

## PUBLIC INTERNET ACCESS FUTURES

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**Abstract.** Historically, access to a telephone was all that was needed to be included in the world of business and social communication. People unable to afford a telephone at home or those who were away from home used public payphones. Access to the Internet has now become a vital part of business and private life throughout the world. Inability to access the Internet can now be seriously socially excluding and can prevent people from fully participating in a wide range of vital eGovernment, eHealth, communication and financial services. Public provision of Internet access mirrors public provision of payphones in that it is becoming an essential requirement for those that do not have Internet access at home or in the office or for people who are temporarily away from their usual Internet facilities. Despite the wide range of personal and office fixed and mobile internet solutions, this paper demonstrates that there is a need for a variety of different forms of publicly available Internet facilities. These include Internet workstations provided in public buildings, commercially run Internet cafés in city centres and airports, Internet connected Information Kiosks and publicly available Wi-Fi hot spots. This paper, and work currently being done by the European Telecommunications Standards Institute (ETSI), show how public internet access facilities can be made more accessible, easier to locate, more attractive and, as a consequence, more likely to be popular and hence sustainable in the long-term.

### 1. The historical perspective

Historically, people's need to communicate and discover remotely held information was met by means of the telephone. Therefore, access to a

telephone was the main pre-requisite for inclusion in the world of business and social communication

Fixed line telephones in houses and offices were supplemented by public telephones on the street and in publicly accessible buildings. Those unable to afford their own telephones, or people who were remote from their normal home or office, used public payphones.

With the rapid growth of relatively inexpensive mobile telephony devices and services, demand for public payphones has greatly diminished. Many public payphone sites are now no longer commercially viable for the payphone operators to support. These are either provided by means of public subsidy or they are provided because of a public service obligation placed upon the operator.

## **2. The age of the Internet**

Today, access to the Internet has become a vital part of the business and private lives of people throughout the world. The Internet is becoming every bit as important to today's public as the telephone was in the past. Access to the Internet now also gives access to a means to make telephone calls. However the ability to access information and carry out a large range of important everyday tasks arguably makes the Internet even more of a necessity than telephony has previously been.

Increasing numbers of people can now access the Internet at home and at work. They can also access the Internet on the move through laptops and other mobile devices, but such mobile access never provides exactly the same experience in terms of usefulness and usability as that from a good fixed Internet terminal. Mobile Internet access through public communication networks (GSM, 3G, etc.) also frequently comes at high cost, especially when travelling to other countries.

## **3. The need for public Internet access facilities**

Despite the increasing availability of Internet access, there will always be some people who are unable or unwilling to have their own Internet facilities at home or at work. Also, everybody who is away from their home or office Internet will have to endure compromises in terms of cost and capability if they rely entirely on their own mobile Internet solutions using public communication networks.

There is thus a continuing case for the provision of a number of different ways of meeting the needs of those who are temporarily or permanently unable to access their own Internet facilities. This most obviously suggests

the need for the “traditional” Internet Cafés, but the provision of publicly accessible wireless hotspots is also an important form of public Internet access for the business traveller and for all others who have their own personal Internet devices.

Inability to access the Internet has a socially excluding effect which will increasingly exclude people from fully participating in a wide range of vital eGovernment, eHealth, communication and financial services. It is thus important to ensure that public Internet facilities are made available to suit the needs of the very wide range of people who might need to access the Internet. As well as meeting the needs of the typical Internet Café user, it is important that those people less able or willing to make use of these facilities are given suitable facilities to meet their needs. The range of people that should be considered is very wide. It includes people with disabilities, people with low incomes, travellers not speaking the local language(s) and people unfamiliar with the Internet who need support and training before making full use of a public Internet access facility.

As well as being of benefit to people who, either permanently or temporarily, have no alternative method by which they may access the Internet, Public Internet Access Points (PIAPs) can provide comfortable environments, larger screens, and low or zero cost that will also prove very attractive to people who routinely carry their own Internet connected devices with them when on the move.

The ETSI Specialist Task Force STF 324 (ETSI, 2008a) is doing EC/EFTA ((European Commission/European Free Trade Association) funded work, under the i2010 program (i2010, 2005), to develop a guideline document on "Public Internet Access Points (PIAPs)". This work, reported in this paper, aims to provide guidance on how to ensure that suitable public Internet access facilities can be designed to meet the needs of a very diverse range of potential users.

#### **4. What is a PIAP?**

The European policies that refer to the provision of public Internet access talk of the need to provide PIAPs to help those people who might otherwise be socially and economically disadvantaged by having no, or inadequate, access to the Internet. These policy documents rarely hint at what form a PIAP may take. It is likely that the expectations were for two primary forms, fixed computer terminals on desks in public buildings and freestanding Internet Kiosks, both provided by means of public money.

The ETSI work has taken the broadest possible definition of PIAPs because:

- Many of the factors that influence the effectiveness of a PIAP (e.g. clear display signs that indicate that the PIAP exists) apply to very diverse types of PIAPs.
- The method by which a PIAP is funded is not directly correlated with the suitability of a PIAP to meet the needs of a target group of users. For example, providing for disadvantaged groups of users in a successful commercial PIAP can sometimes be a better long-term option than doing so in a publicly funded PIAP if the public money needed to run it successfully in the long term, cannot be guaranteed;
- It is impossible to predict the precise forms that future PIAPs may take as it is to predict their relative popularity and success over time. Providing fundamental user needs oriented guidance that can be applied to the widest range of PIAP types is the safest long-term strategy.
- Providing guidance that will help PIAP providers to create popular and profitable PIAPs is a reliable strategy to ensure that the widest range of potential users can benefit from the services they offer.

Some broad categories of PIAPs considered in the ETSI work include:

- several individual Internet workstations (e.g. PC, screen, mouse, desk, chair) provided in a public building (e.g. public library);
- commercially run Internet cafés in city centres and airports;
- Internet connected Information Kiosks for use by standing users;
- publicly available Wi-Fi hot spots;
- PIAPs in transportation vehicles such as buses, planes and trains.

In the ETSI work, no attempt has been made to formally classify PIAP types as current PIAPs differ across a wide range of dimensions and any attempt to match the guidance to a formal taxonomy of PIAP types is likely to lead to confusion (“What category does my proposed innovative new PIAP fit?”) and massive duplication, as much of the guidance can be applied to many very different types of PIAP.

## **5. Method**

Due to the immense diversity in the types of PIAP (see section 4), it is not practical to derive the guidelines from the results of any formal field studies of users at PIAP sites as too many sites and too many users would be needed to be in any way representative of the many, sometimes conflicting requirements of potential PIAP users. For example, the requirements of a very Internet aware business traveller (e.g. a need for a secure Wi-Fi hotspot paid for by means of an established service subscription) would be very different from a person unfamiliar with the Internet who suddenly needs to

find some information (e.g. a need for a simple one-time session logon and plenty of step-by-step instructions).

Fortunately, there are many characteristics of PIAPs that are highly related to those of public payphone access (as discussed in sections 1 and 2) and of cash machines (ATMs) as both of these are “walk up and use” services that are used irregularly and that must therefore be easily usable by a wide range of different types of user. Over many years there has been a lot of published work on the ergonomics and usability of both public telephones and ATMs and, more recently, much attention has been given to the accessibility issues related to these two types of public service. As a result, previously published guidelines from a wide range of sources have been used by ETSI STF324 as a key resource for initial potential guidelines.

Another very rich source of information for STF324 has been the wide range of published reports on the success, or otherwise, of a number of large PIAP deployment programs such as that from the Scottish Executive (2004). As many of these PIAP deployment programs were a result of major public policy initiatives in Europe and elsewhere, there was a requirement to report on the success of the program as a means of assessing the effectiveness of the way that the program’s money had been spent. Some of these reports included the results of quite extensive evaluations of the effectiveness of the benefits brought to end users of the PIAPs and of the degree to which the PIAPs’ services were used. These reports gave STF324 some well researched data and conclusions on success and failure factors for the long-term use of PIAPs by the client groups that they were designed to benefit. These sources gave a unique insight into how PIAPs can bring benefits to users and they complemented the other obvious measure of PIAP success – the profitability of the PIAP.

The ETSI work is being done in cooperation with stakeholders such as equipment suppliers, PIAP providers, operators and disability organisations. All forms of PIAPs are covered including Information Kiosks and public Wi-Fi hotspots. Guidance on PIAP equipment and environment design, matching the PIAP to categories of users and the provision of facilities suitable for people with a range of disabilities will all be covered. To assist in the gathering of the requirements from the different categories of stakeholder, different questionnaires were produced for each of the major categories of stakeholder. Several of the ideas for guidelines in the ETSI work have derived from the experience and practices of some of these stakeholders.

Two key determinants of the success of a set of guidelines are the degree to which they are perceived as relevant and helpful and the degree to which applying the guidelines results in a favourable outcome. STF324 is particularly fortunate that one of the stakeholders who was contacted is about to deploy PIAPs in some of the more rural communities in Spain and they

have a desire to ensure that they can provide some accessible workstations for people with disabilities. This PIAP provider has been enthusiastic to take the emerging ETSI guidelines and try to apply them to their project. This hopefully will result in benefits to the PIAP provider, who should have good design guidance to follow, and to the ETSI work which should be enhanced as a result of feedback from attempts to use its guidance.

A final element that has made a useful contribution to the development of the guidance has been ad-hoc fieldwork undertaken by the members of STF324, and followers of the work who were encouraged to assist in this way. Visits to a variety of different types of PIAPs whilst travelling around Europe and beyond have resulted in some good examples of best and worst practice PIAP solutions - often backed up by photographs about which the STF members could brainstorm alternative approaches. During these ad-hoc studies it was sometimes possible to gain useful feedback from users, PIAP assistants and those running the PIAP.

## **6. Access to the eSociety**

One of the key motivations for EC/EFTA funded work under the i2010 program is to ensure that all citizens of Europe have effective access to the eSociety. The most common understanding of this is the need to take steps to ensure that people with disabilities are not disadvantaged or excluded when they wish to make use of ICT services. The work of STF324 pays very careful attention to this important aim. It does so by ensuring that all guidance that is given is not such that it creates any barriers and that specific guidance designed to ensure that existing barriers are removed or reduced are placed throughout the guidance document as part of the total set of guidance relating to a specific topic (e.g. design of the workstation, ensuring that PIAPs are adequately signposted, support provided by PIAP staff). The disability related guidance has been taken from a very wide range of sources and adapted where appropriate to produce PIAP specific guidance. Of the many very excellent sources, three that provided particularly useful guidance were (ETSI, 2005a; CEN, 2003; Tiresias, 2008).

An important barrier to usage of ICT services such as PIAPs is that due to language and cultural factors (ETSI, 2006). This factor is particularly relevant for PIAPs as many PIAPs will have users that are travelling and come from a place that has a different language and culture than that in which the PIAP is located.

## 7. Sustainability

Many PIAPs fail to meet their original commercial objectives and close after a short time. Whilst not recommending funding models, the work of STF324 will include important guidance to help ensure that PIAPs can continue to provide valuable services for the broadest range of users, in line with their original expectations, after initial start-up funding has ceased. Much of the guidance for this part of the work has originated from the findings of the various assessments of PIAP deployment programmes that were referred to in section 5.

## 8. Guidance given in the ETSI PIAP document

The ETSI document (ETSI, 2008a) gives an extensive description of the many factors that influence the need for and success of a PIAP e.g. the range of different purposes for a PIAP, the variety of types of user, the physical and social context into which a PIAP is provided. This is followed by a wide range of recommendations divided into a number of different categories. The main categories and some of the guidance topics are:

- PIAP premises –including guidance on ways to help people find PIAPs, standard features to be provided, accessibility of the PIAP premises and workspaces, and PIAP staffing;
- Workspace hardware and accessories – including guidance about standard PIAP components (e.g. screens, keyboards), optional hardware, connectivity options and assistive devices;
- Software – including guidance related to accessibility, language and time related aspects of software applications;
- User registering and payment – including payment by means such as SMS as well as by credit card and cash;
- User identification and security - including methods of logon and, guidance related to smartcards, biometrics, privacy management and policies;
- Language and cultural issues – such as options for selecting languages, keyboard variations, user instruction material;
- User preferences – covering many of the personalization issues discussed in the paper “Personalization and User Profile Management” presented at this conference and in (ETSI, 2008b).

Amongst the many recommendations made, global and well known issues such as accessibility of PIAPs are comprehensively covered.

The document also contains a number of scenarios that describe the ways in which PIAPs that follow the guidance given in the document can bring

significant benefits to existing and potential users of PIAPs in carrying out important real world tasks.

## 9. Conclusion

PIAPs are not a new phenomenon, but it is hoped that the approach taken by ETSI STF324 in producing its guidance document can help to ensure that future PIAPs can take many forms and make them into successful enterprises. It is hoped that the guidance given in the output of this work (ETSI, 2008a) will ensure that these future PIAPs will be able to meet the needs of all people in society and ensure that nobody is excluded from the eSociety because of failings in the way that PIAPs have been implemented.

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