality used in characterising public online services and other online services, and what are those that are typical only for public online services?

3. What do the quality themes include, and what makes them significant?

4. How is quality in public online services defined and the quality themes taken into account in the material on Finnish public online services?

The word 'theme' is applied here to describe the most visible and most remarkable topics of discussion in the documents on online quality. Altogether, the research questions are formulated to shed light over the various aspects and approaches that can be taken to quality in public online services. Simultaneously, they will be used to ascertain why some approach or aspect is taken, and to build concrete description on the characteristics that a high-quality online service should have. The last research question (4) is intended to address the topicality of this issue in Finland. In the methods section I give a more accurate account on how the research questions were formed and describe the method that is used to find the answers to these questions.

5 COLLECTION OF DATA

The study is based on secondary data. At one phase of the research process it became apparent that this kind of data would best serve the objectives I had set for the study. Although I have not had to go through the various phases of collecting empirical data, the process of collecting material for this study was eventful and also demanding. Here I describe this process in detail: first the different phases of the data collection and then the search methods involved.

5.1 Phases of Data Collection

I started looking for background material for my thesis in spring 2003. At that point I only knew that the topic of the thesis would be online quality; not specifically public online services. Thus, when collecting the material, I was interested in any aspects of online quality.

The basic selection criteria for the material was simple: the aim was to find scientific studies, reports, and other potential documents about online quality or the question of what an ideal online service should be like. Thus, the occurrence of the concept of quality in a document was not essential because I did not wish to stick in the mere use of this word.

At the end of the summer 2003, when I started to work with the planning of my thesis again, I soon made the decision to focus only on the quality of public online services because some kind of a limitation had to be made and this seemed to be a clear and reasonable one. However, I was still collecting the material only to widening my understanding about the topic and for preparing the framework for the study.

It was not until later in the autumn that I realised it would be most interesting to make a more theoretical study of the topic and to use the studies on online quality as research material. How did I end up with this conclusion? I have not documented this phase of my thesis planning, but I assume that reading the studies that dealt with the different aspects of online quality gave me the basic impulse for undertaking this kind of approach. Moreover, I had already found out that theoretical discussion in this field was

not too common – thus, it was something worth trying. I also thought that doing a theoretical work would be a meaningful way to contribute to the ongoing discussion on Finnish quality criteria for public online services.

When I had made my decision of a theoretical approach, I had to concentrate more seriously on finding material that would specifically deal with the conceptions of quality in public online services. I had already earlier found the central Finnish documents on the issue, but international research on the quality of public online services proved to be hard to find.

After having further intensified my search and having got pieces of advice from elsewhere I managed to find several studies that helped me again to track down new ones. As a result, I had a satisfactory amount of material (thirty-six documents) that in my mind included adequate samples of three areas of studies in this field: those treating quality of Finnish public online services, those that concerned the quality of public online services internationally or in other countries than Finland, and those that dealt with online quality more generally. In my estimation, this amount of material would provide a relevant understanding on the object of my study. Due to the nature of the study, the material did not even aim to be an all-exhaustive sample of all of the studies made on the area.

5.2 Search Methods

When searching for Finnish research material, I used mainly library databases, article database ARTO, thesis databases of several universities, government Web sites and Web search engines. In the search of international material I also used library databases and search engines, but the relevant material was mainly found in various online article databases, such as EBSCOhost, ScienceDirect, and Emerald Library.

The search words that I most commonly used can be divided into the following thematic groups:

- online quality, Web quality, Web site quality, e-service quality, e-government quality, high-quality, successful, Web site success

- quality criteria, quality assessment, quality evaluation, Web site evaluation, assessment criteria, quality factor
- online service, e-service, electronic service, Web site, Web, Internet
- public online services, public services, e-government, electronic government, online government, government, public sector, public administration

Various combinations of these words were used in the search. Furthermore, a few clues for relevant material were adopted from the online working environment of the project "Quality criteria for Public Online Services", conducted by the Finnish Ministry of Finance and carried out by the TietoEnator company, which was preparing the new quality criteria for Finnish public online services. This online environment was also the source where I got the information on the criteria that was under development.

In summary, the process of collecting data for this study was started as a collection of background literature about the topic. In autumn 2003, when the research task was more narrowly defined, I made the decision to use the literature as actual research material for my study as this choice seemed to be both rational and inspiring. The pieces of material were mainly found online, although online and offline resources were equally searched. I assume that the large amount of online material is due to the topic of the study, which is a current one and typically examined in the disciplines where online publishing has become common.

6 ONLINE QUALITY AS AN OBJECT OF STUDY

The research material used in this study consists of written documents that treat online quality[7]. Most of these are academic articles produced by individual researchers, and reports and guidelines produced by the public sector. Here I present the material in three sections. First, I make a broad review on academic research related to online quality; this research is most typically focused on e-commerce. Second, I present international reports and studies concerning the quality of public online services. Finally, I introduce the material related to the quality of Finnish public online services.

6.1 New Area of Interest

As the significance of online services has increased, so has the need to assess factors associated with online success. In the field of academic research this need has quite recently given rise to a great variety of studies concerning the requirements of a successful Web site or service. The concept of quality has been adopted to describe the level in which these requirements are met.

There are many terms researchers use to describe the object of this field of study. *Online quality* is the term I have decided to use because it is clear and concise. It might as well be e-service quality, Web quality, or Web site quality. Furthermore, some researchers talk about success, effectiveness, or performance of Web sites. I would argue that often the basic aim of all these studies is more or less the same: to find out what are the elements of a successful Web site in a certain context.

Indeed, the studies related to online quality usually consider the elements of quality in a certain context, usually from the point of view of a certain category of Web sites. Obviously, this implies the researchers generally acknowledging that there is hardly a chance to name such elements of quality that would in a satisfactory manner apply to all the material published on the Web.

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[7] A separate list of the research material is enclosed as an appendix (Appendix 1). The numbers in the list indicate the position of the documents in the matrix (Appendix 2) that was produced during the process of analysis.

Online quality is a multidisciplinary area of study – such as the Web itself. There are, for instance, technical, marketing-related, communicational, educational, and informational interests for online quality that all are justified. Yet most of the online quality studies are made in the field of marketing and computer science.

6.2 Online Quality Studies

To illustrate what the studies of online quality are typically about, I first introduce the part of the research material that is not particularly concerned with the quality of public online services but with other, more general aspects of online quality. I first distinguish the chosen studies on the basis of the category of Web sites they concern, and then proceed to analyse some other characteristics and distinctions they involve.

A wide range of studies concerning the elements of quality of *commercial* Web sites is available. The following studies are examples of these. Cox & Dale (2002) identified the key quality factors in the design and use of commercial Web sites. The factors are found in four main areas: ease of use, customer confidence, online resources, and relationship services. On the basis of the quality factors, a conceptual model was developed to assess how a Web site can deliver what its users expect.

Liu & Arnett (2000) also assessed the factors associated with Web site success, and concluded that the factors critical in this sense are found in the areas of information and system quality, system use, playfulness, and system design quality. Evans & King (1999) examined the opportunities and obstacles typical for business-to-business sites, and introduced a detailed assessment tool for these sites.

Aladwani & Palvia (2002) developed an instrument that aims to capture the key characteristics of Web site quality from the user's perspective. The 25-item instrument measures four dimensions of Web quality: specific content, content quality, appearance, and technical adequacy. The researchers also made a considerable effort to present different approaches made to the question of online quality.

Cox & Dale (2001) and Santos (2003) concentrated on the service aspect of online quality: Cox & Dale examined which of the quality characteristics identified in a

traditional (physical) service environment would apply to the assessment of e-commerce. Santos proposed a model of the determinants of e-service quality. The model has two dimensions: The incubative dimension concerns ease of use, appearance, linkage, structure, layout and content. The active dimension consists of reliability, efficiency, support, communication, security, and incentives.

Another category of Web sites analysed in terms of online quality are *academic* Web sites. Olsina, Godoy, Lafuente & Rossi (1999) specified from an engineering point of view a large amount of quality attributes for the domain of academic sites. These attributes formed a basis for a proposed 'Website Quality Evaluation Method' (QEM), which includes quantitative evaluation, comparison, and ranking process of academic Web sites (ibid.).

Buenadicha, Chamorro, Gonzáles & Miranda (2001) made a more simple approach to the subject in their analysis on Spanish university Web sites. They introduced a Web Assessment Index (WAI) based on four categories: site content, speed, accessibility, and navigability. Their aim was to make the assessment as objective as possible – they argue that many other existing assessment models employ subjective factors – and to use only a few but highly relevant characteristics of the sample to be analysed, instead of excess of attributes (ibid., 2).

Academic research on online quality elements has also been made concerning *e-learning* environments. In Hypermedia Laboratory of the Tampere University of Technology a detailed evaluation method, ARVO, has been created to support the development work of online learning environments. In ARVO the online learning environments are evaluated from the points of view of usability, pedagogic usability, graphic design, accessibility, and technical implementation. (ARVO 2003.)

Finally, numerous studies concerning the quality of online information are available. For instance, the study by Dragulanescu (2002) presents criteria for assessing Web sites from the aspect of information quality. The criteria include both those features that are very typical in this area of study (accuracy, authority, coverage, currency, objectivity) and some other features (density, interactivity, promptness) that make the criteria even more eligible.

One remarkable distinction in the studies concerning online quality is seen in how the elements of quality are discovered, and how it is argued that they represent quality. There are mainly two methods used for this. First consults earlier studies, other relevant literature, and existing authoritative criteria. The use of these sources varies in style. For instance, the sources can be used as a strong reference for the quality elements chosen for the study (e.g. ARVO 2003; Cox & Dale 2002), or not more than as casual remarks to support the writer's view of what is quality online (e.g. Buenadicha et al. 2001).

The second method is to consult experts of the area of study. For instance, Aladwani & Palvia (2002) consulted fellow scholars, and Liu & Arnett (2000) made a survey of webmasters. In both cases, a preliminary list of quality elements was prepared on the basis of the relevant literature before consultation, and the list was assessed by the experts using various methods depending on the study. The results of the assessment were analysed and the final list of quality elements formed.

Furthermore, another distinction on the studies on online quality concerns their actual focus. There are studies that focus on developing a practical and flexible quality assessment tool (e.g. Aladwani & Palvia 2002) whereas others (e.g. Olsina et al. 1999) concentrate heavily on making an inclusive list of elements that should be included in the evaluation.

In summary, here I have introduced a group of studies that treat the question of online quality from several perspectives. Altogether, the amount of research on online quality is not too large. The lack of relevant research – referring both to the quantity and quality of studies – is actually mentioned by several researchers (Santos 2003; Aladwani & Palvia 2002; Buenadicha et al. 2001; Liu & Arnett 2000). The reason for the lack of research may well be in the recent rise of this area of study, but it might also be due to the complexity and ambiguity of online quality as an object of study.

6.3 Studies on the Quality of Public Online Services

The material presented in this section is roughly divided into two categories. First, there is a diverse group of studies that involve a case evaluation of public online services and that include a more or less accurate quality criteria used in the evaluation. Second, there

are pieces of material that present quality criteria or quality guidelines for a certain type of public online services or for the public online services of a certain country, but that do not directly involve a case evaluation.

The evaluation studies in the first category sometimes concern only certain aspects of quality. Examples of those are the two studies made by the Accenture company in 2000 and 2001. In these studies Accenture evaluated the level of service quality of public online services in different countries around the world.

In the first study, "Implementing eGovernment – Rhetoric and Reality", Accenture tested the level of e-Government activity across 20 countries to find out how the rhetoric of online services is matching the reality (Jupp 2000). It was found that although the political leaders were increasingly commenting on the merits of online government, this was not yet translating into action. Many agencies were only beginning to understand the potential of online environment and the online needs and expectations of their citizens. At this point, the focus of online presence was in publishing information on the Internet, and only a few government agencies had ventured beyond the publishing phase into providing interact or transact capabilities. (ibid., 1–2.)

In the other study "Rhetoric vs. Reality – Closing the Gap" Accenture revisited the research approach described above, now examining the breadth and depth and the delivery of national government services available online. The evaluation criteria in this study were further developed from that used in the previous study. The aim was to find out what actions national governments have taken to turn their visions of online services into reality, and to create an overview of the maturity of these services at the time. (Hunter & Jupp 2001, 2.)

The results of this second evaluation study indicated that the reality of public online services was catching up with the rhetoric. The governments were found to be moving up the maturity curve of online services – some slower, others faster – but they would still have a long way to travel to reach full online maturity enabling the citizens to complete entire transactions with government online. (ibid., 8–12.)

Another example of a case evaluation of public online services is the study by Stowers (2002) on the condition of federal Web sites of the United States. In the study 148 major federal Web sites were examined to identify certain features these sites should possess. These features included the delivery of effective online services and information, effective information architecture, user help and service navigation tools, and features that lend legitimacy and credibility to the site and accessibility for those individuals with disabilities. (Stowers 2002, 6.)

These particular features were chosen because they were considered to be those that can best bridge the "other digital divide". Stowers describes this other digital divide as a gap between those who not only have the ability and facility to contact government online but who understand enough about it to be able to sort their way through a perhaps poorly designed government Web site, and those who not only have less access to the Internet but also understand less about the agencies whose Web sites they are visiting. (ibid., 11.)

The results of the study indicate that most of the analysed federal sites provide the needed basic information, communication with officials, several important user help features, and service navigation features. Frequently found features that lend credibility and legitimacy to sites included privacy policies and visible contact information. However, the analysis of accessibility resulted in the most alarming findings, for of the Web sites analysed only 13.5 percent were found to be fully accessible. (ibid., 6.)

The study by Gant, Gant & Johnson (2002) focused on the state Web sites in the United States. The aim of the study was to examine how state governments use Web portals to enhance electronic service delivery (ibid., 6). More specifically, the objectives were to assess the level of functionality for each of the state Web portals and to provide a benchmark by which future developments in e-service could be judged. The level of functionality was evaluated along four dimensions – openness, customisation, usability, and transparency – which were considered to together represent the key aspects of a portal's functionality. (ibid., 8.)

On the basis of the results, some general recommendations were made. More attention should be paid to the customer service. Online services should be organised rather by event than by the governmental structure. Customised views should be provided as

these are one of the key benefits of web portals. The diversity of the portal users should be recognised so that all people could have the ability to use the services provided and finally, the features that enhance the legitimacy of the portal should be included because the portal visitors will not necessarily feel an automatic trust in the accuracy of portal content or the validity of transactions performed through the portal. (ibid., 7.)

The case study by Ferber et al. (2002) on state legislature Web sites of the United States involves only a certain type of public online services. For the evaluation of these sites they wanted to design an instrument that would not only count certain features occurring in the sites but also represent the variation in quality of the components analysed. Eventually, the created instrument was based on five components: content, usability, interactivity, transparency, and audience. (ibid., 9–11.)

The results of the evaluation revealed a wide range in quality. The greatest variation between sites was in usability, and the item in which it was generally most difficult to receive a high score was interactivity. The index of the state scores was found to be correlated with various political and demographic characteristics of the states. For instance, the level of quality of legislative Web sites was found to be positively associated with Internet access, income and education, voting participation, and the amount (per capita) of legislative staff. (Ferber et al. 2002.)

I shall now gradually move on to introduce the pieces of material that concentrate rather on presenting quality criteria or guidelines designed for a certain public online services than on carrying out a case evaluation.

The Congress Online Project (2002), also in the United States, aims to provide congressional offices with guidance on improving the online communications between Members of Congress and the public they serve. In the report "Congress Online – Assessing and Improving Capitol Hill Web Sites" the project researchers introduced five elements that they thought to be most critical to building effective Web sites. These elements were audience, content, interactivity, usability, and innovations. In the report they also identified and awarded the specific congressional Web sites that were currently most effectively applying these elements or *building blocks* as they call them.

The Cyberspace Policy Research Group studied the diffusion and the use of World Wide Web in the governments worldwide, particularly in terms of organisational openness and internal effectiveness. The group has developed a Website Attribute Evaluation System (WAES) that measures and evaluates openness according to transparency and interactivity. Transparency concerns the organisation's effort to make information available to its users, and interactivity refers to how easy it is for visitors to use the information available on the Web site. Both of these areas of evaluation are further divided into several categories. (Demchak, Friis & La Porte 2000; Cyberspace Policy Research Group 2001.)

A working group of MINERVA, which is a network of EU Member States' ministries to discuss, correlate and harmonise activities carried out in digitisation of cultural and scientific content, has created quality criteria for public cultural Web applications. These applications include every Web application where the content deals with cultural and scientific heritage and which is supplying and spreading cultural and scientific information and existing as an instrument for education and scientific research. (Minerva Working Group 5 2003.) The criteria can be used at the difference stages of development of a cultural Web site, for instance, when developing a new site or measuring the quality of a project under development in order to improve weak components (Feliciati 2003).

The quality criteria are composed of two parts which are basic and specific criteria. The basic criteria are synthesis that is built according to the widely accepted conceptions of online quality. (Feliciati 2003.) It includes two major characteristics: accessibility and usability (Minerva Working Group 5 2003). The specific criteria are required because of the specificities of different types of cultural Web sites. These types include, for instance, museums, archives and libraries. The specific criteria for each type of site descend from the agreement between the goals set for the entity that is producing the Web site and between the users' needs. (Feliciati 2003.)

Scottish Health on the Web (SHOW), a project of National Health System in United Kingdom, has produced a document called "SHOW Style Guide and Quality Assurance Standards" that outlines a number of recommendations and proposed standards for Web sites appearing on the SHOW network. These guidelines cover mainly the structure and the presentation of a Web site. (Scottish Health on the Web 2003.)

In many countries around the world, quality guidelines, assessment criteria and assessment practices have been developed by public administration for the purpose of improving the quality of public online services. Here I briefly present examples of these.

Bedst på Nettet or "Top of the Web" is the Danish set of assessment criteria and the system applied in the annual assessment of public online services[8]. It was established to inspire government institutions to improve the quality of service they provide to citizens, presuming that hardly any public institution would like to rank in the bottom of the evaluation. In the Top of the Web evaluation, a series of criteria has been compiled to define the supposed characteristics of a high-quality public online service. The evaluation is based on three categories: user-friendliness, practical value and openness. (Bedst på nettet.)

Furthermore, the criteria established in Bedst på Nettet are also applied in the European Commission's benchmark of the use and quality of public government online services. The purpose of the benchmark is to enable EU Member States and Norway, Iceland, and Switzerland to compare performance and identify best practices in the field of public online services. The benchmark is running from January 2003 until July 2004. (Top of the Web.)

In the Netherlands, there is also an annual assessment organised of the content and quality of public online services[9]. The evaluation is carried out with the help of a broad checklist, and it is based on four main categories. These are user-friendliness, administrative information, serviceability, and citizen participation. (Asikainen et al. 2003, 61.)

In the United Kingdom, the Office of the e-Envoy provides a handbook for public sector Web management teams. The handbook includes a variety of guidelines for public online services. These guidelines aim to show the way to online services that are of a high quality, easy to use, inclusive, and that present a coherent impression of

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[8] To obtain detailed information of the contents of the Danish criteria I had to use a secondary Finnish resource: Asikainen et al. 2003.

[9] All the information that I have on the Dutch criteria is based on a secondary Finnish resource: Asikainen et al. 2003. No English information on the criteria was available.

government activity. The guidelines stress the need for accessibility, usability, economy for the users, and the minimum requirements for content including the need to comply with some cross-government policies on information. (Office of the e-Envoy 2002.)

In Canada, a set of guidelines and standards called "Common Look and Feel Standards" (CLF) are developed for public online services to also enable the internal auto-assessment and improvement of these service by public agencies and authorities. The bold purpose of the CLF is to ensure that all Canadians, regardless of ability, geographic location, or demographic category are given equal access to information on governmental Web sites. The standards are organised in seven categories, which are accessibility, collaborative arrangements, cybersquatting, e-mail, important notices, navigation and format, and official languages. (Treasury Board of Canada Secretariat 2001.) A broader set of guidelines is presented in the Government of Canada Internet Guide (Treasury Board of Canada Secretariat 2002). In the case of Canada both this guide and the Common Look and Feel Standards are taken into account in my analysis.

The Swedish approach to the quality development of public online services is called *24-timmarswebben*. The name refers to those public agencies that provide service 24 hours a day and 7 days a week on the Web. The development work for 24-timmarswebben is carried out by the Swedish Agency for Administrative Development, and the idea is that a 24x7 agency provides the service of same quality regardless of where in Sweden the service is used. (Statskontoret 2002.)

24-timmarswebben provides a handbook for building and developing this kind of online agency. The handbook consists of three parts. First, there is *24-timmarstrappan* – four steps, each describing one stage of development in becoming a full-service online agency. Second, there are guidelines for appearance and functionality and finally, instructions for how to create fully accessible online services. (Statskontoret 2002.)

Altogether, the part of the material introduced above represents a very heterogeneous group of documents dealing with the quality of public online services. These documents present a view of the desired characteristics of various types of Web sites provided by a public organisation. The accuracy and the depth of this view may vary a lot, but in all of these documents certain elements are named to represent online quality.

6.4 Studies on the Quality of Finnish Public Online Services

There is little academic research available on this particular area of study, perhaps because public online services are still quite a new phenomenon in Finland. So far, the main research interests have typically concerned implementation, technical development, and supply of public online services. Supposedly there has been a sort of 'charm of novelty' in the air that has not encouraged to evaluate the quality factors of the services but rather to admire their pure existence.

Taavila's study (2000) was a pioneering one making a theoretical account of the online service of Finnish local authorities: what types of services there are, what they are needed for, and what kind of legislation there are for online services. As a part of this discussion, Taavila also took up the issue of online quality. This issue he distinguished into four dimensions. These are content quality, operational quality, technical quality, and the quality of distribution. These dimensions were further divided into several categories. (ibid., 58–60.)

Veräväinen, Westerlund & Åman (2000) made an evaluative study of public sector Web sites. Their aim was to assess the level of quality of a few Finnish civil service departments' and some local authorities' Web sites, and to examine the solutions carried out in the Web sites of a few foreign governmental authorities. (ibid., Foreword.)

The areas of evaluation were usability, serviceability and scope for participation. Each of these areas included several criteria that acted as the objects of analysis. (ibid.) The analysed Web sites proved to be quite different regarding to the areas of evaluation. The authors assumed that the size of the organisation in question as well as the amount of resources that is afforded to Web communication were likely to be the most common explanations for these differences. (ibid., Foreword.)

The quality categories presented in this study have been referred to as determinants of online quality in several important reports and guidelines published later on by public administration (see e.g. Tietoyhteiskunta-asian neuvottelukunta 2002a; JUNA 2001).

Rahunen, Smed, & Wiander (2000) are communication students who studied the Web sites of Finnish ministries in collaboration with the Finnish Prime Minister's Office.

The aim of the study was to work out recommendations for the development of these sites and to increase their uniformity. (ibid., 2.) The focus of the study was on usability. The usability inspection methods applied were heuristic evaluation and feature and consistency inspections. The usability criteria included seven major areas of evaluation: basic information, content, navigability, language, links, search facilities, and feedback. (ibid., 3–4.) As a main result of the evaluation the general impression of the Finnish ministries Web sites was found to be rather incoherent as the visual appearance and the technical solutions used in the site varied a lot (ibid., 50).

Ruusula (2001) made a comparative study on the Web sites of the Finnish local authorities aiming to find out how the sites had developed in the last few years, what kind of variation there was, and which types of online services there were available for the local inhabitants as decision-makers. In his study Ruusula analysed two quality elements of these sites. The first was serviceability referring to the coverage of the services available, the level of the service, and the topicality and the amount of information on the site. The second quality element was the scope for participation describing the facilities of a local inhabitant to participate in the planning, production, evaluation, and development of local public services. (ibid., 1.)

Ruusula used the concept of quality in his study to refer only to the level of serviceability and scope for participation. A closer look at his evaluation method shows that for Ruusula quality in these matters means nearly the same as diversity.

The results of the study indicated that the serviceability in the local authority Web sites in general was only adequate, yet the Web sites at the top of the comparison were found to have a good level of quality regarding to serviceability. The scope for participation was proved to be even in a worse state than serviceability, since only one of ten sites reached satisfactory level regarding this matter. (ibid., 28.)

What attracts my attention in Ruusula's study is that it generally does not consider the distinction between online services and traditional forms of services in a sense that the features such as usability and accessibility that are critical for online services are totally ignored. Of course, this is a conscious choice of the researcher. Yet it is slightly disturbing because now the list of the Web sites evaluated only tells roughly about the

amount of services available and not if people are able to access and use them, which should be the most important matter.

The Association of Finnish Local and Regional Authorities has produced guidelines for the production and maintenance of the local authorities' Web sites. The emphasis of the guidelines is on describing the minimum requirement for these Web sites and on presenting examples of high-quality online services that already are available. (Suomen Kuntaliitto 2001.)

Guidelines for the developers of public online services were also published by the JUNA project. JUNA (Julkisen verkkoasioinnin kehittämishanke) was the name of a Finnish e-government development project conducted in 1999–2001 by the Ministry of the Interior. The project was one of the measures taken to transfer public services to the electronic environment. Its aim was to co-ordinate and support the development of online services. (JUNA 2001.)

There are also so-called JHS recommendations for Finnish public online services. These are created by the Advisory Committee on Information Management in Public Administration (Julkisen hallinnon tietohallinnon neuvottelukunta), JUHTA, set up at the Ministry of the Interior to promote co-operation in information management between the State and the local authorities. The Committee plans co-operation in information management, publishes reports and studies, and draws up recommendations for public administration. (JUHTA 2000.)

All in all, the earlier research and other materials available on the quality of Finnish public online services do not primarily aim to build an overall view of online quality. Most typically the researches have had some certain features in mind that they wish to study. Thus, the question of what various elements the concept of 'online quality' might include in the context of Finnish public online services has largely remained unexamined. The same applies to the theoretical discussion of the concept of quality in public online services.

However, the lack of knowledge in this field has been noticed, and the situation is constantly improving. In the "Action Programme 2002–2003 to Promote the Online Government" the Information Society Advisory Board, which assists the Finnish

Government in formulating and evaluating information society policies, introduced a number of strategic points and bottlenecks to be addressed in years 2002–2003. The need for preparing criteria for the quality assessment of Finnish public online services was among these. (Tietoyhteiskunta-asian neuvottelukunta 2002a.) This need is being fulfilled at the moment of writing this study.

A working group of the Ministry of Finance was set up in autumn 2002 to do preparatory work for the creation of quality criteria. By the end of March 2003 the group had defined the general starting points for the assessment and specified the different means to organise quality assessment. The model proposed for building quality criteria has three core dimensions. First, there are activities that take place behind the Web referring to the processes of the organisation. Second, there are activities on the Web referring to the features of a service available online. Third, there are the results of these actions referring to the benefit that online services provide both for customers and for the organisation. (Ala-Harja & Salminen 2003.)

At the end of summer 2003, a large panel of experts had been established to develop detailed quality criteria based on the model presented above, and to plan a quality contest for Finnish public online services. The panel has representatives of local and state administration and of ordinary and expert users of the Web. The actors leading the work of the panel are the Ministry of Finance and TietoEnator company.

The new quality criteria include five main areas of evaluation. The first is ease of use, which concerns mainly the issues of availability, structure, and functionality of an online service. Other areas of evaluation are content, organisation and management of the online service, implementation and control of the service and finally, the results achieved both by the provider and the customer. These main areas of evaluation are further divided into more detailed criteria, and there is a particular method being prepared for the assessment of these criteria.[10]

Altogether, the material on the quality of Finnish public online services is diverse, treating the issue of high-quality public online services from several points of view.

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[10] My knowledge of the new quality criteria is based on the version 0.83 of it (Valtionvarainministeriö 2003c) that was published in the online working environment of the project in the late November 2003. Since then minor changes have been made in the areas of evaluation. Due to schedule of my study I did not have the opportunity to wait until the final criteria were published.

However, there are two types of documents that dominate this part of the material: case studies made to evaluate certain types of public online services from certain aspects, and guidelines prepared for the service providers in public administration.

7 CONSTRUCTING THE METHOD OF ANALYSIS

My study is qualitative. The basic idea in qualitative analysis is to explain or to make sense of some phenomenon (Alasuutari 1995, 7). In the case of this study, the phenomenon is online quality – in the context of public online services. Here I describe how the method of analysis used in this study was formed and how the process of analysis was performed.

The very preliminary phase of the analysis was to familiarise myself with the research material by reading it through again and again. This showed me what the specific research questions could be. The research questions together with the characteristics of the research material and with the aims of the study duly determined the method of my analysis: I chose to apply the tools of *content analysis* because I considered that these would provide appropriate method for analysing the conceptions of quality in my research material that consists of various written documents.

Traditionally, content analysis has been the name for quantitative analysis of textual data. However, in this study content analysis refers in principal to the qualitative treatment of data, called qualitative content analysis. According to Tuomi & Sarajärvi (2002) content analysis can be actually regarded as a basic tool for analysing qualitative data. Simultaneously, it is a common name for various methods that can be used when analysing textual data. (ibid., 93.)

The general purpose of content analysis is to organise textual data into a relevant and concise form that is easy to manage but that still have preserved the essential parts of the research material (ibid., 110). Tuomi & Sarajärvi distinguish three basic approaches that can be used as the starting point for content analysis. The analysis may be data-based, theory-based, or theory-bound. (ibid., 97–102.) My approach was the former, data-based, meaning that my aim was to create a theoretical whole out of the research material. The units of the analysis were not settled beforehand but chosen from the material according to the aims of the study and the research task.

In data-based content analysis there are some different ways to choose for carrying out the analysis. The basic steps for all of these, however, are more or less the same. The first step is to identify and pick out the parts of the material that are relevant from the

aspect of the research questions. This phase is often called the reduction of the material. The next step is to organise the reduced information that now represents the material into relevant groups. For instance, various categories or clusters can be formed. The idea of this phase of analysis is to find meaningful wholes that make sense of the object of the study. The final step is to abstract the groups of information that have been formed. This can be a question of conceptualisation or making a synthesis of each group. (ibid., 102–105; 111.)

Tuomi & Sarajärvi (2002) note that these phases of analysis should not be considered as technical tools for carrying out the analysis but more as practices that aim to systematise the process of interpretation and prevent the arbitrary characteristics in this process. (ibid., 104.) In my analysis I applied the three phases of content analysis, but in addition to a qualitative approach I also made some quantification of the data in order to be able to answer the research questions comprehensively.

Let us now look at the progress of the analysis in detail. In the first part of the analysis, my aim was to find how the concept of quality is defined in the context of online services (research question 1). To achieve this, the first task was to reduce the needed data by picking the different approaches made in the research material to define online quality. First, I searched only for exact definitions of the topic. As these definitions were found to be very scarce, I took a wider approach to the issue and started to look for other, more vague references to the concept of online quality. After that I analysed the findings. The exact definitions for online quality were examined as such, without any further grouping, because they were so few. The other, vaguer notions on online quality were organised into thematic groups according to the approach these notions contained. On the basis of these groups I formed conceptual views of online quality.

In the second part of the analysis, my interest was focused on the themes of quality that appeared in the material. Namely, in the earlier phase of the study I had observed that studies concerning online quality do not usually offer a definition of what the concept of quality exactly means in the context of their study but instead, a list of various dimensions of quality is often presented to describe the requirements for a high-quality online service.

To start with the analysis of quality themes, I first needed to create a practicable and concise framework for this part of the analysis. To build the framework, I had to find the most common themes of online quality in the material. Thus, I grouped all the named themes I could find so that those themes that referred to related issues (e.g. ease of use, usability, user-friendliness) were gathered into the same group. Before doing this I had also had to determine in which particular meaning each theme was used in the documents because in a few cases same words were used to refer to different matters.

The most common groups of quality themes were quite clearly identified. They were named after one member dimensions of the group that was frequent in that group or that in my estimation best characterised the group. As a result, I now had eleven categories describing the main themes of quality found in the research material.[11] These were:

1. Findability
2. Accessibility
3. Appearance
4. Ease of use
5. Content
6. Service depth
7. Openness
8. Interactivity
9. Scope for participation
10. Reliability
11. Security and privacy

This list of quality themes is not the only choice to view the material but one of several options. It is one that I have created according to my quantification of the themes and my interpretation on their occurrence in the material. In a way, the list already presents the preliminary results of the analysis. However, in my study its function was to make up the framework for the follow-up of the analysis. There the questions of quality themes would be solved more accurately.

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[11] Originally there were twelve themes. The twelfth was called 'legitimacy features'. At a late stage of my study process, I decided to merge this theme with openness because I realised that the legitimacy features would actually make no major difference between the elements of openness.

As stated in the description of the research task, my aim was to find the main themes of online quality that are common both for public online services and other online services, and themes that are typical only for public online services (research question 2). Namely, solving these questions would help me to achieve a view of the conceptions of online quality in the context of public online services particularly and on the other hand, to see which themes are most commonly used to describe the quality of all kinds of online services.

Consequently, I carefully examined the research material to find out which of the above mentioned themes the pieces of the research material took into account. To show the exact distribution of these themes in the material, the results of the examination were compiled into a matrix (Appendix 2)[12]. The piece of material in which a certain theme was mentioned as a factor of online quality was given a marking under this theme in the matrix. Half-markings were given to those pieces of material that did not include an exact reference to a theme but where it was indirectly recognised as a part of online quality. This two-level marking system gave in my mind richer view of the issue.

The results in the matrix were organised so that the results of the studies concerning public online services and those concerning other online services were in different parts. Furthermore, the results of the studies on Finnish public online services and those of other studies on public online services were also divided. This revealed how the markings under each theme would finally fall into these three parts of the material and to compare the results with each other.

Moreover, to have a more profound and more practical understanding of the quality themes I also wanted to know what they actually include and what made them significant (research question 3). I started to analyse each of them more closely. I looked through every piece of material where a certain theme was to be found and marked down the following matters that my close-reading of the material had shown to be most typically used for characterising the quality themes: how the theme was

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[12] When compiling the matrix, a few documents of the material were left unanalysed to avoid redundancy. These documents were those that included the same classification of quality themes already taken into account in some other document in the same group. In the list of the research material the documents in question are not numbered. The numbers in the matrix correspond to the order of the documents in the list of research material (Appendix 1).

defined, was there possibly some other terms used to label it, and what were mentioned as the main elements of this theme. These groups of information were further reduced.

With the help of these groups of information and the information on the distribution of the themes, I formed an overall view of each theme. This view includes a definition for each theme, a review of related terms, an account of the distribution of each theme in the material, reasons why a certain theme is significant, and a description of the main elements that in the material were included to each theme.

In the final part of the analysis, I focused on the documents on Finnish public online services to find out how online quality is defined and the quality themes noticed in this part of the material (research question 4). Here I utilised the matrix compiled earlier. Moreover, I examined all the pieces of material that were part of this group to see if there were some particular emphasis or other aspects to note in the way a certain theme was viewed.

In summary, to find answers to the research questions concerning the conceptions of online quality in the material, I applied the tools of qualitative and quantitative content analysis. These included reduction of the information, grouping the relevant information into categories, quantification of certain elements of the material, and abstracting the groups of information that had been formed. During the process of analysis, the main approaches defining online quality were identified, the most common themes of quality were named and further examined, and the case of Finland was specifically analysed.

8 TOWARDS A VIEW OF ONLINE QUALITY

The general aim of this study was to explore the conceptions of online quality. They appeared in the material as definitions of online quality, as notions and remarks about the concept, and as lists and descriptions of various themes that online quality is considered to include. On the basis of this observation I formulated my research questions. Here I present the findings. First, I look at the challenge of defining what online quality is. Then I move on to introduce the quality themes that were the most dominating ones in the material. Finally, I analyse the Finnish approach to the issue and see how online quality is defined and how the quality themes are taken into account in the material on Finnish public online services.

8.1 Defining the Concept of Online Quality

The typical use of 'quality' in the material illustrates well the nature of this concept. There are only a few definitions for online quality to be found. Definitions for the concept of quality in general are also rare. Although this is unfortunate, there are several reasons for it.

Very typically, the task of defining what the concept of quality means in the online context is compensated by listing the dimensions or themes it is taken to include. The meaning of 'quality' also seems to be often taken as self-evident: the concept is used in the same manner as it is used in every-day language (see e.g. Buenadicha 2001; Cox & Dale 2002). In these cases, the writers obviously have not seen any particular reason to explain it more accurately. Furthermore, the concept of quality may have some traditional meaning established in the particular discipline, and again, the writer has not considered it necessary to spell it out (e.g. Olsina et al. 1999). On the other hand, the traditional definition of quality in one discipline can be utilised without specifying the meaning of quality in the online context (Cox & Dale 2001; Dragulanescu 2002).

Evidently, another reason for the lack of definitions is that in several documents of the material the concept of quality does not have a significant role. Often there is another term used instead, such as 'excellence' (Stowers 2002), 'success' (Liu & Arnett 2000) or 'functionality' (Gant et al. 2002).

Moreover, I also cannot help assuming that because the concept of quality is so ambiguous and difficult to define comprehensively, it is easily left undefined. In any case, discussion about the ambiguity of the concept is not common either. Only Aladwani & Palvia (2002) make a serious effort to analyse the difficulties in the use of the concept of quality.

For all these reasons, one could conclude that the definitions of online quality are not common because they are not relevant for the documents. Although this conclusion may be valid for some part of the material, I generally disagree. Most pieces of my material, especially those describing the elements of quality, would have had use for a definition that gave explicit reasons why certain elements are required for a high-quality Web site and some are not. In these cases, I suppose it makes no difference whether it was a question of quality or another concept: functionality, success, or simply of what an ideal Web site should be like.

I now move on to analyse the four definitions concerning online quality that could be distinguished in the material. In the handbook for quality in cultural Web sites the Minerva Working Group 5 (2003) uses the ISO quality model for software quality as a definition for online quality. In this model, quality is defined as: "…capacity of the software product to enable specified users to achieve specified goals with effectiveness, productivity, safety, and satisfaction in specified contexts of use" (ibid., 24).

As this is a definition that is not created for any particular study but for generic use, it is rather loose and allows various purposes of use. However, the definition highlights the ability to use a Web site in a certain way to achieve certain goals. In the Minerva Working Group's study this ability is interpreted as the need for accessibility and usability. Accessibility is a characteristic that allows the diverse types of users to access the Web site, and usability is a set of attributes concerning the needs for effectiveness, efficiency, safety and satisfaction.

The next two definitions are quite similar. Aladwani & Palvia (2002, 4) define perceived Web quality as "…users' evaluation of a Web site's features meeting users' needs and reflecting overall excellence of the Web site". According to Santos (2003, 235), e-service quality can be defined as "…the consumer's overall evaluation and

judgement of the excellence and quality of e-service offerings in the virtual marketplace".

The basic approach to quality in these two definitions is different from the first definition. The ISO definition for software quality emphasises the *capacity* of a Web site as the core of quality, whereas the two other definitions say that it is the *user's evaluation* of the Web site that is the basis for the site's quality ranking. The first definition also leaves it open whether the capacity of a Web site is assessed by the user or the service provider.

In addition to her own definition for online quality, Santos (2003) presents in her study another definition for online quality by Yang (see ibid., 235) who states that for the users online quality of a high standard is the means by which the potential benefits of the Internet are realised[13]. Although this definition also emphasises the user's role in deciding what quality is about, it takes quite a special point of view of the issue. In the three previous definitions the "traditional" conceptions of quality that have been presented in the theoretical framework of my study could be clearly recognised. The definition by Yang, even if rather obscure, takes some distance from these conventional conceptions of quality and links the concept of quality with the online world specifically.

Let us now look the other notions of online quality found in the material. These cannot be regarded as proper definitions for online quality but they reveal something of the writer's idea of what online quality is. The notions are mainly of two kinds. First, there are those emphasising the users' needs and their experiences with the service, stating basically that quality is about taking the users into account in the best possible way and delivering what they expect. Another group is the notions that emphasise the presence of certain features: the more relevant features included, the higher is the level of quality. Thus, here quality is regarded as the level of fulfilment of essential features.

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[13] Unfortunately, I do not have the original source by Yang available, but here is the bibliographical information about this source: Yang, Z. (2000). Consumer Perceptions of Service Quality in Internet-based Electronic Commerce. Proceedings of the 30th EMAC Conference, 8-11 May, Bergen.

The basic ideas of these two groups actually meet in the definition by Aladwani & Palvia (2002) that on the one hand highlights the features that meet user's needs, and that on the other hand is measured through the presence of what are assumed to be these features.

On the basis of the definitions of online quality and notions about it, four different views of online quality can be distinguished. In the first view, the question of quality is determined on the grounds of how well the service achieves the goals set for it. These goals can be related to providing access to diverse users in diverse contexts and to ensuring that the use of the Web site is performed in the desired way, for instance, with *effectiveness, productivity, safety and satisfaction*, as is the case in Minerva Working Group 5's definition of online quality (2003, 24).

Another way of viewing online quality is to see how well the service takes user's opinions and reactions into account, as it is supposedly aiming to ensure the widest possible satisfaction. This kind of approach was very popular in the material. Yet, it could be seen more as a guiding principle for building and maintaining Web sites than as a definition for quality the level of which is to be measured.

The third approach to online quality is to view it as the level of fulfilment of certain requirements or inclusion of certain features. This approach represents a concrete way of measuring online quality. However, it always includes the problem of deciding and justifying which elements are considered to represent quality in certain cases and which are not. There can also be many options to choose for who makes the decisions of the criteria used and who makes the actual assessment. According to the material, the fulfilment of the quality requirements can be assessed equally by the users, the service provider, or some other party.

In the fourth view, online quality is described as a means by which the potential benefits of the Internet can be realised for the user. What these benefits might include is left open. Nevertheless, within this study they are in a way exposed: The quality themes that are next introduced actually show what the online action would be at its most ideal, mainly from the user's point of view. Consequently, they can be considered to illustrate the potential of the Internet for the user and the processes in which this potential is

realised – even though they were not typically presented in this role in their original contexts.

8.2 Themes of Online Quality

I now introduce the eleven quality themes that were characteristic for the material. The function of these themes is to provide as rich view as possible to the issue of online quality. Some of them may concern same issues and elements of Web sites but examined from different points of view. They also have some totally overlapping areas, which could not be avoided. I present them one by one, telling what kinds of elements they include and what makes them significant. The order of presentation is roughly based on the order in which a user is likely to experience them when using a Web site, as this kind of order will most clearly illustrate the significance of these themes and their role as determinants of online quality.

8.2.1 Findability

The foremost premise for the use of a certain Web site is that the site can be found from among the billions of other Web sites. *Findability* is a term used to refer to the ease of locating a Web site[14]. It is an issue that has gained more and more importance as the number of the documents published on the Web has grown rapidly and the significance of the online services has increased heavily as well.

There are a few other terms closely related to findability that are worth recognising. Availability is a broad concept that in the context of online services is used to refer both to the concrete conditions needed to reach an online service (e.g. a computer and an Internet connection) and the features concerning the online operation of the service, including the issue of findability (cf. the principles of the PROMISE project, pp. 15–16 in this study). Visibility is a term referring to how well an online service is known and recognised among the target audience (see e.g. Minerva Working Group 5 2003). It also refers to the success of online marketing of the service, thus covering some of the most

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[14] 'Findability' is not a very common term nor totally unknown. When discussing the ease of locating Web sites 'searchability' is more commonly used. In this study I prefer to talk about findability as it can be considered to cover a somewhat larger area of issues than searchability, including for instance the offline promotion of a Web site.

relevant aspects of findability. Searchability is a term very similar to findability as it also refers to the process of locating a Web site, but its emphasis is on the use of search engines.

Unlike the other themes of online quality to be presented in this study, 'findability' or related terms were only accidentally mentioned as such in the research material, although the issues they cover were commonly discussed. In my opinion, the term findability would best represent this group of discussion, and therefore it is now the name of this theme of online quality.

In the research material, findability issues were mentioned as determinant of online quality almost equally in the studies concerning public online services and in those concerning other online services. A slight emphasis was on the part of other online services, but the elements of findability occurring in these two categories of material were much the same.

The key elements of findability are those ensuring that the users can find a Web site. *A logical and comprehensible Web site address* (URL address) is one of these elements. The easier to guess and remember a URL address, the easier it is to locate the site without any other help.[15] The address of the home page plays an especially important role, but uniformity and simplicity should be the main principles also when naming other pages on the site. Making changes to the addresses is not desirable but if this is done, automatic redirection from the old address to the new address is essential (see e.g. JUHTA 2000). Another way of facilitating the use of URL addresses is to provide short-cut addresses for popular services that otherwise would be harder to locate.

Furthermore, the question of searchability is important. Search engines and directory services are the primary tools enabling users to locate information on the Web. A search engine uses software – often referred to as robots – to visit and collect information from new and updated Web sites and to maintain searchable databases of Web resources. Directory services are structured lists of categories maintained by human editors. However, the distinction between search engines and directories is not always clear-cut as many services combine the features of the both mechanisms.

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[15] URL addresses that are easy to remember, use and comprehend are called *human-readable.*

The likelihood that a certain Web site will rank highly in the results of users' searches depends very much on the tool and the method used. One frequently mentioned way to improve searchability is the use of *metadata*. Metadata is internal descriptive data about a Web page – data about data – that is added to the top of HTML file, and intended to be read rather by computer systems than humans. For many search engines, metadata represents the key information for categorising the information on a Web site, and this is the reason why it is used. However, generally it was not recognised in the material that not all search engines (e.g. Google) utilise metadata.

Another way of improving the Web site's ranking in the search results is to *register the site with search engines and directory services*. This means that the site address is submitted to a search system catalogue. There are various kinds of registration services available, and they are often chargeable. Furthermore, to ensure that the search results referring to a Web site are attractive and useful for the user, there should be titles added to each page describing clearly what the page is about.

To increase the likelihood that a Web site will be found by the target audience, adequate *promotion* is needed. This may include providing the URL address on printed versions of the material published by the service provider, information campaigns, advertising in conventional media or on other key Web sites, and getting the site reviewed in journals.

Moreover, links should be exchanged with other sites in related subjects. In point of fact, one measurement for findability suggested in the research material was "*link popularity*" which refers to the number of external links on the Web pointing to the site in question (Buenadicha et al. 2001). For instance, the search engine Google ranks the search results partly on the grounds of link popularity. In those pieces of the material that concern public online services it was commonly noted that a link to a public online service should be found at least in government's national online portal if this kind of portal exists.

In summary, findability as an element of online quality refers to several measures that should be taken to make a Web site as easily findable as possible for the target users. For public online services the question of findability is very critical. In order to reach the masses of users for the services, public administration has to seriously concentrate to the promotion of the services. Moreover, as public online services are typically addressed to a wider and more miscellaneous group of users than many commercial

services, special attention on improving findability is needed especially on account of those users that are not yet very familiar with using online services.

8.2.2 Accessibility

"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect" – Tim Berners-Lee (W3C 1994).

After the user has managed to locate the site he or she was searching for on the Web, the question of *accessibility* arises. This refers to an idea that a Web site should provide equal access to all users. Accessibility on the Web has become a global issue in the last few years, thanks largely to the efforts of World Wide Web Consortium (W3C)[16].

A Web site is considered to be accessible when all the information, navigational elements, and interactive features on the site are accessible for all users regardless of age, capacity, and disabilities (see e.g. Minerva Working Group 5 2003, 25). Unfortunately, this is usually not the case. To provide equal access for all users, the producer of the site has to consider, for example, those users who cannot see or hear, who may not be able to use a keyboard or a mouse, who have a text-only screen, a small screen or a slow Internet connection, and who use various Web browsers (such as a voice browser), different versions of these, or various operating systems.

Making a Web site accessible to all users is usually not a question of money, special skills, or other major inconveniences, but in the first place of recognising the question of accessibility, and then bothering or having the will to follow the principles developed for accessible Web site design and structure. These principles aim to ensure that Web sites can serve the widest possible audience and the broadest possible range of hardware and software platforms from assistive devices to emerging technologies. When a Web site is built in accordance with these principles, the users are able to view a Web page the way they wish to view it and with the equipment they have available.

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[16] W3C was founded in 1994 to develop common protocols for the Web that would promote its evolution and ensure its interoperability. One part of this is Web Accessibility Initiative (WAI) which – in coordination with organisations around the world – pursues accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development. (W3C 2000.)

In my research material there was considerable divergence in the way accessibility was viewed. None of the studies concerning commercial online services (this part represents a majority of studies on other than public online services) included it in the determinants of online quality. The term 'accessibility' was in fact mentioned in a few cases (Cox & Dale 2001 and 2002; Buenadicha et al. 2001) but it was not used in the meaning introduced by W3C. By contrast, the studies on public online services regularly took the idea of universal accessibility into account. Two studies that concerned the quality elements of academic and e-learning Web sites (Olsina et al. 1999; ARVO 2003) also considered accessibility as a part of online quality.

This result was predictable. First, unlike the public sector whose services should be in a form that everyone can take use of them, private companies mostly develop their Web sites to meet the needs of a certain target audience, thus not even aiming to provide equal access to all users. Second, they want to create a certain look and feel for their Web site, even so that this look and feel is absolutely similar to all who visit the site. This inevitably leads to such restrictions that are not in accordance with the realisation of universal accessibility.

In the public online services the need for accessibility is undeniable. As it was mentioned earlier in this study, accessibility is also one of the five principles created in the PROMISE project that – according to its motto – aims to "build information society for all" (Promise Consortium 1997).

In most of the studies that paid attention to accessibility, there was a direct advice to follow the WAI Web Content Accessibility guidelines created by W3C to fulfil the requirements of accessibility. Sometimes there was no further information given on what the guidelines include, but mostly it was more or less exactly told how to follow the guidelines. To illustrate what the guidelines are about, I now present some frequently mentioned elements of accessibility.

For accessible content, *equivalent text alternatives* should be provided to all elements that would be otherwise provided only in visual or auditory form. With the help of the alternative forms the same function or purpose of content elements is also conveyed to those who cannot take use of visual or auditory elements because text can be rendered in ways that are available to most browsing devices.

Likewise, all information conveyed with *colour* should also be understandable when viewed without colour. It should also be ensured that foreground and background colour combinations on a Web site provide sufficient contrast when viewed by someone having colour-blindness or when viewed on a monochrome screen. For accessible information content, *the clearest and simplest language appropriate for the site* in question is recommended.

The structure and layout of Web pages should be designed to be *independent of browser and resolution*. If frames are used to structure a page, each frame should be titled to facilitate frame identification and navigation for those who do not use normal browsers. However, the page should be equally usable when frames are not in use. Also, when various scripts, applets, cookies, or other programmatic objects are used, the page should still be usable even if these elements are turned off or unavailable. For the control of layout and presentation, style sheets are recommended, but a page should be also understandable even if style sheets are not in use. Moreover, the users should be given the opportunity to change the presentation details (e.g. font size and colour) when they need.

Download speed is also one issue of accessibility. When designing a Web site, it should be remembered that there are still many who do not have a broadband connection to the Internet. Thus, what downloads quickly within the designer's high-speed connection does not necessarily work as well for many of the users. These situations can be anticipated by keeping the structure of Web pages light and simple and making them contain only the data that they necessarily require. Users should also be given the choice to decide whether to open a heavy online document or not.

The total amount of design guidelines for accessible Web sites is large. Here I have presented only a sample of it, a sample that would best describe those aspects of accessibility that were emphasised in the material. For the part of those who are not familiar with basics of Web site design, also the guidelines for accessible design may remain obscure.

In fact, from the point of view of this study the detailed guidelines are not of the highest relevance. It is more important to recognise the basic principles that these guidelines are

designed for. In summary, the principles of accessible design encourage to construct Web sites that are flexible and provide alternative ways for the users to approach, that operate correctly when certain structural options or applications are not used, and that provide the user as much freedom of activity as possible. These are basic facilities that a public online service should provide for the user.

8.2.3 Appearance

Appearance is a theme of online quality that concerns the visual looks of a Web site. Thus, it is usually the first determinant on a Web site to be observed by the user. Other terms closely related to appearance are layout, visual design, "look and feel" and aesthetic features. Appearance is also related to the broad issue of usability.

In my research material appearance was frequently mentioned as a determinant of online quality both in the studies concerning public online services and those concerning other online services. An emphasis in the distribution of this theme was on the side of other online services.

As a determinant of online quality, appearance affects mainly the proper use of colour, graphics, images, and animations. It is a rather personal and subjective determinant and heavily dependent on the type of Web site. Presumably this is the reason why exact determinations for high-quality appearance were not typically given in the research material. Instead, I recognised a few principles for appearance that are of a more general nature. These are consistency, efficiency, simplicity, clarity, and attractiveness.

Consistency refers to the recommendations according to which a Web site and all the pages inside it should have a common, consistent appearance, including visual themes, graphic elements, and typographic style. The common appearance should reflect the image that the organisation behind the site is trying to project (cf. image as a dimension of service quality: Grönroos 2000, 64). It should also help the user to recognise the page in which he or she has arrived, and to remember it later on.

Efficiency means that the visual appearance should support the aims of the site, or in other words, the actions that user typically does on the site and the ones he or she is supposed to do. To realise the principle of efficiency, the common uses of each page

should be evaluated, and on the basis of this information the decisions of the design should be made to ensure the best possible performance.

In general, graphic design should visually support the navigation structure and overall architecture of a Web page and not distract or confuse the viewer. There should not be such visual elements that have nothing to do with the site's aims. Instead, the visual elements should emphasise the actual content. As it is stated in the guidelines by the Minerva Working Group 5 (2003, 34) "every extra element in the Web site competes with the relevant [elements] and diminishes their relative visibility".

Simplicity and clarity mostly refer to similar issues, also emphasising the ideals of minimalism. The site's layout should be clear and consistent, and complicated structures should be avoided. There should not be too many diverse elements (different images, colours, font types) that are usually only distracting the user. The value of white space should be recognised because it is a major component of clear appearance.

Attractiveness is a determinant of appearance that is most vague and most heavily dependent on the aim and purpose of a Web site. What is evident is that the appearance of a site should attract its target audience. Thus, it is the taste of the audience that should be the primary guideline when designing attractive appearance. However, according to the material at least clarity and originality are features that are likely to attract most users.

In summary, appearance of a Web site should aim to be consistent, efficient, simple, clear, and attractive. In the studies concerning public online services it was also generally noted that the appearance of a Web site should make the user to recognise that the site is produced by a public authority. In other respects, appearance seems to have no particular role in the development of public online services.

8.2.4 Ease of use

In this study, I use the term *ease of use* to refer to the fluency of operations that the user performs on a Web site. These operations typically include navigation, use of search mechanism, reading of text content, and performing of various transactions. Why ease of use is an issue in online services is, of course, due to the special characteristics of the Internet as a service platform: the online action is computerised and it involves hyperlinked environments and other elements that can make the use of online services strange especially for those who are not familiar with computers. In principle, the characteristics of the online platform create a situation where certain design rules should be obeyed to make the online services easy to use.

The most closely related terms to ease of use are usability and user-friendliness. All these three were frequently mentioned in the material. Usability is a well-known and popular term originally used in the field of computer studies where it refers to "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use" (UsabilityNet 2003). Jakob Nielsen, a famous usability guru, gives a more simple definition to usability saying that it is a quality attribute that assesses how easy user interfaces are to use (Nielsen 2003).

When used in this sense this term would suit the purpose of my study just as well as ease of use. Still, usability as a term has a considerable semantic load which ease of use has not. On the other hand, user-friendliness does not have this load either and it means quite the same as ease of use. But as in ease of use the emphasis is more on action, it describes best the issues that build this theme and that affect the fluency of operations of the user.

The distribution of this quality theme in the material was equal and regular. Ease of use or related terms were mentioned as an important determinant of online quality in nearly all studies. This was evident, for in the online world it has been acknowledged for some time that it is the user who has the power on the Web. Thus, the functionality of a Web site should serve the user; otherwise the site is not likely to have much value.

Those quality characteristics that in my research material were most frequently associated with ease of use and that have not yet been presented in connection with other themes of quality can be found under five main elements: navigation, search, information architecture, readability, and language.

Navigation is about moving around on a Web site. Ease of navigation means that the navigation system of a Web site enables the user to move smoothly through the site, often with the help of navigation tools and hyperlinked text. The navigation system should also remind the users exactly where they are within the site's structure and help those who arrive at the site somewhere in the middle – not through the home page – to recognise their location.

On the Web, basic elements of navigation system should include a main navigation menu that provides links to the central pages in the site hierarchy, an indicator of path that tells where the user has come from, and a label of current position that tells where the user is at the moment. There should also be an opportunity for the user to get a general view of the site where he or she is moving about. This can be provided in the form of a table of contents, site directory or site map.

Linkage is a sub-element of navigation system enabling the users to move to new information located either inside or outside the Web site. Wherever on the site links are used, some basic requirements should be kept in mind. One is link evidence: the meaning of links should be clear so that the user can understand what the link's destination is. In particular, links to external sites should be clearly described. Another important characteristic of links is soundness: they should only lead to relevant material and not, for instance, to a missing page. Moreover, attention should be paid on link coverage. It means that links should be provided in helpful and appropriate places throughout a Web site. Finally, link style should be carefully considered, and all hypertext links should be marked clearly and unambiguously.

When the user is navigating on a Web site he or she is usually aiming to find particular information. There a *search* mechanism is of great help. It is one important contributor of ease of use of a Web site. Attention should be paid on the appropriateness of search mechanism (does it provide the wanted results and are these easy to navigate), and to

the comprehensiveness of search form. The search can also be facilitated by providing lists of key words.

Information architecture is another major element contributing the ease of use of a Web site but very different from nature to the previous elements. It refers to the structure of presenting information on a Web site. Thus, it is something which the user cannot really visually notice when using the site. However, the lack or inadequacy of this element is most certainly noticed by the user.

Information architecture's principal purpose is to simplify and clarify Web sites. A thoughtful architecture and navigation system will create order out of chaos. Appropriate information architecture is clear and logical. In many studies it was also noted that the architecture should be user-oriented (e.g. Stowers 2002). This means that information should be organised in a way that is logical especially to the users and not based on the organisation's structure, for instance.

There are several other recommendations that should be considered when developing the information architecture. These were discussed in detail especially in the guidelines by ARVO (2003). The most important information should be located in the information architecture so that it is easy to notice. The top of the page is often used for this. The basics of a certain issue should be introduced to the user first, for instance in the form of a summary, and only after that more diversified information should be available. Information architecture can be further improved by placing one issue on one page, and by using headings and lists that help the user to perceive what the information content is about.

Readability refers to the special requirements set for online text. Writing for the Web is not the same as writing for the print. This is due to the conditions in which the text is read. It is more difficult to read on the screen, and in general reading online material is found to be more uncomfortable than reading printed material. That is why readers usually scan the content before deciding to read it. Many users also refuse to scroll down the page. If a user cannot comprehend the content of a site a page in a few seconds, he or she easily moves on.

In these conditions several efforts can be made to ensure readability. The online text should be short and concise, not more than a half of the length of the printed equivalent,

and the language used should be clear and simple. The writer should start with the most important information and then move to the least important information, as newspaper reporters do. Headings, subheadings, lists and tables should be used effectively. All these features help the reader to scan the information content and to get a view of what the text is about. Moreover, good readability of online text requires at least an appropriate font style and font size, and sufficient contrast between the text and the background.

The readability of the text is of no use, if there is no suitable *language* option available. Language was very typically mentioned as a contributor of online quality in the material on public online services. Evidently, this is due to the legal obligations that concern the service providers in public administration.

In summary, ease of use as a determinant of online quality is about providing the user adequate support for navigating on the site and tools for searching information. It is also about building and maintaining an information architecture that tells the user what is relevant information, how the pieces of information are linked to each other, and how the information on the Web site is arranged. Finally, it is about making sure that the user can easily scan, read, and understand the textual information available on the site.

8.2.5 Content

As a theme of online quality *content* refers to what a Web site actually offers in terms of information and services. Thus, in a way it measures the actual benefit the users derive from the Web site. The term serviceability is sometimes used to refer to the same issue (see e.g. Veräväinen et al. 2000).

In my research material, content – or a related term – was mentioned as a determinant of online quality in every piece of material. There were, of course, differences in to what extent content was taken account of, how its significance was viewed, and especially in how the concept of 'online content' was generally understood.

There are a few general requirements that in the material were frequently associated with content as a determinant of online quality. According to these requirements a Web site should provide content that is *specifically targeted to meet the needs of the defined audiences* (e.g. Valtiovarainministeriö 2003c; Congress Online Project 2002; Ferber

2002). The content should be useful for them, attract new visitors, and support the goals of the site producer. In addition to these very general requirements presented for high-quality content, some other, more specific determinations were formed that can be divided under three themes. These are the availability of basic information, coverage, and information quality.

The availability of basic information means that every Web site should include information that helps the user on the site to know what he or she is dealing with. In the material it was most commonly suggested that this basic information should include details of the Web site provider and of the purpose of the site, contact information, and the date of the latest up-to-date. In some of the documents (e.g. Suomen Kuntaliitto 2001) there was a detailed list presented on what basic information a Web site of a certain organisation should include.

Coverage refers to the range of content – what the site actually offers to the user. The working group of ARVO (2003) suggests that the two things that mostly affect the content coverage are the purpose of use of the site and the presumed target audience. As these factors depend very much on the site in question, common attributes for coverage are difficult to name. However, a general view in the material was that the more coverage, the better. Depending on the site, it may be a question of the providing information on certain issues, relevant self-service options, forms, databases, or multimedia applications.

Especially on commercial sites the coverage of content concerns product information and comparability, delivery information, charges, terms and conditions, and business objections. A special aspect of coverage is customisation (Gant et al. 2002), which refers to the organisation and coverage of content that is unique for each user and based on his or her interests and aims.

The third theme of online content is *information quality*. The characteristics that were most frequently suggested to build information quality on Web sites are relevance, accuracy, currency and timeliness, comprehensiveness, conciseness, and objectivity. These characteristics resemble those used in the guidelines developed for the quality evaluation of all the information available on the Web.

In summary, content as a determinant of online quality is about providing the kind of content that is tailored for the users' needs, that is wide-ranging, that always includes basic information about the site's purpose and site producer, and that follows the principles of high-quality online information. Within some of the subsequent themes of online quality I shall return to the aspects that were already shortly discussed here. Namely, these themes are related to online content – each of them providing some special view of it.

8.2.6 Service Depth

This theme of online quality is related to the service aspect of online content. *Service depth* measures the level of self-service available, or in other words, the level of completeness with which each service is offered. From this point of view, a Web site with basic information content only provides the lowest level of service, and the site with a full transaction service the highest. Other types of service are between these two extremes.

Other terms used to describe this aspect of online service quality include service maturity depth (Hunter & Jupp 2001) meaning exactly the same as service depth, serviceability that is a more broad term, and level of service and online self-service that are somewhat inaccurate terms for my purpose.

In my research material service depth was a determinant that concerned only public online services. Even there, it did not get many markings but enough to be included in the analysis as one theme of online quality. The elements that in the material were used to describe service depth are actually descriptions of the different levels in which online service can be provided. The number of these levels varies, and there are also some other differences. But altogether these descriptions resemble the levels of online service development and the types of online services presented in the earlier part of this study (pp. 9–13). Indeed, it is a question of the same development. Service depth as a determinant of online quality illustrates the endeavour of the public sector to move services online to be performed as complete self-service.

I now describe the basic continuum that the descriptions of the different service levels together form. On the lowest level, there is online information available on some public

agency and its services. On the next level the user has the option to communicate online with the agency about the service and, for instance, order more information about it. On this level the feedback does not necessarily come back online. As the service depth increases the user might have the option to apply for a service online, for instance, to fill an online form and send it. Two-way communication becomes more common. The online service also might allow the user to hand in and retrieve personal information.

Gradually, interactive transactions become available, and the user can receive online confirmation of the application that has been sent. On the highest stage of the development described in the material online services provide the option for complete transactions, also for those where online payment is needed. The public authorities and agencies are acting online without major boundaries, and joined-up services are formed. Thus, one online service may involve several agencies. Strong identification methods are needed.

As the public administration at least in Finland is aiming to move a considerable part of its services to be performed as online self-service, the continuum of service depth provides an interesting view of the situation at the moment. Service depth is a determinant of quality in which perhaps the biggest differences in the quality of today's online services are found and in which the highest level of quality might not be reached for a long time. It is a curious determinant also in a sense that not all public online services do have the need to reach the highest level. Instead, they may fulfil their purpose just by providing information and sufficient tools for two-way communication.

8.2.7 Openness

Openness measures the efforts of the online service provider to make information available about itself, about the area of expertise of the provider, and about the online service. On the whole, openness can be defined as a presence of such information and behaviour that build online trust and create transparency to the online action.

In my research material openness occurred as a determinant of online quality mostly in the studies concerning public online services. There were three elements that were mainly used to constitute the idea of openness. Of these, two were in a more significant role and the other represented only a minor aspect. The first two elements concern the

online information that is available on the service provider and on the service. These elements contribute greatly to the transparency of the service. The third element concerns the coverage of information available on the area of action in which the service provider is operating, and it is more closely connected to the principle of openness that governs the actions of public organisations.

First of all, openness as a determinant of online quality calls for the presence of such information that helps the user to know more about the service he or she is using. Some *basic information about the actual Web site* should be available, telling the user what services the site provides, for whom and why – so that the user knows what to expect. There may be also information regarding the rights, responsibilities, and legal obligations of the service provider and the user. Especially in public online services, the service provider should also inform the users on the secrecy and publicity of administrative documents.

Furthermore, there should be a visible security policy, and a privacy statement informing users of the degree to which their privacy will be respected. It tells the users on the treatment of personal information: in which conditions this information can be collected via Web site and for which purposes it is used (i.e. the use of cookies). There should also be information available about the principles for the security of personal details. Other features lending legitimacy and transparency to the site can include a copyright statement, and an announcement of the organisations or the company's policies, terms, and conditions.

Second, *information about the concrete agency behind the Web site* is relevant, telling about its position and its activities. In addition to this, the agency's contact information (both on and offline) should be easy to find. Most importantly, direct contact information of person or organisation responsible on the issues on the site should always be available. Other issues that contribute openness include information related to the agency's organisational structure, and descriptions of its decision-making processes and responsibility areas.

The third aspect of openness refers to the extent to which a Web site provides comprehensive information and services about the area of its operation. This is a very similar aspect to one element of content quality: *content coverage*. The difference is in

the reason why versatility of site content is regarded as quality. When considered only from the point of view of content as a theme of online quality, it is primarily a question of serving the user in the best possible way: the more wide-ranging the content, the more satisfied the user and the better the service. From the point of view of openness it is rather a question of user's right to have wide-ranging information available and about the duty of the public authority to produce it (cf. the principle of openness, pp. 6–7 in this study).

In summary, in the context of public online services openness determines online quality in two slightly different ways. On the one hand, it is associated with the principles of a democratic society by supporting the public authorities to make their actions transparent and to make as much information available on public matters as possible. On the other hand, openness as a determinant of online quality is related to the potential of the Internet: it is one way of releasing this potential for the users benefit as the online platform enables the service providers to make their services and their actions more transparent and extensive.

8.2.8 Interactivity

As a determinant of online quality, *interactivity* concerns those features of online service that are used to promote two-way communication between the user and the service provider. Interactivity is about giving the users better opportunities to express their views, about keeping them informed and communicating with them in the online environment in a language they understand.

The concept of interactivity is actually quite problematic and much discussed. I am aware of this, but in this study I confine myself to the meaning of interactivity that is used in my material and thus will not try to determine this concept any further.

The distribution of this determinant of quality in the material was alike in the documents concerning public online services and in those concerning other online services. However, the degree to which interactivity was emphasised in these documents varied a lot. In some of them it was mentioned only incidentally, and in these cases it was often referring merely to the opportunity to send feedback (e.g. Olsina et al. 1999). Yet in several pieces of the material interactivity was regarded as one of the

main determinants of online quality and its aspects were more carefully considered (e.g. Congress Online Project 2002; Demchak et al. 2000).

Providing an opportunity to send online feedback, and using it to improve the service was in my material commonly regarded as the basic idea of interactive online communication. Interactive features of online services can also streamline and reduce staff workloads and even create useful relationships between the users and the service provider. On the whole, interactive features are a potential that can be used to further the service provider's goals and priorities.

When examining the descriptions of interactivity as a determinant of online quality, it could be noted that there are mainly two different kinds of notions made about it: those that focus on the availability and basic use of various interactive online tools, and those that focus to the use of these tools more deeply and that actually also concern the general communication attitude of the service provider.

The interactive communication tools mentioned in the studies are mostly those that enable asynchronous communication, meaning that they involve a delay between the time a message is posted and the time it is received. Of these tools e-mail is most widely used. In fact, the discussion on interactivity is concentrated especially on e-mail use. Other asynchronous online communication tools include feedback forms, discussion groups, question channels, bulletin boards, guest books, and online surveys. The user may also have the option to subscribe e-mail updates or newsletters.

Tools that enable synchronous communication, occurring in real time, are fewer and according to the material they are not widely used in the context of public online services, although they were mentioned in some occasions. Chat rooms are the most popular example of the tools for synchronous online communication.

In many cases, interactivity is only considered as the extent to which the interactive communication tools are available. To find out the real value of interactivity as a determinant of online quality, one has to go further than that and analyse the notions that concern the use of these tools, that is, *the online communication attitude*.

Without responsiveness, interactivity is an empty promise. Many studies emphasised the importance of quick response to the user's feedback (e.g. Veräväinen et al. 2000; Rahunen et al. 2000). Another important aspect of interactivity in online services is not only to make interactive communication tools available but also to advise the users to use them and encourage them to give feedback and to take contact. This encouragement can be given in the form of a direct verbal advice or more indirectly by providing clickable (hot-linked) e-mail addresses (Demchak et al. 2000).

It was suggested that highly developed use of interactive features should also include the requirements to provide information on the communication responsibilities of the service provider agency and to tell where and how the messages users send might be used. Finally, attention should also be paid to practical matters concerning interactive communication tools. These include the security and reliability of e-mail use and conditions and rules for the discussion groups and chat rooms.

Moreover, it was frequently mentioned in the material that a high-quality Web site or online service should not only encourage users to take contact online but also to support them to use other communication channels by providing postal addresses and phone numbers. Thus, a good-quality Web site offers many contact methods.

The basic function of interactive features in public services and in other online services is the same: to promote two-way communication. In commercial services the emphasis of interactivity is on making it easy for customers to enquire about merchandise, check the status of their orders, and file complaints or send compliments. In the context of public online services the question of interactivity is firmly linked to the aspects of openness discussed above and to scope of participation that will be discussed in the next chapter. The basic assumption presented in the material was that the more interactive the online service, the greater is the demonstrated level of agency concern for the convenience of the user.

8.2.9 Scope for Participation

As a determinant of online quality, *scope for participation* refers to the opportunities provided within online services to the users for participating discussion on important government issues and even participating to government actions. What these

opportunities might be depends very much on the general policies of a government and on its ways of developing and maintaining the online services.

Providing scope for participation is about utilising citizens' knowledge and expertise. It can also be said to enhance democracy by making decision-making processes in the public sector more open and clear. The use of online participatory features may also aim to improve the sense of community, and to create local online communities.

In my research material, scope for participation occurred as a determinant of online quality only in the studies concerning public online services, and even there it was mentioned quite rarely. As a distinctive quality theme, it was most popular in those papers concerning Finnish public online services.

Although it could now be concluded that scope for participation is one of those themes that have only a minor role among the determinants of online quality, there is at least one clear reason for the lack of its occurrence in several documents of the material. Namely, scope for participation has many elements in common with the area presented above: interactivity. Content coverage as a determinant of openness is also closely related to scope for participation.

In a way, these aspects of online quality (interactivity and content coverage as a determinant of openness) actually constitute the basis for participatory action. As this basis exists, there is the potential to create scope for participation. Namely, to enable users' online participation, they should be able to get *information about the common issues*. Thus, there has to be sufficient information available on these issues online – and offline as well. This ensures that people already in the preparatory stage of common matters have the opportunity to participate. When they are familiar with the issues and they wish to participate in, they should be able to find the person or institute to contact, have sufficient *contact methods* available and get a response to their messages. In the online environment, these aims can be reached if the elements of high-quality content, openness and interactivity are into sufficient extent included in the online service.

To inform users on important public matters, there are several features that can be utilised in public online services. For instance, online newsletters can be sent, online consultation can be offered, and information on topical themes can be published on the

Web site. To create public discussion on the same matters, thematic discussion groups and forums can be provided. To further *encourage people to express their opinions* on these particular themes, online surveys can be organised, and summaries on the results of these should also be available. The most developed forms of online participation include tools for direct participation in decision-making, such as various voting mechanisms. However, these were mentioned very rarely in the material.

There is one more important aspect of scope for participation. To confirm the mediation of the results of all feedback and opinions given through the various online channels, *the feedback process in the organisation* behind the online service should be carefully organised, so that the results are continuously reported to the upper levels in the organisation and that they are truly noticed.

In summary, scope for participation includes various online tools that enable the users' genuine participation to common matters. Building and maintaining these tools is likely to require some special effort and consideration for the part of the service provider. On the other hand, to have real value they also require much enthusiasm on the users' part.

8.2.10 Reliability

In the traditional world of business, *reliability* has been considered one of the most important requirements for high-quality service. It is something that the customer expects from a service. Consequently, lack of reliability is likely to cause considerable damage to the service provider.

In the online environment, reliability maintains its role as one of the major contributors to high-quality service. Other related terms mentioned in the material were trustworthiness, confidence, and credibility. However, in the online context the meaning of reliability has to be carefully thought out. What are users actually relying on when using online services?

In my research material, the concept of reliability was used to refer to three slightly different matters, all of which can evidently be included in the issue of reliability. First, there is the way of using reliability in a very general sense, presenting it as an obvious feature of service quality (e.g. Taavila 2000; Cox & Dale 2001). Second, there are the

cases where reliability refers to consistency of performance and dependability of the online service system (e.g. Aladwani & Palvia 2000; Olsina et al. 1999). This approach to reliability is a more technical one, suggesting that an online service is reliable if it is operating correctly. Third, there is the issue of content reliability emphasising the quality of information content (e.g. Statskontoret 2002; Valtiovarainministeriö 2003c).

In my analysis the concept of reliability is used to include all these three aspects. Thus, reliability refers here to the reliability of the entire service provided for the customer, to the technical operation, and to the reliability of the information content. In the analysis, a study that named at least one of these aspects as a major contributor of online quality got a marking in reliability in the matrix of quality themes.

The distribution of accounts for reliability in the research material was clear: a great majority of them was found in the studies concerning other online services. In studies on public services reliability was mentioned as a determinant of online quality quite rarely. The reason for this might be that public services have the tradition of being trustworthy. At least I suppose that users do not typically have reliability uppermost in mind while using the services provided by public administration. However, I am not sure whether this also applies in the online environment.

I now discuss the elements that constitute reliability under the three different notions of this concept presented above. The first notion of reliability is the general one, considering it as *a central feature of service quality* and referring equally to the service provider and to the actual service product. Here reliability is manifested in the ability to perform the promised service accurately and constantly, in up-to-date service content, in responsiveness to the customers' enquiries, and in evidence of the service provider's existence (physical addresses, registration details etc.). The last aspect is thought to be relevant especially in the online environment, which has become a new, favourable arena for deceit. The user of the online service should be able to check if there is a real organisation behind the service.

The technical notion of reliability concerns sufficient efforts for ensuring data security and protection, technical non-deficiency, and quick error recovery. The online service system should be always up and available and operate correctly. This is what mainly constitutes technical reliability.

Content reliability has already been briefly discussed earlier, in connection with high-quality content. Reliability in the service content can be achieved by indicating the sources, the authority and the persons responsible of the information content, telling the time of the latest up-date, keeping the content up-to-date, and avoiding typos and other defects in the form or appearance of the content.

All in all, reliability as a determinant of online quality is generally as much about absence of certain issues than about presence of some others. That is why it is not very easy to measure.

8.2.11 Security and Privacy

Security and privacy are presented here within one theme because these determinants of quality are very closely related. Moreover, these two determinants were also presented side by side in several pieces of the research material (e.g. Treasury Board of Canada Secretariat 2002; Cyberspace Policy Research Group 2001).

In the context of online services, security can be defined as freedom from danger or risk during the service process. Privacy is about ensuring the confidentiality of personal information and respecting the users' protection for identity. The issues of security and privacy have been – and still are – the main barriers to users making purchases and transactions online.

In my research material, the questions of security and privacy were taken into account to some extent both in the documents concerning public online services and those concerning other online services although in the latter part these determinants of quality were mentioned more often.

There are several reasons why security is crucial in online services. Security management aims to ensure the correct operation of the service by having access control to the server used and by not leaving the service system unattended. It also aims to ensure the integrity of the information published online and to prevent any damage and interruption to the online service business in question.

Thus, security systems are built, for instance, to ensure that personal information exchanged online is protected from unauthorised use and disclosure. This is the area of security where the issue of privacy comes along. The service provider must make sure that information is not accidentally lost or altered when stored or moved online.

The elements of online security are many, and in part of the research material they were handled rather superficially (e.g. Cox & Dale 2002). Here I take up some of the most frequently mentioned elements. *Access control* is one. It means that certain parts of the online service can be limited only for the use of certain audiences by using a login system or identification by the user's IP address. Another general element of online security is *encryption* that should be always used when sending login or other sensitive transaction information (e.g. credit card number). It can be realised, for example, by using a secure server (HTTPS) and digital certificates. Moreover, administrative access to the server should be limited to secure protocols, such as SSH and HTTPS. In addition, *external security* of the site should be confirmed by using firewall and upgrading security patches to server software regularly.

Some of the above mentioned methods also aim to ensure the confidentiality of private information that is transferred online. What also affects privacy is that identification of the user should only be required when it is necessarily needed.

However, the most discussed issue around privacy in the material was *the use of cookies*. They are pieces of information in the form of small text files that some Web servers leave on visitors' computers, either with or without permission, so that this information might be available for later access by the same server or other servers. In most cases, not only does the storage of personal information into a cookie go unnoticed but so does the access to it. Cookies are often used to "recognise" returning visitors and provide information targeted to their preferences, which of course can be regarded as a user-friendly feature. The cookies can be also used for several other marketing purposes, which may be not as pleasant.

These uses of cookies are somewhat legitimate as they possibly can enhance convenience and efficiency both for the user and the service provider. However, what makes cookies such a big issue is that some uses of them can pose serious privacy issues, including the ability of a Web server to store cookie data on a visitor's computer

without the visitor's knowledge or consent, to monitor a visitor's browsing behaviour, and to associate this information to a real-world identity. These concerns typically emerge when a cookie is linked to or used to hold personal data such as a person's name, e-mail address, home address or IP (Internet Protocol) address.

In the material, the most common attitude towards the use of cookies was more negative than positive. It was also commonly emphasised that if cookies are used, there should absolutely be a notion of this stating also what a cookie is and why and how it is used on the Web site.

In summary, the issues related to security and privacy call for serious consideration from the service provider. The treatment of these issues creates basic conditions for developing the level of online service, but yet it seems to be too challenging for many. What is also special in the issues of security and privacy – especially those concerning data security – is that they should be taken into account very comprehensively. If there is one thing that has not been considered, it can make all the other efforts insignificant by providing a break in the security of the site.

8.2.12 Summary of the Quality Themes

In summary, the quality themes used to describe online quality in the material are mainly of two different kinds. First, there are quality themes that are considered to represent quality in online services generally. Second, there are those themes that determine online quality in public online services particularly. On the following page there is a table presenting the quality themes and their main elements.

Quality in Any Online Service	
Content	**Ease of use**
Fit for purpose	Navigation system
Availability of basic	Search methods
information	Information architecture
Coverage	Readability
Information quality	Language
Interactivity	**Security and privacy**
Availability of tools for	Access control
interactive communication	Encryption
Communication attitude	External security
	Use of cookies
Appearance	
Consistency	**Findability**
Efficiency	Easy URL address
Simplicity	Use of metadata
Clarity	Search engine registration
Attractiveness	Link popularity
	Online and offline promotion

Quality in Public Online Services	
Accessibility	**Openness**
Equivalent text alternatives	Information on the service and on
Appropriate use of colours	the service provider
Clear and simple language	Content coverage
Platform-independent operation	
Attention to download speed	**Scope for participation**
	Information on public matters
Service depth	Tools for participation and
Level of completeness of a	information on how to use them
service process	Active feedback process

Quality in Other Than Public Online Services
Reliability
Service reliability
Technical reliability
Content reliability

TABLE 2. Quality Themes and Their Main Elements

The themes that in my material were used to represent online quality in general are, in the order of their overall popularity, content, ease of use, interactivity, appearance, security and privacy, and findability. In addition, those quality themes that were related particularly to public online services are accessibility, openness, scope for participation,

and service depth. A theme that was typical only for other online services than public services was reliability.

To get an overall view of what the conception of quality in public online services can be about, I now once more have a look on what makes each of these themes significant.

Content is the core of a Web site, representing what the site actually has to offer for the user. Ease of use is very essential for the site's functionality: if the site is generally not easy to use, its content is not likely to have much value either. Interactivity is a feature that takes use of the Internet's potential for effective two-way communication. Appearance affects mainly the user's general impression on the Web site and of the service provider. Security and privacy are there to assure user's confidence and to enable the use of transaction services. Findability is a feature aiming to ensure that the target audience of a Web site can easily locate it on the Web.

These were the general themes of online quality. The themes that typically characterise only public online services affect partly the same issues but from different points of view. Accessibility is about providing equal access to online services for all kinds of users – also those with various disabilities. Openness makes the online action transparent and helps the user to recognise his or her position. It is also a general principle of all government's action that applies equally online. Scope for participation is closely related to the idea of electronic democracy providing the users tools for participating common affairs online. Finally, service depth is a measure of the development level of a service that applies especially on those services that aim to provide complete transaction service.

Reliability was not in my material typically associated with the quality of public online services, although I myself see no clear reason for why it should be excluded. According to the material, online reliability can be found on three different levels: there is the general reliability of the online service, technical reliability of the online system and finally, reliability of the information content. These all make an important contribution to online quality.

The elements under each quality theme provide more practical understanding on what the themes are actually about, although in some themes distinctive elements were not

easy to identify. On the whole, the quality themes presented in this study offer one way to determine what online quality is about in the context of public online services and also more generally.

Figure 2 below illustrates the overall image of online quality created in this study and based on the eleven quality themes. There the popularity of the quality themes (in the vertical direction of the figure) is viewed according to the group of material in which the theme was most popular. However, in the horizontal level of the figure the theme's position reflects its overall distribution in the material. This helps us to see the themes of online quality as continuums that vary their position between different types of online services.
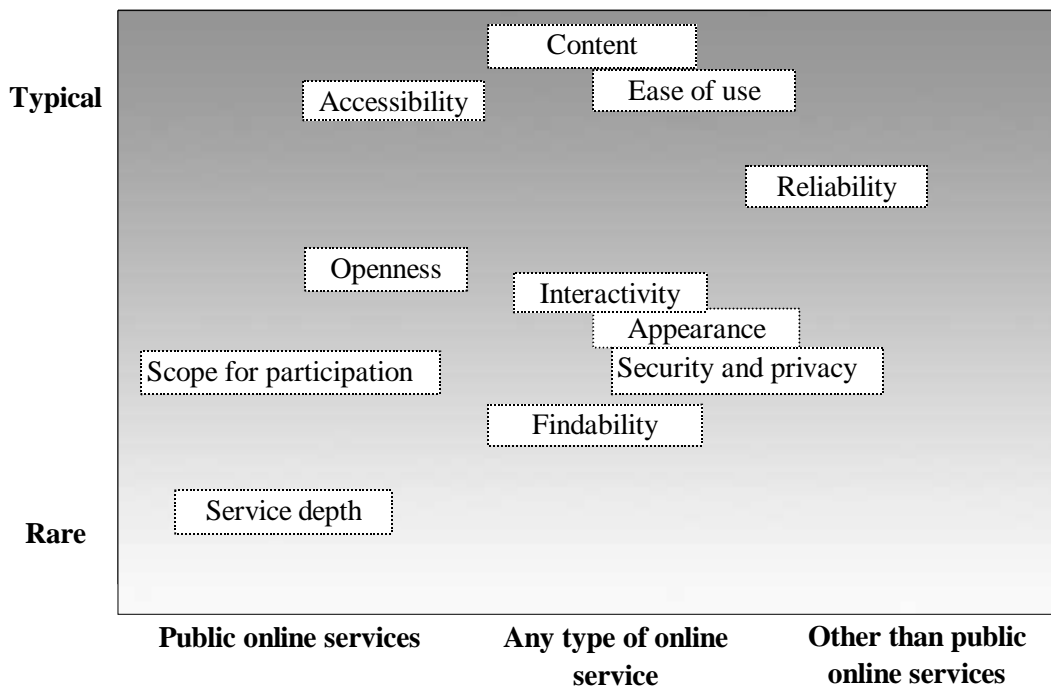
FIGURE 2. Distribution and Popularity of the Quality Themes

8.3 Finnish Approach to Quality in Public Online Services

Now that I have described the general view appeared in the research material to online quality, I take a more specific look on the Finnish part of the material. More accurately, I analyse the Finnish approaches to the issue and see how each of the eleven quality themes are taken into account in this part of the material.

8.3.1 Adoption of the Concept of Online Quality

First, I present some notions on how the issue of quality in public online services has become an issue in Finland; this development will be viewed on the basis of the research material.

The earliest pieces of the material are from the year 2000. An evaluation study (Rahunen et al. 2000) on Finnish ministries' Web sites was published in the early part of the year. In this study, the main issue is usability, which was a very popular theme at the time. Consequently, it covers all those aspects of Web sites that were considered to be essential and worth evaluating.

Later in the same year Veräväinen et al. (2000) analysed the usability, serviceability and scope for participation of several Finnish and foreign public online services. In this study usability also includes accessibility issues. The concept of quality is mentioned only in the context of serviceability – as one aspect of evaluating services. Elements of service quality in the context of traditional public services are also named.

The four main dimensions of evaluation (usability, accessibility, serviceability, and scope for participation) introduced in the study by Veräväinen et al. (2000) seem to have become established as the main dimensions for what a high-quality public sector Web site should possess in Finland. The JHS guidelines (JUHTA 2000) for public online services published in the end of the year 2000 recognise these dimensions to be among the major principles of building public online services, but the guidelines also include several issues to which the study by Veräväinen et al. did not address, such as findability and security.

In Taavila's study (2000) the issue of quality was considered among the other theoretical aspects on Finnish public online services. The dimensions and elements of online quality were discussed in a specific manner. In the guidelines published in spring 2001 by the JUNA project for the developers of public online services (JUNA 2001), the concept of quality was likewise used to describe the features a public online service should possess. In the JUNA guidelines also the terms 'quality evaluation' and 'quality criteria' appear. The concept of quality is determined by the same dimensions as earlier

– usability, accessibility, serviceability and scope for participation. The JUNA guidelines also present a view on how the future evaluation of the quality of public online services will be integrated in the evaluation of the whole public sector service production.

The guidelines created for the production and maintenance of the local authorities' Web sites (Suomen Kuntaliitto 2001) were published in the end of the summer 2001. The concept of quality is not used. The JHS recommendations are mentioned in these guidelines but mostly they deal with issues of their own.

In Ruusula's study (2001) two quality dimensions of those introduced by Veräväinen et al. (2000) are evaluated on the Finnish public authorities' Web sites: serviceability and scope for participation. Yet Ruusula does not directly use the classification of Veräväinen et al. but presents one of his own, consisting of trust factors, usability factors, serviceability factors and factors of scope for participation. But as stated, he uses only the two latter groups in his analysis, not even aiming to have an "overall view" on the quality of the online services in question.

The use of the concept of quality in the context of public online services is finally established in the Action Programme 2002–2003 to Promote Online Government (Tietoyhteiskunta-asiain neuvottelukunta 2002a) where the lack of appropriate quality criteria for public online services is stated as one of the strategic points in the development of these services. From here on the only material I have available on the issue is those papers produced in the project that is working on the creation of the new quality criteria (Ala-Harja & Salminen 2003; Valtiovarainministeriö 2003c).

It is notable that neither in these papers nor in the earlier material are there attempts made to accurately define what the concept of quality means in the context of public online services. Only ways used to clarify this concept are to list the main elements it includes, and to state that the emphasis in the idea of online quality is on the users; on their needs and on their experiences of the online services.

8.3.2 Occurrence of the Quality Themes

I now consider how the quality themes analysed in this study occur in the pieces of the material that treat Finnish online services. The first theme is *findability*. Its significance was noticed in several documents, and especially the new quality criteria (Valtiovarainministeriö 2003c) included a quite extensive approach to the issue.

Moreover, in the Action Programme 2002–2003 to Promote Online Government (Tietoyhteiskunta-asiain neuvottelukunta 2002a) findability of public online services was considered as one of the strategic points in the development of these services – one that should be improved. It was proposed in the programme that access to online public services should be channelled through portals. This goal has been achieved in spring 2002 when the portals called Suomi.fi (Finland.fi) and Yritys-Suomi (Enterprisefinland.fi) were opened on the Web. With the help of the Suomi.fi portal one can access online services of all governmental agencies and local authorities' in Finland. Yritys-Suomi.fi concentrates on those public online services that are relevant for firms and entrepreneurs.

Accessibility issues were included in the most documents of this part of the material, if not always very profoundly. As an interesting detail, it can be noted that in the new quality criteria (Valtiovarainministeriö 2003c) accessibility issues are not compiled into one group, as it is the case in other guidelines and criteria I have available, but distributed under the specific themes that each accessibility issue involves.

Most documents on Finnish public online services referred to *appearance* only incidentally. According to these references the key factors in the appearance should be visual simplicity and clarity. The appearance (e.g. colours) should be sober and decorous so that the user would associate it with public administration. Consistency as a determinant of a suitable appearance was also frequently mentioned. In the new quality criteria there was a strong emphasis on the efficiency of Web site appearance (Valtiovarainministeriö 2003c).

Ease of use was more or less recognised in almost every piece of this material. The new quality criteria and the JHS recommendations (JUHTA 2000) even included all the aspects of ease of use (navigation, search, information architecture, readability, and

language) that this concept includes in this study. Most of the material concerned two or three of these. Moreover, in the new quality criteria the concept 'ease of use' is used in a broader sense than in this study covering availability, structure, functionality and user-centred design of a Web site.

The importance of *content* was recognised in all pieces of the material on Finnish public online services. Of those elements that determine high-quality content in this study, availability of basic information and content coverage were mentioned in most of the documents. The third element, information quality, was clearly noticed only in the new quality criteria (Valtiovarainministeriö 2003c).

The issue of *service depth*, referring to the comparability of services according to the level of service, was incidentally mentioned in a few documents, but only in Ruusula's study was it used as a measure of online service quality (Ruusula 2001).

The elements of *openness* that create transparency and trust to online action were recognised in this part of material but not very widely. Guidelines for local authorities (Suomen Kuntaliitto 2001) and the new quality criteria (Valtiovarainministeriö 2003c) concerned some of the aspects of openness, but more often they were only incidentally mentioned in the context of some other quality theme. The aspect of openness that refers to the content coverage was mentioned in the guidelines for local authorities' Web sites (Suomen Kuntaliitto 2001) in association with the legislation that affect the production of public online services: improving openness was mentioned to be one of the leading principles of online communication in local governments. Ruusula (2001) also emphasised the duties that bind local authorities to inform about their actions as extensively as possible.

Interactivity as such was named as one of the central aspects of public online services in the guidelines for local government Web sites (Suomen Kuntaliitto 2001). The importance of feedback systems, responsiveness, and contributors of interactivity were frequently stated also in most of the other documents.

Scope for participation was acknowledged in a majority of the documents as a determinant of online quality. In many of these documents, scope for participation included some of those issues that in other studies (those concerning other than Finnish

public online services) represented the features of interactivity. Furthermore, improving the online scope for participation was also one of the strategic points mentioned in the Action Programme 2002–2003 to Promote the Online Government (Tietoyhteiskunta-asiain neuvottelukunta 2002a).

The issue of r*eliability* was most seriously emphasised in the study by Taavila (2000). He discusses the issue both from the point of view of the content and of the technical performance. Moreover, he names reliability as one of the main features of a high-quality online service. In other documents, reliability was not in such a major role, but it was often recognised. Ruusula has reliability on his list of quality factors but it is not used in the actual case analysis. The new quality criteria (Valtiovarainministeriö 2003c) includes the issue of content reliability as a sub-area of evaluation and takes also technical reliability into account, although it is not directly mentioned in the criteria. Some of the elements that contribute the general notion of reliability, such as reliability of service, are frequently mentioned in the other documents.

Security and privacy were extensively considered only in the new quality criteria (Valtiovarainministeriö 2003c). In a few other documents these issues were covered more or less accurately. Furthermore, the need for identification methods was named as one of the strategic points in the development of public online services in the Action Programme 2002–2003 to Promote the Online Government (Tietoyhteiskunta-asiain neuvottelukunta 2002a).

8.3.3 Summarising the Finnish Approach to Online Quality

In the Finnish context the notion of what public administration's Web site should be like was established in the report by Veräväinen et al. in 2000. The report was a part of the UUTIVA project that was set to examine new ICT applications for interaction between public administration and citizens. The report named four main dimensions that a public online service should possess: usability and accessibility, serviceability and scope for participation. This notion has been further adapted in several subsequent documents on the area, and it can be regarded as a substance for what the Finnish conception of quality in public online services has been about in recent years. However, the concept of quality was established in the discussion of public online services somewhat later.

Another major step in forming the notion of online quality was taken in spring 2003, when the project that had been set to prepare a quality criteria for all Finnish public online services, published their views on the issue. In this view online service quality is examined in three different levels: within the organisation behind the Web, within the online action and within the end result of this action. However, in the new quality criteria the emphasis will be on the level of online action and the criteria will be supplemented later.

In the Finnish documents discussed above no effort is made to define the concept of quality, except by listing themes that contribute to online quality. The three most popular themes in the material on Finnish public online services were the same as the most popular themes in all the material on public online services: content, ease of use and accessibility. Those themes that in this material were taken into account somewhat more clearly than in the other material were openness, scope for participation, reliability and security and privacy. Appearance was noted more rarely. Other themes had similar emphasis in both parts of the material on public online services.

In the light of these results it seems that the Finnish conception of quality in public online services is fairly diversified. Especially in the new quality criteria, a great variety of themes and elements presented in this study are considered in detail. This implies a conception of online quality that is relatively broad or that has at least made certain progress to the conception implemented by Veräväinen et al. which was not the most narrow either. Indeed, it will be interesting to see how the implementation of the new criteria will work out, and how it will affect the quality of Finnish public online services. Furthermore, hopefully the implementation of the criteria will also raise some discussion about the bases on which the criteria are formed – and from which point of view. This is one step that can be taken when trying to define the concept of online quality in the Finnish context.

9 DISCUSSION

The results of this study provide a view of online quality that includes both information that was anticipated and aspects that were more thought-provoking. Here I make a critical assessment of the content, the value and the reliability of the results. I also evaluate the realisation of the study and present my ideas for further research on this area.

9.1 Contemplating the View of Online Quality

In this study, my task was to explore the conceptions of quality in public online services. I have accomplished this task by analysing the ways in which online quality can be defined and how various quality themes can be used to determine what online quality is about in public online services. I also formed a view of how these issues have been considered particularly in the Finnish case.

Above all, the results of my exploration provide an overview of how the concept of online quality can be understood and what features can be considered to represent quality in various contexts of public online services.

It may be generally concluded that the conceptions of online quality are often vague and indeterminate. Consequently, they resemble the general notions and uses of the concept of quality, which often are ambiguous (see pp. 20–22 in this study). In a contentual sense, too, the conceptions of online quality and quality in general have much in common. This can be observed especially when examining the following three approaches that are made to determine online quality in my material. According to them, quality in online services is about achieving the goals set for them, about listening to the users and serving their needs, and about fulfilling certain quality requirements. In addition, it was suggested that online quality is about realising the potential benefits of the Internet to the user.

These approaches illustrate some basic aspects of understanding what quality can be about in the online environment. They can be applied in determining the service provider's general conception of what is quality in a service that is provided, or as a

basis for more accurate quality requirements created for the service. It should also be noted that, in principle, these four approaches to online quality are not mutually exclusive. Therefore, they could be used together (even though in the research material they usually appeared alone) to build a diversified framework for the assessment or development of an online service.

The four approaches are actually not so different from each other when they are critically compared. Most apparently, it is the role of the user that they have in common, as it is the indisputable, underlying power, also in the two approaches in which the user is not overtly mentioned: The goals that are set for an online service are most likely to be designed having regard to the user's satisfaction. The same applies to the quality requirements that applied to evaluate the level of quality of an online service.

In any case, the group of these four approaches constructs a definition of online quality in this study. The definition is somewhat incoherent. However, it corresponds to the use of the concept of quality in my material, which was heterogeneous and somewhat random. The writers did not really tend to stop thinking how to determine online quality – except for listing various elements it should possess. Yet, one may well ask, is it too much to think that quality in the online environment should be determined more accurately than by characterisation through various themes and elements?

In fact, this mode of determining online quality derives from the ways of thinking about quality in general. The widely used ISO definition of quality (p. 21 in this study) defines the concept of quality as the total of characteristics or elements of a product or service. Similarly, one of the five most popular approaches to quality presented by Garvin (pp. 21–22 in this study) is the product-based view in which quality is regarded as a precise and measurable variable, and in which differences in quality reflect differences in the quantity of some ingredient or attribute possessed by a product.

These two definitions are strongly reminiscent of the one of the four approaches defining online quality in this study – the one that regards quality as a fulfilment of certain criteria or requirements. Moreover, this particular approach was obviously the underlying conception of quality in the material more generally, as there the most common way of viewing online quality was to list the elements it is supposed to include.

Evidently, the success of this kind of approach is based on its measurability: If quality is understood as possession of certain features, its level is easiest to measure. As this is what the implementation of quality thinking in online services is usually aiming at, the use of various themes to determine the issue of online quality is understandable and justified. Typically, it also means that the actual semantic content of the concept of quality is in these cases not basically different from the other concepts that could be used instead of it. They are all hardly more than titles for a certain group of desired features. However, as the concept of quality has nowadays considerable rhetorical power and is applicable to the most diverse purposes of uses, its popularity is also assured in the field of online services.

The quality themes that in this study played a major role in illustrating the conceptions of online quality do not form a fixed group of requirements that a high-quality public online service should fill. Instead, their function is to show what these requirements in different cases can be about. That is also why they are called themes; they describe the most visible and most remarkable topics of discussion in the documents that treat the issue of online quality.

In addition, they are useful in several other ways. First of all, the quality themes can be used to render the four approaches to online quality presented above more concrete, because they are all linked to one or some of these approaches. For instance, findability is strongly associated with the goals of set for the action of an online service as well as with the user's needs, appearance relates rather to service provider's goals only. Interactivity and scope for participation are mostly about realising the potential benefits of the Internet to the user. Accessibility and openness are there especially to serve the user's needs. Finally, each of the quality themes could be naturally applied as a sort of quality requirement that should be fulfilled.

Furthermore, the group of the eleven quality themes aptly illustrates the complex nature of the central phenomenon of this study, called online quality. With all diverse elements and optional classifications these themes indicate, why it is so hard to sum up the concept of online quality in one definition or criteria: evidently, it appears in such a multidimensional and incoherent form to which an all-extensive approach does not seem to match.

In fact, what we see in an online service is only part of what constitutes the whole service. The underlying structure, technical features and capacities, the service provider's actions behind the Web, and the strategy that determines the development of the service are some of those pieces that are also involved and that affect the quality of the service. It has to be acknowledged that the eleven quality themes proposed in this study cover the totality of an online service only in part, focusing perhaps on those areas of it that are most visible to the user.

More essentially, the quality themes proposed in this study express both the special characters that the Web has as a service platform and the special obligations public administration has as a service provider. The characteristics of the Web pose challenges especially for making the public online services easy to use for diverse groups of people and for making the online actions sufficiently secure and reliable. Another challenging issue is that much of the potential of the Web is still new and even unknown both to service providers and users. This affects the use and the maintenance of the services in general but it is seen especially in the areas of interactive communication and online participation on common issues. To achieve success, these forms of online action inevitably call for some changes in modes of action and thinking. Even then, it is doubtful whether the wishes of the so-called e-democracy will ever come true.

The features characterising the provision of public services create obvious relations to the quality themes proposed in this study. The fact that public services are basically provided for all kinds of audiences, is clearly manifested in the need for ease of use and accessibility in online services. Findability is also involved in this issue, but it was less emphasised in the research material.

The public nature of the actions of public administration as well as the legality requirement explain especially the occurrence of openness as a theme of quality in public online services. Furthermore, scope for participation illustrates the democratic function of public administration: online services provide potential for improving communication between the authorities and citizens. The same applies to interactivity as a feature of public online services. Service depth is a theme of quality that describes the distinction of online service production between private and public sectors: The reason why this theme in my study characterises only public online services is most likely

related to the immature state of the development in this area. Because much of the service provision in the public sector is still under construction, service depth as a theme of online quality provides one practical point of view for the assessment of these services.

The different state of development in the private online business and in public administration is also likely to explain why security and privacy as a theme of online quality was observed considerably more often in the material on other than public online services. Although the need to recognise the importance of security and privacy policies on the Web certainly also concerns to some extent the simplest forms of service, their role is major, especially in the transaction services, which within the provision of public online services are still rare.

Naturally, the notions presented above are composed mainly from the Finnish perspective. As for those results of this study that more accurately dealt with the use of the concept of quality in the material on Finnish public online services, it has to be noted that in this study they are in a secondary role. These results do fill the purpose ("address the topicality of this issue in Finland") laid down in the research task, and simultaneously, they provide such information of the issue of online quality in the Finnish context that may also give impulse to further research. But for a remarkable part I find that they only repeat the observations and the notions that have been exposed in other parts of the study.

Finally, as to the earlier research on this area it can only be seen that, to the best of my knowledge, no similar collecting approaches to online quality like that realised in my study have been made. Therefore, the view of online quality proposed in this study can be compared mainly to those studies where a certain group of dimensions or elements of quality have been used to represent the substance of online quality in certain online services. This comparison does not bring out any notable contradictions or other points of particular salience.

The general conception of quality in public online services formed on the basis of the results of this study can be seen as a kind of synthesis of the opinions and views presented in earlier research. According to this conception an online service provided by public administration should follow the requirements and guidelines that are considered

to be important for all kinds of online services. This means that attention should be paid especially to the significance and the value of the online content and to the ease of use of the service. In addition, the service provider in public administration should recognise certain requirements that affect public services in particular. These include the issue of universal accessibility, the openness of online action, the potential of online participation, and the aim of providing such a level of service that is meaningful for the service function in question.

In summary, the quality themes and approaches to online quality presented in this study provide one way of viewing the main ideas of online quality in the material. Simultaneously, they express the variety of conceptions that are prevalent for the issue of online quality especially in public online services. They also illustrate how the special features of the public service provision are also valid in the online environment and how this environment itself has a significant role in determining the features of quality in online services. Finally, the results of this study include information that can enable service providers to identify their conception of quality in a particular service.

9.2 Assessing the Material and the Method

The research material for this study was rather heterogeneous. It included guidelines for the building of online services, quality evaluations, reports on the general state of the services, and several other types of documents. All these were included because there was in general not much material available on the topic. Furthermore, a stricter limitation did not seem to be necessary because the aim was to create as rich a view as possible of the issue of quality in public online services.

However, the heterogeneity of the material was emphasised in certain phases of the analysis. Because of the different nature of the documents it was not very easy to create unambiguous rules for interpreting the occurrence of certain quality themes or elements in the documents. Nevertheless, I did my best to achieve this. Yet I assume that the heterogeneity of the material may to some extent impede the repeatability of the study.

Another feature of the material that drew my attention during the analysis was the lack of background information − or even superficiality − in the discussion of quality themes

and elements. I was sometimes left to think in which sense the various dimensions of quality were actually used, what they consist of, and what their practical meaning is. This indefinite discussion was typical especially in the context of accessibility, security and privacy and other more technical aspects of quality themes.

This character of the material affected my study so that when presenting the quality themes and elements, I tried to compensate for the missing explanations. This mainly meant answering the why-questions for my part; why some element or action or technical feature should be used, what it is actually about, and why it is considered to represent quality.

Otherwise I conclude that the material corresponded to the aims of the study. It presented a rich variety of conceptions of online quality, which I then have further processed and interpreted.

The method of analysis selected for this study was content analysis. I mainly applied qualitative content analysis but also conventional quantitative analysis of text contents. This choice was made rather intuitively when processing the material into a form that would give the answers I sought. In my opinion, content analysis was an appropriate method for the study.

I performed the analysis fairly intuitively proceeding in a way that was logical for me and appropriate for the questions I had posed for the study. Indeed, the phases of content analysis are quite simple and comprehensible, and even if I had not familiarised with them, I suppose I would still have followed them to some extent.

However, my realisation of the analysis included some weaknesses that I now can see. Because of my intuitive proceeding, the process of analysis did not have such an organisational and accurate structure that I would now prefer. It does have a certain structure and certain rules that I have followed, but it lacks the accuracy and self-awareness that would probably had made it somewhat more reliable.

Another doubt about the method of analysis is the number of choices and the variety of interpretations that I had to make as a researcher. In my analysis, the question of various classifications was very common: it was about inclusion and exclusion. These

classifications were often open to various interpretations. Of course, I aimed to make the interpretation process valid and transparent by basing my actions on certain rules and certain argumentation. Thus, I see no reason to cast doubts on the results of my study as a whole. However, as for the details of the results, one should take into account the researcher's subjective impact.

Altogether, the study was realised in a way that now seems to be well justified, although some parts of it could have been done in a more thoughtful way. I have aimed to contribute to the validity and the transparency of the study by making detailed account on its different phases, including the collection of data, construction of the method of analysis, and performing the process of analysis. Presumably I could have done this account in an even more exhaustive manner if I had regularly kept a research diary of my doings and thoughts during the research process. Now I partly had to rely only to my fragmentary notes and to my recollections.

9.3 Significance of the Study

In my view, the significance of this study entails three aspects. First of all, the study addresses an area of research on which only few Finnish studies are available. The results provide new theoretical understanding and information on how the relation between public online services and the issue of online quality can be viewed – and how it is viewed especially in Finland. In my study I also aimed to clarify the concepts that are often used in the discussion around online quality, to make this discussion more understandable and transparent.

Another merit of the results of this study lies in their topicality. During the process of my study, the Finnish quality criteria for public online services were being prepared by a large working group conducted by the Ministry of Finance for publication in winter 2004. I have closely followed the preparation of the criteria and tried to direct my study so that it would not overlap the aims of the preparatory work but rather complement it. I believe I have succeeded in this. The results of my study shed light to the question of quality in public online services from such aspects that the work with the new quality criteria has not concentrated on. As it provides a detailed model of quality criteria and

an assessment tool, my study elucidates aspects of online quality and aims to offer a more profound view of what online quality can be about.

The third purpose of this Master's Thesis, as I can see it, is related to my own area of study and to my point of view. The research around online services has largely been made in the areas of technical or economic sciences. However, the creation of successful public online services obviously calls for larger expertise than that. My own study is multidisciplinary, but the viewpoint of social sciences and communications is emphasised. I sincerely believe that this kind of viewpoint is also needed to understand what high-quality public online services should be and could be about, and to develop such online services that are profitable and fit for use.

9.4 Suggestions for Further Research

As an area of study, Finnish public online services are still quite new and unexplored. In fact, apart from this study, the lack of research in this area is noted in the report of the Information Society Advisory Board to the Finnish Government (Tietoyhteiskunta-asiain neuvottelukunta 2002b, 48) and more recently, in the OECD report on e-government in Finland (OECDb 2003, 2).

Evidently, for future research on quality in public online services there are several potential areas of interest. One is the new quality criteria for Finnish public online services that could be used as an evaluation framework for assessing a certain group of public online services. This kind of study would both provide information on the state of the service group in question and give a chance to critically evaluate the functionality and the contents of the new quality criteria. Moreover, one could also concentrate on the mere contents of the criteria and from this viewpoint explore the values and priorities of "online thinking" in the Finnish public sector.

Another major area of interest around online quality are the users. What do they think of the quality of public online services? This is an important question that can be approached in many different ways. Furthermore, in the Finnish context the online services that are provided by the local authorities are of great importance because it is there where most of the public online services exist and where also the amount of users is large. The quality elements in these online services could be more closely examined

to create a view of online quality that would serve especially the needs of local communities.

Moreover, there is room for more theoretical discussion. For instance, a conceptual approach to quality in online services could be taken to examine how the concept of quality and other corresponding concepts are used in the context of online services. This would further elucidate the attitudes to the issue of online quality and provide more accurate information on what people are talking about when they talk about ideal online services. Such an approach would resemble the aims that have been posed in this study, but the focus would be more in the analysis of the discourse.

When implementing my own approach towards online quality, I have gradually learned to know the value that resides in this kind of study. It is not in creating an all-extensive view of online quality in public services – that in the light of my own experiences would be very difficult – but in compiling and presenting diverse conceptions of what a high-quality online service can be like and in finding out the arguments for them. This information can be utilised in the development of diverse types of online services for different purposes of uses and perhaps also for different kinds of audiences. Moreover, the value of the approach applied in this study is how the discussion around online quality can be extended and opened up and how the practical issues latent in the requirements of online quality can be brought to light.

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APPENDIX 1. List of the Research Material

NB. Those documents that do not have a preceding number in this list include the same quality criteria than the document situated above the document without a number. The document that has two numbers (Asikainen et al. 2003) is utilised in two different cases. Those documents that have the same numbers involve the same case. For further explanations, see footnotes in p. 42 and p. 52 in this study.

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APPENDIX 2. Occurrence of the Quality Themes

TABLE 3. Occurrence of the Quality Themes in the Material

Document	F	A	AP	EU	C	SD	O	I	SP	R	S&P
Other types of online services											
1			(×)	×	×		(×)	(×)		×	×
2				×	×			(×)		×	×
3				×	×			(×)			×
4	(×)	(×)	×	×	×		(×)	×		×	×
5			×	(×)	(×)		(×)			×	×
6	×		×	×	×			×		×	×
7		×	×	×	×			(×)		×	
8	×			×	×						
9		×	×	×	(×)		(×)	×		×	
10	×	×	(×)	(×)	×		(×)	×		(×)	
	35 %	25 %	60 %	90 %	90 %	0 %	10 %	50 %	0 %	75 %	60 %
Public online services											
11		×			×	×	×	(×)			(×)
12		×		×	(×)		×				
13		×		×	×		×				
14		×	×	×	×		×	×	(×)		×
15		×		×	×		(×)	×	(×)		×
16		(×)			(×)		×	×	(×)		×
17	(×)	×	×	×	×		(×)				
18	(×)	×	×	×	(×)						
19	(×)	×	(×)	×	×	×	×	(×)	×		
20		×		×	×		(×)	×	×		×
21	×	×	(×)	×	×		(×)	(×)			×
22	×	×	×	×	×		×	×	×	×	×
23	×	×	×	×	×	×	(×)	(×)	(×)	×	
	35 %	88 %	46 %	85 %	88 %	23 %	65 %	54 %	31 %	8 %	35 %
Finnish public online services											
24	×	×		×	×		(×)	(×)	×	×	
25			(×)	×	×	(×)	(×)	(×)			
26				×	×		(×)	(×)			
27		×		×	×	(×)	×	×	×	×	×
28		×	×	(×)	×		×	×	×		(×)
29	×	×	(×)	×	×	(×)	(×)	(×)	×		(×)
30	×	×	×	×	×	×	×	(×)	×	×	×
	43 %	71 %	29 %	93 %	100 %	21 %	57 %	50 %	57 %	43 %	43 %
11-30	38 %	83 %	40 %	88 %	93 %	23 %	63 %	53 %	40 %	20 %	38 %
All	37 %	63 %	47 %	88 %	92 %	15 %	50 %	52 %	27 %	38 %	45 %