

6- The references for the tables of postindustrial 1, 2 and 3

For a synthesis of authors and events : [see synthesis](#)

Each line of the table [postindustrial 3](#) is from a different author. This table is a synthesis of that which has been published on these subjects over the past thirty years. Presented by European and American authors from different domains, these diverse points of view allow us to sketch a portrait of an emergent society (*the bold characters on the right of the table*). The convergence of trends observed by all these authors seems as strong as the logic suggested by history.

The three mutations (*The three major changes of the last 500 years*)

- The third major change or *postindustrial society*, is also known as the *information society*, *new world order*, *neo-capitalism*, *post-capitalist society*, *knowledge-based society*, etc.
- Various authors define the knowledge-based society as being a society in which *information is turned into action*. Others define it as being *a society of taking responsibility*.
- Various authors also speak of *Three Tectonic Power Shifts*. For example, see Fareed Zaharia in *The Post-American World*, Norton, 2008
- Concerning the three mutations, consult Alvin Toffler : the first wave (*agrarian*), the second wave (*industrial*) and the third wave (*information*).
- Régis Debray speaks of the *logosphere*, the *graphosphere* and the *videosphere*, and also of the *Kingdom-Nation-Market*, the *written State* and the *screen state* as well as the *speed of horse*, *electricity* and *light*. See *Les révolutions médiologiques*, Gallimard, 1993, pp. 74 et 75.
- Joël de Rosnay describes as well the three revolutions : *agricultural*, *industrial* and *information*.
- The identification of the third mutation was identified at least thirty years ago : The Nora-Minc Report - *L'informatisation de la société*, La Documentation française, 1978. There are two important remarks in it :
 - *Telematics will not constitute one more network, but rather a network of a different nature ... which will transform our cultural model ;*
 - *and the essential is not to foresee the effects of telematics, but to socialise the information.*

- Twenty five years ago, Pascal Bruckner wrote his prescient treatise about the macdonaldisation of the planet which is in fact about the guilt of the western world : *Le sanglot de l'homme blanc*, 1983.
- More than eighteen years ago, David Suzuki and Anita Gordon described our short-sightedness, our ignorance of the alarm signals and our incapacity to understand the impacts of our actions, which throws into question the values system which informs the way(s) we live, in *Towards the year 2040*, Libre expression, 1990.
- Fifteen years ago, Nicholas Negroponte, in *Being Digital*, Robert Laffont, 1993, described the principal characteristics of *the post-information era* :
 - the abolition of geographic limits ;
 - personalisation ;
 - the modification of time ;
 - and media convergence.
- Fifteen years ago, two hypotheses appeared simultaneously to explain the rupture which was already underway :
 - Francis Fukoyama thought that it meant the end of history as one system would come to dominate world politics, neocapitalism, *The End of History and the Last Man*, Free Press, 1992.
 - At more or less the same time Samuel Huntingdon thought that the world was facing a confrontation of civilizations which would create new fault lines of world conflict, in *The Clash of Civilizations*.
- Fifteen years ago, Alain Minc thought that the rupture would bring us into a new Middle Ages: *It's up to us to think of the uncertain with the same care as we do the probable, to invent new concepts, and to guess at the role of the state ... yesterday, we were right to be fatalist based on optimism; we should from now on be audacious based on pessimism*, in *Le Nouveau Moyen-Âge*, Gallimard, 1993.
- Here are the three information technology laws which align with the three major eras :
 - 1st industrial era = *Sarnoff's Law* (pioneer in radio and television) : the rythm of innovations and IT convergence grows as the number of consumers accumulate (n+n) ;
 - 2nd industrial era = *Moore's Law* (pioneer of microprocessors) : the rythm doubles every 18 to 24 months (nx2) ;
 - The postindustrial era = *Metcalf's Law* (pioneer of networks) : the rythm is the square of the number of users (n²).

This last hypothesis will confirm the importance of mutations yet

to come and of the emerging rupture.

- Three different visions of the world are used in the three eras :
 - 1st industrial era = Aristotle's vision ;
 - 2nd industrial = Newton ;
 - and Postindustrial era = Einstein.

Time and Space (The inhabited world)

- Various authors describe time and space as being the fabric of the universe. The arrival of the postindustrial era is fracturing common perceptions of the relations between time and space; the relationship between the two will change more and more as knowledge is re-configured by new technologies.
- The idea of analysing the planet as a whole has not been considered until very recently, mainly because of the phenomenon of globalisation. The same holds true for the notion of a planet-girdling network, known as the Internet. The pioneers of an holistic interpretation of the world are :
 - Vladimir Vernadsky (*biosphere and technosphere*, 1929);
 - Vennevar Bush (*Memex*, 1945) ;
 - Pierre Teilhard de Chardin (*Noosphere*, 1955) ;
 - Buckminster Fuller (*Spaceship Earth*, 1963) ;
 - James Lovelock (*Gaia*, 1996).

Also, see Michel Germain, *Management des nouvelles technologies et e-transformation*, Économica, 2006.

- According to Jean-Claude Guillebaud in *The Beginning of a World*, Seuil, 2008. p. 48. :
 - *It's based on the first industrial revolution in England dating from the end of the 16th century that the growth has become cumulative, thanks to a self-sustaining process of innovation ... innovations that push and pull each other forward to the next level, and so on.*
 - This new configuration of a central organization of the world brings us to consider a new configuration of culture and politics
 - The last three configurations have been the European civilization and its civilizing mission, the American civilization and from now on a modern inter-mixing will emerge. See *The Beginning of a World*, Seuil, 2008. p. 48.

The appellation *postmodern* is from Barack Obama.

- George Will describes the three major sources of power as *land-capital-knowledge* in *One Man's America, The Pleasures and Provocation of Our Singular Nation*, Crown Forum, 2008.
- Adam Arvidsson and Nicolai Peitersen, in *The Ethical Economy*,

(on the Web, 2008) speak of

- *Feudal economy based on land* (1st industrial era),
- *the Capitalist economy based on labour* (2nd industrial era),
- *Ethical economy based on social relations* (Postindustrial era).
- Philip Bobbitt writes about *Princely state, Nation State, Market State*, in *Terror and Consent : The Wars for the Twenty-First Century*, Knopf, 2008.

Knowledge (*Contextualization and quantity. The information and knowledge becomes a form of wisdom, a resource which adds real value to a society.*)

- Thirty years ago we asked the question: *We know that one day there will be a computer in every house, but we do not necessarily know what for, nor how its uses will change our lives and our societies.* See *The Computer Age : A Twenty-Year View*, edited by Michael L. Dertouzos, The MIT Press, 1979.
- *In the years to come, the key to real value and thus to controlling markets, employment and riches, will be to define how computers should be used, and not how they are products.* Thierry Breton, *The end of illusion* 1992, Plon, p. 76.
- We are moving from the notion of processing knowledge to managing it (knowledge) in the context of a society based on information.

Communication (*The tools that give meaning to information, and that offer spectators and users a new way of perceiving the world. In each major era the media courcuitent a society's culture and enlarge the commercial territories*)

- *The active society, one that is master of itself, is an option the post-modern periods holds in The Active Society*, by Amitai Etzioni, Free Press, 1968.
 - Consult *The Social Activist's Handbook* by Saul Alinski, Seuil, 1976.
 - *Virtual Communities* by Howard Rheingold, Addison-Wesley, 1995..
 - Today, the struggle is unchanged, but it has a new name : the war against the digital divide.
- Forty years ago the concepts of *Bottom-up* and of *Grassroots* were noted in the demonstrations against the Vietnam War and the activities of the Flower People in California.
 - See *Do It* by Jerry Rubin, Seuil, 1970, which describes this

spirit well: *Power to the people*, said Eldridge Cleaver.

- See also the manifesto by Ted Nelson *Computer Lib*.
- It's in the concept *Empowerment to the People* self-refers to the pioneers of the first groups of California-based technologists. On April 1, 1976 Steve Jobs and Steve Wozniak presented the Apple personal computer to the weekly meeting of their hackers club.
 - Regarding cyberspace, consult *The world is flattening, it is increasingly interconnected*, Thomas L. Friedman.
 - See also Steve Jobs' discourse *digital lifestyle*.
 - The utopian: *Anyone, Anywhere, Anytime* published in 1990.
- At 2 :56 :20 pm on August 6, 1991, Tim Berners-Lee, exasperated by the lack of understanding of the directors of CERN, sent his first message announcing the arrival of the WorldWideWeb.
- For various authors cyberspace self-organises (for individuals everywhere) around 4 intelligent spaces : home, office, classroom, automobile, creating the possibility for a world of *continuous computing*.
- Nicholas Negroponte of MIT's Media Lab describes how the digital creates media convergence that hybridise the production and distribution chains, such as printing, cinema and television. In *Being Digital*, Media Vintage Books, 1996.
- The re-centering of IT industries (from system and PC to the user, or user-centric) is examined by Davis Moschella in *Customer-Driven IT*, 2003.
- Jacques Attali reveals how technological progress will upend work, leisure, education, health care and culture in *A brief history of the future*, Fayard, 2006. *We must leave to future generations a better-protected environment, in order to enable the birth (based on the accumulated wisdom of the world) new ways of being and living together*.
- The concept of *Wirearchy* refers to a social and organisational architecture of decentralized authority and power stemming from the ongoing and expanded use of social networks by workers and citizens. See the essay by Jon Husband : *From hierarchy to wirearchy* on the Web.
- For the last 30 years, the activism and social progress sectors

have been using IT to leverage and multiply the impacts of their *bottom-up* activities. For example, the organization of the demonstrations against the G7 / G8 meetings (Seattle, Québec, Prague, etc.), or the anti-Davos meetings. See also the meeting of alternative groups (Rio, Porto Alegre, etc.) and the activities of groups such as Greenpeace, ATTAC, Third Voice, etc.

- Other groups go further, such as hacktivists (a contraction of *hacker* and *activist*) .. they organize cyberguerilla activities : the Palestinian Intifada, the Serbs of Kosovo, Colombia's FARC, the Black Bloc, the Zapatistes, etc.
- In fact, it seems that there are four Internets (or Webs) developing :
 - the *military* Web (the system imposed by Donald Rumsfeld on the American military since the beginning of the invasion of Iraq),
 - the *commercial* Web (B2B, B2C, etc.),
 - the *academic* Web (research and universities)
 - and the *social* Web.
- The « Republic of Letters » was analysed by Marc Fumarolli in *L'Europe pré-moderne, république des lettres et des arts*, in 2004, see the web site *canalacademie.com*. See as well « Société du spectacle » described for the first time in 1969 by Guy Debord – see the web site *sam.is.fr*.
- In the area of communication, the multiplication of devices plugged-in to the Internet is exponential :
 - in 1992, there were 1 million computers connected to the Internet while 1 % the world's population owned a cellular telephone ;
 - in 2007, there were 1 billion computers and 1 billion cellular telephones;
 - in 2012, each individual can connect from 6 to 8 devices to sur the Internet 2 (cellular, portable PDA, home theatre, etc.)
- From the technological point of view the post-industrial era will see a new generation of IT appear.
 - A generation of user-friendly interfaces will integrate the digital and physical worlds; examples include : Nintendo's Wii or the iPhone from Apple. It's the old dream of the 1990's, *virtual reality*, which is becoming accessible to almost all consumers at very low prices

- A generation of mobile devices such as cellular telephones MP3s, GPS, RFID, palmtops, netbooks, WiFi and WiMax, all connected to Internet 2. All these devices make possible the *Anywhere* related to the slogan *Anytime, Anybody, Anywhere*.
- The triple play services offer distribution of content on three types of screens : television, desktop micro-computers, and mobile devices, all of which make valid the concept of mobile kiosk. It's the hardware makers' dream of the '90's come to life; they had wanted to make ONE all-singing all-dancing workstation-type piece of hardware. From now on this concept is made possible by a much-less-expensive software-based approach.
- From the economic point of view the post-industrial era will usher in new types of markets based on customization. These markets are created by the combination of new search engines combined with tools and services like the geolocation offered by Google Maps for exemple.
- From the societal point of view the post-industrial era stimulates the use of social networks. This type of application is most often described using the following buzzwords : *user-generated content, audience participation, collective intelligence, trust network, social tagging, wisdom of crowds, peer-to-peer, smart-mobs*, etc. Social networks define the new societies as living organisms, wherein the foundation is the ongoing exchange between the members of a society.
- For Adam Arvidsson and Nicolai Peitersen in *The Ethical Economy* (on the Web, 2009), printing, during the first industrial era, allowed a number of people to become *authors* and many more to become *readers*. In the post-industrial era, new media will enable bloggers, citizen journalists and other users to become *participants* in social production which will leaf to the borth of new consensus. This connects to the dreams of the pioneers of the Web : *user-generated content*.
- In France, there are authors who describe amateur content creators as being cultural pirates, cultural creators, connectors, workers or filterers ; in the USA the term *media activist* is used.
- We are beginning to see the emergence of new professional actors in the domains of content production and distribution

using *Rich Media* : infomediaries, packaging, advertisers, creators of vertical markets, and brokers of all kinds, etc.

Opinion (A reconfiguration of the organization of the world begins with cultural and political reconfiguration. This happens through the modification of opinions and beliefs, which leads to changes in behaviours).

- The four major economic sectors are *primary* (natural resources), *secondary* (transformation), *tertiary* (intangible (or non-material) services) and *quaternary* (high-tech). See also the wave theories developed by Alvin Toffler, the *Théorie du déversement* of Alfred Sauvy and above all the concept of *knowledge workers* developed by Peter Drucker.
- Various pioneers have analysed emerging transitions, for example John Naisbitt in *Megatrends* (1982) or Alvin Toffler dans *Future Shock* (1970), *The Third Wave* (1980), and *PowerShift* (1990). But the best analysis of the various transitions of the 2nd industrial era to the post-industrial era is that of Derrick de Kerckhove in *Brainframes*, Bosch & Kenning, 1991.
- Don Tapscott and Art Caston have analyzed well the major changes to IT in *The new promises of information technologies*, McGraw-Hill, 1992.
- There will be six levels of sociability on the Web according to the Forrester Group :
 - 1- The *creators* of content (21 % of people in the USA in 2007).
 - 2- The *critics* who comment on the content (37 %).
 - 3- The *collectors* who organise the content for their personal use (19 %).
 - 4- The *members* who belong to social networks (35 %).
 - 5- The *spectators* who read / consume the content (69 %)
 - 6- The *inactives* (26 %)