Law and Regulation to include Elderly in Innovations Stream

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Abstract
This paper explores the issue of a systematic and seamless way to link future innovations in Information Technology and segments of the population that might - for different reasons of deficiencies due to getting older - be left aside from advanced services coming with those innovations.

The approach is to try to transpose and extend the current concepts of universal access and of universal service mission from the context of Telecommunications to the context of ubiquitous computing and the elderly. This approach owes much for the data and historical perspective to an essay by Robert M. Frieden (2000), [1] on universal service in telecommunications (in the USA).

In this position paper, the notions of Technological Change and Technological Convergence are presented and their main characteristics analysed.

Then the concepts of universal access and universal service mission are viewed in the historical context of the world of telecommunications.

Several implications are drawn, in particular the universal service in telecommunications is bound to evolve and new answers to shape legislative and regulatory policies must be found.

The Telecommunications Act of 1996 - which reflects the present legislative situation (in the USA) - is briefly sketched with its implications on universal access to telecommunications services.

A proposal of legislative action on two levels - immediate and long term - is made.
In conclusion, taking the example of the Patent Act, a general spirit of balance of incentives and obligations is recommended for action on legislation towards ensuring enhanced services for segments of population such as the elderly.

1. Introduction
I would like to explore the following issue: how to link in a systematic and seamless way most of future innovations in Information Technology (IT) and segments of the population that might - for different reasons of deficiencies - be left aside from the bandwagon of the enhanced services coming with those innovations?

The segment in focus here, the elderly, constitutes a sizable and growing percentage of the population of the economically developed countries - where also pace of innovations in IT is high - This issue is, I believe, relevant to the theme of the Workshop.

This contribution is inspired and draws much from information found in an essay by Robert M. Frieden on universal service in telecommunications in the USA, Frieden (2000), [1].

In section 2 some important implications of technological changes are looked at.
In section 3 some features and implications of technical convergence are shown.

In section 4 the concepts of universal access and universal service mission are viewed in the historical context of the world of telecommunications in the context of the world of telecommunications; some implications are derived.

In section 5 the Principles of the Telecommunications Act (1996) are briefly recalled and discussed.

In section 6 we propose to address within a legal framework, the question asked in this paper, simultaneously on two levels - immediate and long term -.

In conclusion, taking the example of the Patent Act, where a general spirit of balance of incentives and obligations has proved to be in the long run both effective and productive, the same spirit is recommended for
action on legislation (towards ensuring enhanced services for segments of population such as the elderly) either on the Telecommunications Act or on the Patent Act itself.

2. Technological Changes, Implications

Drastic technological changes occur almost everyday now in our countries, and due to the growing globalisation of markets will unfailingly spread onto the world. The coming of age of integrated electronics about a quarter of century ago, coupled with continuous advances in computing and communications means that pressure for replacement by newer technology pervades all areas of applications. We are constantly being offered new devices and new services. As Frieden (2000) expresses it metaphorically for the telecommunications world: "... technological innovations allow communications service providers to offer faster, cheaper, better and smarter applications. ... Collectively, these technologies (Cable modems, wideband satellite and terrestrial broadband services, asymmetric digital subscriber links, and other technologies...) have triggered the transition from Plain Old Telephone Service ("POTS") to Pretty Amazing New Stuff ("PANS").

Fast pace of technological change means hope of immediate benefits for those who can adapt rapidly to new technologies and adopt without much harm new procedures. However, this continuous arrival of technological innovations -by changing for some people, to uncertain and unpredictable what was known as manageable since long times, in some essential aspects of everyday life such as (medicine, reservation in transport systems, contact with media, information access, etc...)-often means more difficulties and anxiety for those who for different reasons need special care- They become apprehensive of and they fear a loss of autonomy.

3. Technological Convergence, Implications

The situation caused by fast pace of technological change is accentuated by the phenomenon of technological convergence. ("Technological convergence arises when innovation blends previously discrete technologies" -Frieden's definition-). Convergence is not particular to IT but for obvious reasons involves IT quite often.

**Implications of technological convergence**

In the telecommunications world, convergence of communications technology has had a strong impact on the universal service mission. In what follows -slightly edited and compressed for comprehension in this context - is Frieden's list of arguments:

a) existing regulatory models do not work well any more:
   -long-standing, customized regulations governing the old technologies prove inappropriate for the resulting blended technology; for example, local and long distance telephone service were considered to be common carriage (a public utility offering subject to significant economic regulation designed to achieve non-discriminatory and cost-effective universal service). However, many of the enhanced services created by technological innovation, which traditionally have qualified for unregulated status, are becoming part of universal service elements.

b) the dichotomy between common carriers and private carriers has grown murky:
   - Increasingly, private carriers offer both competitive alternatives to basic services offered by regulated common carriers (e.g., wireless telephone services) and new services that should constitute part of a revised universal service mission.

c) the barriers to market entry have dropped because of technological innovations and the reluctance of regulators to deny market-entry opportunities.

d) regulators can no longer compel common carriers to provide unprofitable service, in return for protection from open markets and below-market rates of return.

e) it becomes harder to name "usual" services - in other words, traditional semantic distinctions between media also are blurred -(e.g., what is the status of internet telephony?).

f) the possibility of declining universal service funds arises just as many governments have articulated a broader and more ambitious universal service mission under which all citizens will have access to both POTS and PANS.
4. Ubiquity, Universal Access and Universal Service in the context of the world of Telecommunications

Up to now, we have been using the notions of universal access and universal service in an intuitive meaning. It may be relevant to present now (a bit more formally) and comment the concepts of universal access and universal service in the context of the world of telecommunications.

The universal service mission

-Ubiquitous (and low cost) access to basic telecommunications services is a fundamental public policy objective, comparable to access to other basic infrastructure such as electricity and water supply, [2].

A link in the chain of development process

-“Telecommunications is not simply a connection between people, but a link in the chain of the development process itself”, [3].

Let us remark that telecommunications services -basic or enhanced- is a key component in the personal development of an older person and thus is essential to allow two out of three goals for the elderly, (see White House- NSF Workshop, October 2000 [4]), namely:

-goal 1: prevent older people from having to move from independent environments into high cost alternatives.
-goal 2: tap/use the potential of the senior population.

The four components of universal access and universal service

Therefore, we can say with Frieden that the concepts of Universal Access and Universal Service are in flux, and must consider them together.

In the Telecommunications world, those concepts have been considered in terms of four components:

a-Infrastructure: What should be the scope and nature of network that serves users?

b-Services: What constitutes basic "lifeline" service?

c-Cost: What subsidies if any?

d-Maintenance and upgrades: What incentives must regulators create to ensure that universal service providers maintain and upgrade their networks?

Before attempting to transpose those notions to the context of the elderly, we must have a look at the current legislation.

5. The Telecommunications Act of 1996 and its Implications

The Telecommunications Act of 1996 amended the Communications Act of 1934 to establish an explicit mandate for the Federal Communications Commission (FCC), to promote universal access to telecommunications.

Six general principles for universal service

The Act directed FCC (and a board called the Joint Board) [1], to base the preservation and advancement of universal service on the following six general principles (additional principles might be added):

1. Quality services should be available at just, reasonable, affordable rates;

2. Access to advanced services, in all regions of the nation;

3. Access to basic and advanced services in rural, high-cost areas and to low-income consumers at rates comparable;

4. All providers should make equitable and non-discriminatory contributions to preservation and advancement of universal service;

5. Universal service support mechanisms at state and federal levels;

6. Schools, libraries and health care facilities should have access to advanced services.


The Telecommunications Act as a Framework

I believe that subsidization regulations and more generally the Financial Model should be separated from a common global Framework. They depend much on the national culture and government. For example, in the
USA the FCC issued a Report and Order on universal service (1997) determining that among the following services requiring subsidization to achieve ubiquity were:

- Access to emergency services, including 911 and enhanced 911 (which identifies a caller's location)
- Access to directory assistance

But those services are provided in a complete different way in other countries (in France for example, the equivalent of 911 is provided by the Emergency Unit of the Health Authority - or by the local Fire Station - and subsidized in a different way. The access to the directory assistance is still provided by the Minitel System).

Can we still make a dichotomy between Telecommunications and Information Services?

More enterprises are providing both telecommunications and information services and sometimes a service combines aspects of both classifications - how Internet telephony is to be classified? - Such a clean semantic dichotomy does not work in a time of rapid technological evolution and convergence.

So far the common carrier regulatory regime has enabled policy makers to execute the universal service mission. Regulators could impose costs by forcing rate averaging and cross-subsidization - as a public interest dividend extracted in exchange for the carrier's insulation from competition and some types of criminal and civil liability [1].

This situation is bound to evolve. How much will be left of the current framework?

Moreover the characteristics of the elderly people are not always the characteristics of qualifying low-income consumers; therefore the definitions of Lifeline and Link-up services will have to be redefined.

6. Universal access to Universal service as a Human Right (subject to legislation)

We will assume a substantial agreement on the following intuitive notions:

1. We could consider that for elderly people, at anytime, almost everywhere there is a need for some universal basic services (e.g., the access to 911 and enhanced 911 could be such services).
2. If accessibility is denied, then de facto those people are excluded from the community, in other words they are not treated with equal dignity and experience a loss of human rights (totalitarian regimes are those who do not respect the principle of equal dignity).

Therefore in a democracy, access to those services could be considered a human right and be the subject of legislation.

3. Do we have the adequate legal concepts to approach that legislation?

Universal accessibility to IT services for the elderly, is an emerging digital phenomena.

There is a sense of mismatch between traditional legal concepts and emerging digital phenomena [6]. How do we cope with this?

7. Linking universal service mission to the Intellectual Property Rights

On a long term approach I would suggest to impact directly on the Transfer of Technology process, by the following rationale:

- Innovations are the tangible results of a successful technology transfer
- One major way to ensure technology transfer is through patenting and licensing new innovations.
- By legally linking the patent and /license - granted to Authors and Inventors - to obligations of providing access to the services derived from those innovations, one builds a systematic and seamless way to provide universal accessibility.

This is a preliminary sketch. More work is necessary.

8. Conclusion

I am aware that one does not solve a difficult and challenging issue by a mere suggestion to add or modify legislation. But I believe it is a step in the right direction.

In the US Constitution, more than 200 years ago was proposed the Patent Act: "Congress shall have the Power...to promote the progress of Science and useful Arts, by securing for limited Times to,..."

Taking the Patent Act as a piece of legislation which links Science (and Technology) and Law, one can notice that a general spirit of balance of incentives and obligations has proved to be in the long run both effective and productive. The same spirit is recommended for action on legislation both on the Telecommunications Act and on the Patent Act itself in order to ensure accessibility to enhanced services to the elderly.
Two hundred years ago, nothing at that time could be said of the relation between Intellectual Property as a Right and universal accessibility. However already the Spheres of Science (and technology) and the Sphere of Law were already linked.
Now is the time to pursue in that direction.

References