

Françoise Massit-Folléa
Communication studies, Ecole Normale Supérieure Lettres et Sciences humaine
Counsellor, Department New Technologies for Society
Ministry of Research, Paris, France

Research trends on Internet Uses : a French perspective

1. A new Department in the French Ministry of Research

The French Ministry of Research prepares and implements the major orientations of national policy. It is a light administrative structure (400 public servants and almost the same number of part-time academic counsellors), linked to the ministry of national Education. Its specific mission is focussed on preparing policy and evaluation rather than on management.

This mission is handled by two divisions, one for technology and the other for fundamental research.

The technology division prepares the technological development and innovation policy. It determines the procedures of public funding for industrial research as well as the procedures for supporting innovation. It defines the ways to use the results of public research and technological cooperations with companies and other institutions inside or outside the public domain.

This division includes

- two sub-directorates, one for innovation, one for the integration of ICT in the educational field.
- 5 departments : 4 are specifically oriented on, respectively, Space & aeronautics, Bio-engineering, Energy, transports & environment, and Information & Communication technologies.
- The fifth department, which I'm working in, is called *New technologies for Society*. It was created on may 2003. It is not dedicated to a specific technology but intends to occupy a crossing position, with a multidisciplinary and systemic approach.
- It demonstrates a growing interest for social sciences contribution into the technological research : Its director and 5 counsellors come from different public institutions and academic specialities (engineering, medicine, innovation management, education sciences, communication studies) and acted for many years in building bridges between technology and society.

2. Missions of the Departement New technologies for society

Its mission is to identify themes, to support applied research teams and to organize research projects under a general aspect : *Social implications of the emergence and diffusion of new technologies as a whole*.(different kinds of technology, in the public sphere, the private life and the workfield.)

This requires to encourage collaborations between public labs, public institutions & agencies, companies (mainly small & medium-sized) and civil society.

We identified 3 technological areas to work on : 1rst of all, internet technology ; then bio-tech and nano-technologies (I'll speak only about the first one ...).

The main instrument of our action is Research Calls, granted through the technological research Fund¹ and somme additional funds coming through a large public policy program on internet development (code-name in Matignon² : ReSo 2007).

Since may 2003, 3 calls were launched : two on Internet Uses, one on Websites creation for disseminating scientific culture (ex : the life, works and posterity of Marie Curie)³. My presentation deals with our past 2 years activity, but I must mention that our big project for 2005 is to launch a new technological research network for « security and acceptability ».

We focussed our research calls on Internet Uses on the theme of USABILITY, which I could define as the association of 3 theoretical and practical components : acceptability (which means more than access), appropriation (more than adoption) and security (a main stake in the relationship, and confidence building, between Science and Society).

As a first assessment, we can say that it is not always easy

- (i) to disrupt the former frontiers between research fields,
- (ii) to make society inputs recognized by techno specialists,
- (iii) to maintain research requirements in the political frame of « IT-zation » of modern society (the so-called « information society » at the national, european and international levels).

But we share these objectives with a large community of researchers and, at the moment, we don't lack official support.

¹ As regards the future Law on Public Research organization (probably on spring 2005), it can be subject to some changes.

² Prime minister's Office

³ cf the web portal www.science.gouv.fr.

3. Understanding uses (1) : what is at stake ?

To-day the development of new technologies is drawn no longer by pure technical innovations but mainly by the social acceptation and invention of their applications.

For economic growth and social progress, it is thus necessary to promote comprehensive models of uses

- to help new products and services to reach their publics,
- to prevent failures in conception and distribution of new objects and procedures,
- to share more broadly the power of creating change by the way of technology.

On another level, it is important to take into account that the words Uses, Applications and Services are not equivalent. For one decade, or even more, governments are dedicated to promote the development of ICT : in the US, since Al Gore's National Information Infrastructure, in the European Union with the Lisbon Agenda, in France since PAGSI to ReSO2007, etc ., It takes multiple forms of public policies (bills, public funding, public-private partnerships) in order to enhance the capacities of industry, public managers and citizens or consumers to enter the so-called Information Society.

But we must admit that technological determinism is still at work in political decisions : « give them low cost access and equipment, open the market, and adapt the law, deliver continuous propaganda around the benefits of info-tech, and everyone will become a part of the global information society ». It is not so easy, nor so positive.

Consequently, the challenge for technological research is to link-up with fundamental research in social sciences in order to be able

- to anticipate new uses
- to give enlightenment to the multiples ways of becoming a user
- to appreciate the level of change / of continuity in human practices.

4. Understanding uses (2) : questions of meanings

The word USE(S) is dreadfully polysemic. And much more in French ... (we make a lot of distinctions between *l'usager*, *l'utilisateur*, *l'habitué*, etc).

To use means to employ, to handle, to experiment, an object as a tool (be this object natural, industrial or virtual). That's the meaning of the « instructions for use » (but, very often they seem not clear at all !). One point is to emphasize : that meaning of « use » is concerning the 2 ends of the process (for instance, « e-vote » is used both by the administration and the citizen, but not in the same way).

A *use* is a well-established social practice, a kind of habit, the incorporation of a « savoir-faire » in an object, a technical or a social system. But if the practice is made usual by time, it can be through repetition or on different scales of time : mn, years, decades, even centuries ! Despite the fact that the market wishes to go as fast as technology permits, Uses are scarcely predictable (cf the SMS success story vs the WAP failure), and Users are often considered as bad-tempered (cf for the tape-recorder : instead of recording Tv programs, it became a huge market for movie pictures rental) !

The user is a complex private and public figure, indeed. Even as a lonely person, he is a member of society. And he reacts with diverse and contradictory needs, desires, demands, opinions, behaviours, representations, capacities, obligations, and so on. For instance, as a consumer in e-commerce, he would appreciate to be « profiled » by marketing tools to get a best service but in the same time he can disagree with the threat on privacy ; turning to our first example, as a citizen, he could be fond of e-voting as a commodity and reluctant to possible distortions (whether technical or socio-political).

That's the reason why we always prefer to speak of useS and userS, with an S.

5. Research fields for IT Uses

A multidisciplinary approach is necessary if we want to clarify IT uses. For several reasons :

- (i) « information technology » covers 3 technological layers embedded in equipment, system and applications ; the 3rd one is depending on required functions and continuous innovation.

Computer science remains the core approach to these issues, but aiming to create new objects, products and procedures needs to pay attention also to *cognition*, *ergonomy* and *design* issues.

- (ii) As the so-called « information society » is attracting promises and efforts worldwide, both from the business and the public spheres, 2 other research fields need to be mobilized :

- *economics* : e-economy and globalized networking economy are to be studied under the aspects of business processing, internal or external relationship between firms, and also in the light of new economical models possibly emerging from the « end to end » internet architecture (cf peer to peer vs intellectual property)

- *politics* : it deals with new ways of regulation, made necessary by the international expansion of the infosphere, and new questions arisen about public services or common interest, and on the new perimeter of democracy (ex. e-government, alternative global citizenship, community vs Nation State, etc.)

- (iii) In French speaking countries, we generally use the expression ICT more than IT : we insist on the Communication process. This is the sign of a strong interest in research works inspired by sociology, anthropology, social psychology, communication studies.

To summarize, our conception of Uses Studies is dedicated less to the instrumental (practical) dimension of IT than to its socialized functions : the different ways of embedding technology in general contexts and individual minds.

6. Internet Uses Research : a theoretical background

Four research streams are present in the background of my analysis : media studies, sociology of technical innovation, public policy studies and cultural studies (at large).

It's interesting to see how their application to Internet Uses Studies carries out a fertile mixing of anglo-american and french (or french-speaking) research tradition.

We have to go far beyond the Diffusion model theorized by Everett Rogers. As regards to Media Studies, we can go back 30 years ago, when social sciences took the opposite of Lazarsfeld's theory of Media Effects and developed the elements of a Media Reception theory. In the US (Elihu Katz), in Quebec (Serge Proulx), in France (Daniel Dayan), a wide range of observations and reflexions looked no more to « what media do to people » but to « what people do to – and with – media » : the stress translated from media production and influence to uses & gratifications and symbolization processes.

According to Anne-Marie Laulan, it was a kind of revenge of the History : a content, no more than a machine, don't come out « ready-for-use » from the hands of its industrial, commercial or political builders ; it is slowly, progressively, shaped by the user. As Marc Guillaume says, « the social insertion of a new technology depends less on its technical and functional performances than on its possibilities of being integrated in the whole significations of the users' ways of life ».

This view is supported by the history of communication techniques, as told by Patrice Flichy, who described a circulating model of invention and practices and by the sociology of innovation, as earlier conceived by Callon et Latour, who insisted on negotiations and interactions. It thus integrates the concepts of Translation and Mediation, even in the most practical sense (ex. the role of marketing and publicity in the life of a product or a notion).

It also includes the wonderful contribution of Michel de Certeau on the « Arts de faire » : what he called «invention of daily life » shows off the real power of the user in adapting, fixing up, sometimes highjacking the prescribed or proposed uses of the objects.

Denying technical as well as social determinisms (cf Josiane Jouet), this theoretical approach finally tries to include the production and diffusion of new products and systems in a wider landscape, that is the general state of society at a certain time and in a certain space (cf Thierry Vedel). We agree with the assumption that this general state is related to the crossing of three types of normativity : the state of the technics, political and legal rules and social behaviors and values.

7. Internet Uses Research, modelization sketch

To summarize : in order to study the uses of ICT, we can choose or, better, combine the following models : diffusion, circulation, translation, adoption, regulation.

Using two new concepts can help us :

(i) « *sense-making* » : as explained by Philippe Mallein and Yves Toussaint, it sketches individual and societal behaviors related to technical innovation under 4 couples of notion :

idealization / banalization

substitution / hybridation

revolution / evolution

passive identity / active identity

where the first column is the dream (or the nightmare !) and the second is closer to reality.

(ii) « *path-finding* » : as developed by a growing number of researchers in public or private labs (cf Serge Proulx, Christian Licoppe), it is presenting a new empirical issue : how the appropriation of new technologies is combining the individual history and the constellation of past, present and emerging communication objects. Main topics are :

peculiarity & context

technical culture improvement

continuity & disruption

social network & cognitive resources

This approach aims to demonstrate how informational and cognitive environment mixes with social relationships to elaborate peculiar information and communication practices.

For instance, some researchers studied the link between videogames habit as a child and its impact on internet practices as an adult ; others dealt with the differentiation of practices according to gender ; or the influence of existing social networks in know-how making up, and so on.

A special mention has to be given to research works dedicated to Free Software communities, where cognitive sciences and moral sociology are main contributors (Laurent Thévenot, Bernard Conein, Nicolas Auray).

But, now, let's go to action

8. Questions of methodology

When it was decided to launch research calls on Internet Uses, our new Department, although inspired by previous technological research methods, had to established its own rules and requirements.

We made it by identifying 3 objects, 3 challenges and 3 approaches.

The 3 objects are : effective uses, emerging uses, conception assisted by uses.

We take the opposite of engineering culture in focussing mainly on the first item. However, regarding new technologies, we can't ignore the interest of studying the continuum between upstream and downstream in uses processing.

The 3 challenges are : the difference between the time of technics and the time of uses (the first one goes faster), the specific nature of informational goods (immateriality and non-rivalty), the double pressure of market and government (looking for easy, large and quick adoption).

Statistical data, quantitative measures, are necessary on one side (for industry and public policy) but they give way to heavy tendancies and motionless conception of time. They pay few attention to low-noise signals and to the heterogeneity of practice fields (home, work, school, individual as well as collective practices etc.), They are forgetting that new technical tools are not an explanation, but a *potential* for change.

The 3 approaches are : observation (empirical studies), contextualization (studies based on the state of the art), modelization .

Next year, we intend to experience a comprehensive evaluation of the two first calls, in order to investigate old and new patterns at work in the funded projects, and we'll organize a conference to disseminate research results.

9. Two Research Calls on Internet Uses

2003

Number of projects : proposed = 86, selected = 19

Funding : 1.2 b euros

Priorities : - health / handicap
 - access to knowledge, shared building of resources for schools & universities
 - internet services for citizens & for specific groups

Projects holders :

40 Public Labs,
 25 Associations or Public Councils
 21 Companies or Consulting Agencies

2004

Number of projects : proposed = 132, selected = 26

Funding : 2.4 b euros (50% from DATAR)

Priorities : - health / handicap
 - cultural and scientific practices
 - citizen uses

Typology :

- understanding of well-established uses
 - study of the cooperation process in socio-technological innovation
 - study of the High Speed Internet role in territorial development

Projects holders : 52 Public Labs, 35 Companies, 24 Associations, 21 Public Agencies, 8 Town Councils

Project contents :

HEALTH : medical care organization, assistance to medical professions, digital services for disabled people ...

CULTURE AND SCIENCE : access to cultural heritage, relationship between artists and the public, new tools and organizations for creating and teaching, digital publishing ...

CITIZEN USES : e-government, public information, development of tourism, environmental issues, support to underprivileged people, new sociability in workplaces and workforce ...

For both calls, our department wrote the Call Paper and decided selection criteria, under the supervision of a specific Committee, composed of academic researchers and business managers. We choosed 2 experts for 1 project (as possible, 1 expert from technological field, the other from social sciences) and managed the relationships with project holders. The Committee selected the projects according to their relevance to the Call and to the necessary balance in priorities, costs and project-holders status.

In the case of the second call, half of the funding came from an interministerial agency (DATAR : délégation à l'aménagement du territoire). It was directly resulting of a public policy decision (July 2003) intending to promote and support internet technologies to the benefit of local territories and authorities. In the same time, another call, managed by another department, targetted the technical development of alternative broadband internet for rural and remote areas.

10. Focus on Multimedia Uses in Museums

Why that choice ? Because the theme of our conference is « Internet, Culture and Society ». Because a lot of speaking or attending people are interested in Art. And also because my lab in the Ecole Normale Supérieure is deeply concerned by these issues.

Let me tell you a story : a few years ago, I met the manager of a small company whose strategical interest was in *using mobile phone to new uses*. Among his projects, he would like to find new ways of guiding visitors in museums and open-air cultural sites, by using their personal mobile phone. What could be the opportunities and difficulties of a new technical platform (to be conceived) for a classical use (to get informations during the visit of a cultural place) ? We established a research consortium between my lab (C2SO - Communication, Culture and Society), another ENS lab working on socio-linguistics, one telecom development lab from a School of Engineers (INSA Lyon), one from the University Louis Lumière in Lyon, specialized in transport economics, plus a start-up from Grenoble University specialized in C.A.U, two small companies (audiorecording and traditional audioguiding) and several Museums curators in Lyon. We received a 2-years funding by the way of the RIAM network (which associates three Ministries : Research, Culture and Industry). At the beginning of the project, our intention was to experiment and evaluate the diverse dimensions (socio-cultural, audio-linguistical, economical) of acceptance of the new technical proposal by a panel of end-users. In the course of the research project, we had to re-orientate our questioning : before testing end-uses, we met the necessity of primarily and solidly building the project with the Museums managers and staffs, i.e the MEDIATORS of the cultural proposal. This Uses Study began with one family of Users. The end-users study came in a second stage !

This experience, and similar ones, are perfectly reflected in a synthetic paper written by my colleague Joelle Le Marec in a recent issue (N°102, Summer 2004) of *Culture & Recherche*, a Journal published by the Research and Technology department of the French Ministry of Culture.

Conclusion

I would say that, in spite of the promise of an immediate and non-mediated access to any kind of informational resources, IT Uses are embedded in a complex communication process. Thus we always need to go far beyond information in its mathematical sense, even digital, if we want to understand something about knowledge or social life.

Beyond statistical measures, a socio-technological vision of Uses pays attention to low and short signals, to crisis and stratagems in personal and social adoption, to specific grounds as well as to general evolutions. It tries to modelize the appropriation process of new technologies as a socio-technical construction. And, last but not least, it demonstrates that the new-tech user is nor a lab animal, nor a passive consumer, but an active human subject, a creative citizen.

Françoise Massit-Folléa
Professor, Communication studies, Ecole Normale Supérieure Lettres et Sciences humaines
Counsellor, Department New Technologies for Society
Ministry of Research, Paris, France
francoise.massit@recherche.gouv.fr

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