Netizens, Communities, eCitizens

being human in the digital age

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Abstract

ICT is stimulating changes in the way most people earn their incomes; altering the balance between our roles as consumer and producers; changing the way we educate succeeding generation and train ourselves; changing the fruition of world's cultural heritage; transforming the delivery of health care; altering the way we govern ourselves; changing the way we form communities; altering the way we obtain and communicate information; contributing to bridge some cultural or physical gaps; and modifying pattern of activity among the elderly.

This is not a complete list of changes, but highlights some of the most prominent and important effects of ICT on our society. We are witnessing relevant changes due both to technological enhancements and modification of user requirements/expectations. In recent times the digital domain, once strictly populated by professional users and computer Scientists, open up to former digitally divided. Technology is evolving toward a mature "calm" phase, "users" are overlapping more and more "citizens" and they consider technology and eServices as an everyday commodity, to buy a ticket, to meet a medical doctor, to access weather forecast. It is a common understanding that recent generations represent a discontinuity if compared with the past ones. How do we identify a digital native? They are the eCitizens.

This paper presents views of a society changing under the influence of advanced information technology. Computers have been around for about half a century and their social effects have been described under many headings.

Foreword

"In conducting research four years ago online to determine people's uses for the global computer communications network, I became aware that there was a new social institution, an electronic commons, developing. It was exciting to explore this new social institution. Others online shared this excitement. I discovered from those who wrote me that the people I was writing about were citizens of the Net, or Netizens. " (1995)

Michael and Ronda Hauben's - "Netizens: On the History and Impact of Usenet and the Internet."

Computers have been around for about half a century and their social effects have been described under many headings. Society is changing under the influence of advanced information technology; we face fundamental transformations in social organisation and structure, as it will be outlines in the next paragraphs. Such a change is much more evident in the recent period of time. This even because young citizens are changing and the change is not smooth it's a real discontinuity, young think different!

ICT as a driver of change

We are witnessing relevant changes due both to technological enhancements and modification of user requirements/expectations. ICT is stimulating changes in the way most people earn their incomes; altering the balance between our roles as consumer and producers; changing the way we educate succeeding generation and train ourselves; changing the fruition of world's cultural heritage; transforming the delivery of health care; altering the way we govern ourselves; changing the way we form and manage communities; altering the way we obtain and communicate information; contributing to bridge some cultural or physical gaps; and modifying pattern of activity among the elderly, last but not least potentially contributing to a green world.

This is not a complete list of changes, but highlights some of the most prominent and important effects of ICT on our society.

This set of changes was envisaged by the European Commission in the middle of the nineties generating the consciousness to face a real revolution in the society. Such a future Society was termed "Information Society[1]" in order to stress the social side of those technologies. The social impact of ICT was significant and it was very clear that the information society was going to lead a significant re-shaping of the panorama. If on one side, as usual, this technology cancelled entire branches of workers such as typists and assistants, on the other side it created a rich set of new working opportunities not only for system managers and programmes but experts in desktop publishing, web publisher, graphics designer the so called "digital opportunities[2]".

[1] Bangemann Report that, in partial antithesis with the Al Gore's concept of Super Information Highways, presented the "European path" towards the Information Society. http://ec.europa.eu/archives/ISPO/infosoc/backg/bangeman.html

[2] On the occasion of the G8 Summit in Kyushu-Okinawa (2000), the Charter on Global Information Society was adopted. In the Okinawa Charter, the G8 leaders agreed to establish a Digital Opportunity Task Force (DOT Force) aimed at integrating efforts to bridge the digital divide into a broader international approach. DOT Force subsequently evolved into GAID (Global Alliance for ICT and Development).

The European Commission's Digital Competitiveness report published on August 2009 shows that "Europe's digital sector has made strong progress since 2005: 56% of Europeans now regularly use the internet, 80% of them via a high-speed connection (compared to only one third in 2004), making Europe the world leader in broadband internet. Europe is the world's first truly mobile continent with more mobile subscribers than citizens (a take up rate of 119%). Europe can advance even further as a generation of "digitally savvy" young Europeans becomes a strong market driver for growth and innovation. Building on the potential of the digital economy is essential for Europe's sustainable recovery from the economic crisis. Today the Commission has asked the public what future strategy the EU should adopt to make the digital economy run at full speed."

Everyone experienced in "ICT based innovation" knows that "It is not only a matter of technology". Of course technology advances are one of the potential actors as in the case of the diffusion of personal computing or easy access to digital networking. Anyway different parameters are actively influencing e-Services success or failure: cultural aspects, organisational issues, bureaucracy and workflow, infrastructure and technology in general, user's habits, literacy, capacity, market models or merely interaction design.

From "vision" to reality

Thirty years ago information scientist and computer users witnessed the unprecedented revolution due to personal computing. They came from the bottom and started to "eat" the computer market piece by piece. This was the result of the combined action both of hardware and software. On one side hardware obeying to the Moore's law, on the other side software developers defining new human computer interaction paradigms and completely new applications characterised by a high added value. Some aggressive software companies decided to enter very profitable market sectors providing a pc based application performing 60/70% of the original[3] ones at 1/10 of the cost.

From the "professional" Charlie Chaplin promoting the first generation of IBM PCs to the APPLE Macintosh revolution against the Big Brother in 1984 and later on again the soft rebellion of *Think different!*

In the middle of the nineties it was the time to break the walls of the professional market and try the assault to households. It was the time of *Where to you want to go today?* and *Information at your fingertips*. Starting from '95 the focus of advertisement was enlarged to families and household customers. After the discontinuity due to the enlarged market focus we experienced a quite long period of time without major announcements, performance improvements, price reduction nothing more. Now some major trends are recognizable. Such

[3] Workstation or mainframe based.

trends are affecting technology, users and the market.

In order to introduce some of these trends it is interesting to refer to the intuition of a well-known visionary: Mark Weiser. During one of his talks[4], Weiser outlined a set of principles describing his vision of future computing, "ubiquitous computing":

- The purpose of a computer is to help you do something else;
- The best computer is a quiet, invisible servant;
- The more you can do by intuition the smarter you are; the computer should extend your unconscious;
- Technology should create calm.

A possible definition of Calm technology it might be "that which informs but doesn't demand our focus or attention."

The Weiser's concept of computer as a pure mean, an invisible servant extending our unconscious and creating calm seems to be closer now. Calm technology is our next goal, an ambitious goal.

Anyway technology is evolving sometimes reshaping already proposed solutions. Smart phones much more comprehensive than the old "Palm PCs" integrate mobile phone, GPS and multimedia PC functionalities. Almost the same happened for the old "Tablet PC" newly reborn under the flag of "iPad" and brothers. The new generation is *always on* and *position aware* as smart phones are.

The availability of such devices together with the necessary widespread diffusion of wireless connectivity both Wi-Fi or mobile-phone based make the Mark Weiser[5] concept of ubiquitous computing come true. Users are now surrounded by a kind of info-sphere ensuring the best and cheapest connectivity everywhere. The combined effect of portable devices and info sphere pushed users from "e" services to "m" services (e.g. from eGovernment to mGovernment).

One last comment on the evolution of technology, as it happens in the maturity phase of many sectors "performances are good by definition… users' choice is about appeal and perceived utility."

Of course "evolution" it is not an exclusive domain of technology even users are evolving, their own requirements and expectations are changing. New opportunities offered by emerging technologies generate new behaviours and new services. As we will discuss later this is to some extent due to the advent of "digital natives" and partially due to the evolution of users expectation. It is evident that a new way to use / "consume" media, information & news is coming to the fore. In

[4] (*) Mark D. Weiser (July 23, 1952 – April 27, 1999) was a chief scientist at Xerox PARC

[5] Mark D. Weiser (July 23, 1952 – April 27, 1999) was a chief scientist at Xerox PARC in the United States. Weiser is widely considered to be the father of ubiquitous computing, a term he coined in 1988 (Wikipedia)

some way the paradigm "media is the message" is now media, message and consume are tightly linked together. One of the first sectors touched by such a new age was the music sector. In a glimpse we turned our approach to contemporary music from few "long playing" per year to thousands of mp3 files constantly updated.

In recent times the digital domain, once strictly populated by professional users and computer Scientists, open up to former digitally divided. Of course this is a natural part of the game, in the last twenty years we witnessed the progressive change of the audience attending major events. Traditional highly scientifically skilled ACM Siggraph attendees left the arena to artists, special effects supervisors, architects, and video clip and promo producers. The European twin IMAGINA is now domain of architects and dentists[6]. The World Wide Web conferences did the same in favour of philosophers, writers, art historians, civil servants.

The other side of the coin of such a renewed audience is the evolution from content consumer to content prosumer. Users are no more simply "consuming" content; they are even creating and sharing their own content.

There is another significant trend directly addressing users: from *information provision* to *service provision*. For quite a long time the sentence due to Bill Gates "information at your fingertips" ruled the digital domain and the incredible information container represented by the internet was the source. Next step was to pass from information provision to service provision; this means in general a bidirectional flux of information and a higher level of interaction. As a tangible result a number of eServices appeared in already known or completely new sectors increasing the added value provided by technology. At the same time started a shift from the Information Society toward knowledge society and more over consciousness society:

eCitizens: the digital native generation

Technology is evolving toward a mature "calm" phase, "users" are overlapping more and more "citizens" and they consider technology and eServices as an everyday commodity, to buy a ticket, to meet a medical doctor, to access weather forecast. The gap between *eCitizens* and *digitally divided citizens* did not disappear yet but is becoming smaller every day. In the near future young generations will not figure out how their parents use to fulfil some tasks in the past. Museums will exhibit phone booths, travel agencies, yellow pages, fax machines as "relicts" from the pre-digital age.

It is a common understanding that recent generations represent a discontinuity if compared with the past ones. Such discontinuity or if preferred singularity is recognised both by adults complaining because their children do not pay attention or are getting bored by learning and by adults that discovered new skills and capabilities in young generations.

As a result of this environmental change, the combined action of long term exposure to TV programmes, video games, Internet browsing and more we face now a completely new generation,

[6] Dentistry entering the 3d digital world, an international conference exploring 3d digital technologies in dentistry. www.imagina.mc

the digital natives[7]. They are the eCitizens. How do we identify a digital native? Digital Natives are used to receiving information really fast. Their brain seems to be able to process information in parallel and multi-task. So they prefer direct/random access to information and content. Graphic and Video content are longer preferred than text. They use to look for support on line and use to belong to one or more communities (users, supporters, owners,). This is a side effect of their special skills acquired in hours and hours of digital tasks.

It is really so evident a different mind-set? Some experts[8] call this "neuroplasticity", the ability of our brain to re-shape accordingly with specific input patterns and reaction required. In addition to neuroplasticity, social psychology offers compelling proof that thinking patterns change depending on an individual's experiences. A sufficiently long training may activate this phenomenon[9]. In fact, some researchers believe multi-sensory input helps kids learn, retain and use information better. Does this sound familiar? Our digital natives engage in this type of brain plasticity every day. Digital natives have acquired special skills thanks to the "involuntary" massive training due to TV, games and other digital devices. They have grown up paying close attention to the sensory input of MP3 players, cell phones, video games and computers. It is a common understanding that people who grow up in different cultures do not just think about different things, they actually think differently. The environment and culture in which people are raised affects and even determines many of their thought processes. So the Apple motto "think different!" is much more than a motto.

Re-shaping the market

Change in technology and user profiles cannot avoid impacting the market. Market is evolving in a very significant way. One of the first effects is the transition from the purchase of plastic boxes on the shelves containing DVDs plus printed user manuals to the on line purchase and download of applications with pdf or eBook manuals. The idea to buy something "immaterial" on line transferring the right to use in an immaterial way is now accepted by the market. iTunes as a kind of rule breaker promoted this approach in the field of the on line music market many[10] years ago.

At the same time we witnessed to a significant shift from few expensive software solutions to many cheap and small Apps. This is in some way related to the interesting re-opening of the software market to single and small groups of software developers due to the availability of new successful development platforms to be "populated" by applications and the advantage of the new software market model based on online distribution and support. The last aspect has relevant effects on the software industry because on one side it bridges the gap between micro and small software enterprises and medium and big companies both offering a set of very well-known e-commerce platforms and creating business opportunities for compact and well-focused applications. This may recall the dilemma between multipurpose devices, many things at an average level and ad hoc devices, few things in the best way. Many years ago, "many" of course in the ICT time scale, a

[7] Marc Prensky, Digital Natives, Digital Immigrants, On the Horizon (NCB University Press, Vol. 9 No. 5, October 2001).

[8] Cathleen Richardson, 21st Century Learners: Research, Hotchalk - http://www.hotchalk.com/mydesk/index.php/editorial/54-students/66-21st-century-learners-research, Mark Prensky, Do They Really Think Differently?, On the Horizon (NCB University Press, Vo 6, December 2001), The Partnership for 21st Century Skills - http://www.p21.org/

[9] This period of time and the quality of the result depend on another factor termed "malleability"

[10] Many years in the ICT time scale of course!

"guru" in the field of interaction design, Donald Norman, proposed his own solution to this problem creating the iPod. Apps in general use to follow this last approach; you may need many single apps in order to accomplish a number of different tasks.

Another relevant innovative trend is crowdsourcing and similar initiatives. It seems to be a completely new paradigm of software development beyond user groups and open software, the only way to face huge projects and compete with key software enterprises. The average "size" of "social" products and services is now affordable only by crowdsourcing. A number of services that does not find a proper economic dimension or even do not have the required appeal in order to be provided by companies may only rely on the crowd. In the global society crowds are playing the role of "public services".

To conclude we cannot forget that the computer scientist concept of "Clouds" captured the users so we moved from local storage and processing to cloud computing in its various declinations (SaaS, PaaS, IaaS, Haas). So clouds are now populated by business data as well as by photo albums and songs. Anyway at least the idea to access your data anytime anywhere is again a powerful driver of innovation.

Trying to recap even the consumer software market is changing, now is getting closer to the music market.

- People is looking for the Top 10 Apps;
- The consume of Apps is continuous;
- The market model is based on low costs /big numbers;
- The IPR management is evolving in order to self-adapt to the new trends;
- Data are migrating from local storage to clouds;
- The most popular applications are embedded as components of the Internet browsers;
- Digital media are evolving . . .
- . . .

Social Media: opportunities and threats

The idea to share something with someone else, a group of people, sometimes generates a sense of belonging to a "community". Memetics use to consider this "something" as the "meme". A meme is a cognitive or behavioural pattern that can be transmitted from one individual to another one. Consider young people that wear clothes in an unconventional way or use signs and gestures that show that they belong to a particular community. The basic mechanism is very simple; since the individual who transmitted the meme will continue to carry it, the transmission can be interpreted as a replication. A meme carrier, known as a replicator, is created when a copy of the meme is made in the memory of another individual.

Replication or self-reproduction is the basis for the memetic life cycle. This leads to the spread of memes to more and more individuals, such that the meme acts as a replicator, in a similar way to the gene (Dawkins 1976; Moritz 1990).

Communities are integral part of the history of technology, in the specific field of communication we find "amateur radio" also called *ham radio* or OM (old man) and later on the citizens' band

(CB) community. Of course technical communities are not limited to the field of communications, we have computer graphics, video games, and more such as the Manga Fandom[11] but communication is the key player in the creation of communities and due to this communities directly dealing with communication means are facilitated.

In the early stages of computer intercommunication, apart from exchanging signals and data, a basic text messages service was implemented. Ancient timesharing computer systems had local "mail" services so its users could communicate. But the real power of "electronic" mail came true when mail could be distributed to distant computers and all the networked users could communicate. Late in the '80ies the increasing use of bulletin board systems (BBS), file transfer protocol (FTP), Telnet and other communication tools such are Veronica and Gopher prepared the playground for the massive use of the Internet and the World Wide Web. Since the beginning of computer users communication a sense of community arose and a common feeling on behavioural rules was implemented.

As already outlined social media are one of the milestones of the recently introduced in the digital domain. Social media is the key of success of the digital domain the reply to the Win '95 promo "Where do you want to go today?" the real mass use of digital resources, the one creating "addiction" is the social side. Since the creation of the first blogs opening the opportunity to share opinions and beliefs with a significant number of users the number of "social" application grow up very quickly: Blogs ('90), Wikis ('95), Semantic Web ('97), Wikipedia ('01), Picasa ('02), My Space ('03), Facebook ('04), YouTube ('05), Twitter ('06), ... Social newspaper (Youreporter). .

If the early stage of internet communication was based on the so called "netiquette". A kind of Galateo or Bon Ton of Internet users the advent of Web X.0 and the social web requires more specific rules addressing first of all the field of ethics. Of course freedom of expression is one of the most appreciated opportunities offered by the network and it is already evident that any kind of top down censorship or control does not succeed. The evident vocation toward freedom of expression is many times a direct cause of governmental censorship forbidding social applications in some countries. So it happens that Tweeter, Facebook, YouTube or even some thematic web sites are not allowed. Here apart from ethical and philosophical issues it may come to the fore the economic and financial aspect of entering that market adhering to the requested censorship or not[12].

Anyway on the reverse there is a real risk of misuse and misinformation thanks to these technologies. The movie "Citizen Kane[13]" directed and interpreted by Orson Welles in 1941 outlined the relevant "power" of journalism[14], the movie "Network[15]" directed by Sydney Lumet outlined the power of television in 1996 and perhaps "The Net[16]" and "S.Y.N.A.P.S.E.[17]" together with "The Social Network[18]" started to outline the power of Internet.

[11] Manga fandom is a worldwide community of fans of Japanese cartoons manga.

[12] E.g. the Chinese market offering million of additional customers.

[13] Citizen Kane directed by Orson Welles, 1941 RKO Pictures

[14] The Italian title of the movie was "The forth power" in analogy with the third "The workers" depicted in the extraordinary paint by Pellizza da Volpedo.

[15] Network, directed by Sydney Lumet, 1976 Metro-Goldwyn-Mayer United Artists

[16] "The Net" directed by Irwin Winkler (Columbia Pictures Industries Inc. - 1995)

[17] S.Y.N.A.P.S.E. (Antitrust) directed by Peter Howitt (Metro Goldwjn Mayer - 2001)

[18] The Social Network directed by David Fincher (Columbia Pictures 2010)

News and Media are key elements in the global society. CNN, BBC, Al Jazeera[19], Al Arabiya[20] are writing the history of the planet 24x7 and on the grassroots side YouReporter and Tweeter are complementing this effort. The risk of misuse of such technologies and misinformation is probably higher than in the past. So it might happen that we will watch an updated version of the movie "Wag the dog[21]" in the near future.

In June 1993 The New Yorker published a cartoon by Peter Steiner. The cartoon features two dogs: one sitting on a chair in front of a computer, speaking the caption to a second dog sitting on the floor "On the Internet, nobody knows you're a dog". Right or wrong, that's one of the features of the Internet. That's the story of the Syrian "lady" blogging in 2011 , the starting point for the "dark power" of the Internet, the realm of hackers and cheaters. The key point is: what is written or anyway appears on the Internet is news by itself. There is no more time in order to check everything Internet provides real time news.


"On the Internet, nobody knows you're a dog."

The evolution of on line news due to the social web and the birth of prosumers did the rest. Twitter, YouTube, Facebook and blogs represent a real revolution in the domain of news.

As already stated Internet is much more a counter-power than a power, the common idea about the Internet is the network as a powerful tool of freedom and democracy. This is probably true but it is even true the opposite a misuse of the network and misinformation disseminated and empowered by the Internet and its powerful mechanism.

Cyber IDs allow multiple IDs and potentially Dr Jekyll and Mr Hide. We are flooded[22] by user generated content (UGC) largely without any qualification and certification of the source. Many times the drawback attributed to the amanuenses is affecting even web publishers: information and content is re-used and re-published adding or replicating errors and bugs. The short content production chain, sometimes even limited to a one stop shop, does not include an editor in chief or a supervisor, so far the overall quality of prosumer content and information is quite low.

As an IBM top manager told recently on the occasion of the Global Forum: "Do not trust in any information coming from unknown source"

[19] www.aljazeera.com/

[20] www.alarabiya.net

[21] Wag the Dog (1997), Dustin Hoffman, Robert De Niro and Anne Heche, directed by Barry Levinson

[22] Roger E. Bohn, James E. Short (2009), How Much Information? 2009, Global Information Industry Center University of California, San Diego

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