

Technological Neutrality

Rajab ALI

Lex Electronica, vol. 14 n°2 (Automne / Fall 2009)

Introduction.....	2
I. Definition of technology	3
II. Autonomous technology	4
III. Neutral technology.....	7
IV. Neutrality principle in economy and communication science.....	13
V. Rationales of technology neutrality	14
Conclusion	16
Bibliography	17

INTRODUCTION

The present modern shift to a knowledge-based society is as significant a change as the Industrial Revolution that reshaped western history.¹ Rapid changes in micro-electronics, software, computer and telecommunication technologies are creating an information, knowledge-based economy premised on the networking of human intelligence.² The so called 'Information Age', 'Information Society'³, 'the Communication Revolution', the 'Information Highway'⁴, the 'National Information Infrastructure'⁵, the 'Internet', and 'electronic commerce' have been written about extensively and their effects are beginning to be felt by nations and their inhabitants around the globe.⁶ Somehow the technology is considered no longer as fully effective for human life rather than it brings lot of mess and destruction in peace of daily life and experts in technology regulation are soon sought to adapt new convenient regulation for ensuring proper use of technology. Technology neutrality concept thus emerges in the field of state regulation where states are proceeded to promulgate technology law being impartial. Under fifth paragraph of the Preamble of 'The United Nations Convention on the Use of Electronic Communications in International Contracts', the principle of technological neutrality is intended to provide for the coverage of all factual situations where information is generated, stored or transmitted in the form of electronic communications, irrespective of the technology or the medium used. In the convention, the rules are 'neutral' depending not on or presuppose the use of particular types of technology and could be applied to communication and storage of all types of information. Technological neutrality encompasses media neutrality to facilitate 'paperless' (electronic methods rather than paper document) means of communication that equivalents to paper documents. But it does not mean that the Convention is intended to alter traditional rules on paper-based communications; rather it supports electronic communications as an alternative way of paper based documents.

I. DEFINITION OF TECHNOLOGY

Technology is a single material having a homogeneous and undifferentiated character of tools, instruments, machines, organizations, media, methods, techniques and systems. According to Jonathan Benthall, '*virtually any one of a wide range of technical innovations can stand symbolically for the whole of technology... The symbolic field of technologies is interconnected.*'⁷ Technology is not only the sum of tools but also has many manifestations, such as the meaning

¹ See Don Tapscott the Digital Economy: Promise and Peril in the Age of Network Intelligence, McGraw-Hill 1996; Nicholas Negroponte, Being Digital, First Vintage Books, 1995; Bill Gates, 'The Road to Ahead', Penguin Books U.S.A. Inc., 1995.

² Sookman, 'Computer, Internet, and Electronic Commerce Law', Thomson and Carswell, 2006-Rel.5, p. 1.1.

³ Information Society: Agenda for Action in the United Kingdom, Select Committee on Science and Technology, 'House of Lords Paper No. 77, July 23, 1996.

⁴ The Challenge of the Information Highway: Final Report of the Information Highway Advisory Council, September 1995.

⁵ The National Information Infrastructure: Agenda for Action, September 13, 1993.

⁶ Sookman, *Ibid* at p. 1.1.

⁷ Jonathan Benthall, 'The Body Electric: Patterns of Western Industrial Culture', London: Thames & Hudson, 1976, p. 22.

that it includes 'technique'. Monsma defined technology as, '*the systematic treatment of an art*' that refers to '*a systematic treatment of grammar or speech.*'⁸ Merton defined technique as '*any complex of standardized means for attaining a predetermined result*'⁹ and H. D. Lasswell defines technique as, '*the ensemble of practices by which one uses available resources to achieve certain valued ends.*' Technology has gained new shape some time after bringing changes in human lives. Long history of technological developments¹⁰ has made man the tool-maker, tool-user being a well-worn metaphor.¹¹ Gradually, the stone age is followed by the bronze age which is followed by the iron age which is followed by the steel age. Postman noted that Lewis Mumford preferred the Eotechnic, Paleotechnic, and the Neotechnic while Walter Ong preferred the Oral, Chirographic, Typographic, and Electronic ages.¹² The agrarian and the industrial age have been transformed into the information age now and the communication and transportation¹³ have made the technology to become a new way for human beings to exist in the world.¹⁴

II. AUTONOMOUS TECHNOLOGY

Technology is seen as the fundamental condition underlying the pattern of social organization and 'the prime mover' in history of literacy, sociology, economy, political science, anthropology, computer science, international trade, affairs, state relations and diplomacy all over the world. Technology experts interpret technology as the basis of society in the past, present and even the future where in the mode of writing or print or television or the computer, the technology has changed the society vast with dramatized revolution and evolution.

*'In its most extreme form, the entire form of society is seen as being determined by technology: new technologies transform society at every level, including institutions, social interaction and individuals. At the least a wide range of social and cultural phenomena are seen as shaped by technology. 'Human factors' and social arrangements are seen as secondary.'*¹⁵

⁸ Monsma, 1986, p. 11.

⁹ Robert Merton, 'The Technological Society', p. vi.

¹⁰ For a timeline of modern technological developments see Carl Mitchem's Thinking Through Technology, 1994, p. 6-9.

¹¹ Writing in Scenarios (a special edition of Wired magazine), John Perry Barlow, lyricist for the Grateful Dead, described technology as "humanity's most essential ingredient. What set's us apart is an itch, a permanent, hard-wired, unscratchable irritation with the general state of things. We are alone among species in being so dissatisfied with the universe nature gave us that we have created tools to fix it". p.128

¹² Neil Postman, 'Technopoly: The Surrender of Culture to Technology', New York: Vintage, 1993, p. 22.

¹³ In a digital society, transportation of bits (digital information) is more important than the transportation of atoms (physical things). Negroponte's book Being Digital is about the transformation of a society based on atoms to one based on bits.

¹⁴ The metaphysical approach of Dessauer has been compared to his contemporary, Martin Heidegger. See, "Friedrich Dessauer as Philosopher of Technology: Notes on his Dialogue with Jaspers and Heidegger", by Klaus Tüchel. In Research in Philosophy and Technology, vol. 5, pp. 269-280, (1982). Paul Durbin (Ed.) Greenwich, CT: JAI Press.

¹⁵ Daniel Chandler, 'Technological or Media Determinism', <http://www.aber.ac.uk/media/Documents/tecdet/tecdet.html>.

Gradually the scholars have been criticizing the relationship between technology and society. At present technology is acted as autonomous and semi-autonomous, largely external, supra-social or exogenous and also is presented as an independent, self-controlling, self-determining, self-generating, self-propelling, self-perpetuating and self-expanding force. It is seen as out of human control, changing under its own momentum and 'blindly' shaping society. Isaac Asimov said that

*'the whole trend in technology has been to devise machines that are less and less under direct control and more and more seem to have the beginning of a will of their own. A chipped pebble is almost part of the hand it never leaves. A thrown spear declares a sort of independence the moment it is released. The clear progression away from direct and immediate control made it possible for human beings, even in primitive times, to slide forward into extrapolation, and to picture devices still less controllable, still more independent than anything of which they had direct experience.'*¹⁶

According to Ellul, *'technique has become autonomous; it has fashioned an omnivorous world which obeys its own laws and which has renounced all tradition.'*¹⁷ He further says that *'there can be no human autonomy in the face of technical autonomy.'*¹⁸ He insisted that technological autonomy reduces the human being to *'a slug inserted into a slot machine.'*¹⁹ Postman also argues that *'technique, like any other technology, tends to function independently of the system it serves. It becomes autonomous, in the manner of a robot that no longer obeys its master.'*²⁰ So social scientists are divided in groups of fostering the good and bad effect of technological influence on human life and society. Finnegan rightly writes:

*'there is something to be said for it as a way of illuminating reality for us. In the past social scientists (except perhaps economic historians and geographers) have tended to neglect the significance of both technology and of communication. Perhaps sociologists above all - whom one would have expected to study communication - have tended in the past to take an anti-technological line; they have preferred instead to follow Durkheim, one of the founders of the discipline of sociology, in stressing 'the social' as something autonomous and causally independent of such mechanical factors as technology. In this atmosphere, it is both illuminating and stimulating to have the counter-view stated forcibly. The strong case is perhaps stated over-extremely - but its very extremeness helps to jolt us out of our complacency and draw our attention to a range of facts and possible causal connections previously neglected. As a suggestive model of looking at social development it may well have value, despite its factual inadequacies.'*²¹

Abbe Mowshowitz favors by saying that

'to assert that technology has become an autonomous agent of change is not to attribute an occult quality to the growth of modern society which transcends human choice. It simply means that mechanization has affected social organization and individual

¹⁶ Isaac Asimov, 'Asimov on Science Fiction', New York: Avon, 1981, p. 130.

¹⁷ Ellul, Jacques, 'The Technological Society', New York: Vintage, 1964, p.14.

¹⁸ *Ibid* at p 138.

¹⁹ *Ibid* at p. 135.

²⁰ Neil Postman, 'Technopoly: The Surrender of Culture to Technology', New York: Vintage, 1993, p. 142.

²¹ Ruth Finnegan, 'Communication and Technology', Unit 8 of the Open University Correspondence Course, Making Sense of Society, Block 3, Communication. Milton Keynes: Open University Press, 1975, p. 107-8.

*behaviour in such a way as to create a foundation for further development along certain lines. We have cultivated a special relationship to technology wherein needs and conflicts are almost invariably formulated as technical problems requiring technical solutions.*²²

But Michael Shallis disfavours this argument saying that,

*'the Chinese discovered gunpowder but chose not to develop the gun. We in the West generally accept the notion of the technological imperative which, like natural selection and evolution, inevitably leads where it will and precludes purposeful change, directed progress. The imperative implies that the invention of a new technique demands its adoption and development, and although there are countless examples of 'useless' inventions that no one wants and which are not developed but fade away, the general tendency has been to pursue possible developments for their own sake. The technological imperative concerns that self-motivated pursuit and implies that it is somehow inevitable... Technology is promoted... as if the idea of the imperative was true.'*²³

Postman said that *'the uses made of technology are largely determined by the structure of the technology itself.'*²⁴ The medium itself *'contains an ideological bias.'*²⁵ He argues that:

*'(i) because of the symbolic forms in which information is encoded, different media have different intellectual and emotional biases; (ii) because of the accessibility and speed of their information, different media have different political biases; (iii) because of their physical form, different media have different sensory biases; (iv) because of the conditions in which we are attend to them, different media have different social biases; and (v) because of their technical and economic structure, different media have different content biases.'*²⁶

These human tendencies of biasness made the technology more destructive than useful and bring detriment to society.

III. NEUTRAL TECHNOLOGY

Carey's view is that, *'electronics is neither the arrival of apocalypse nor the dispensation of grace. Technology is technology; it is a means for communication and transportation over space, and nothing more.'*²⁷ Andrew Feenberg says that

'theories of technology fall into one of two major categories: the instrumental theory, and the substantive theory. The instrumental theory, offers the most widely accepted

²² Abbe Mowshowitz, 'The Conquest of Will: Information Processing in Human Affairs', Reading, MA: Addison-Wesley, 1976, pp. 256-7.

²³ Michael Shallis, 'The Silicon Idol: The Micro Revolution and its Social Implications', Oxford: Oxford University Press, 1984, pp. 64-5.

²⁴ Neil Postman, 'Technopoly: The Surrender of Culture to Technology', New York: Vintage, 1993, p. 7.

²⁵ Neil Postman, *Ibid* at p. 16.

²⁶ Neil Postman, 'Teaching as a Conserving Activity', New York: Dell, 1979, p. 193.

²⁷ James Carey, 'Communication As Culture', 1992, p. 139.

*view of technology. It is based on the common sense idea that technologies are 'tools' standing ready to serve the purposes of their users. Technology is deemed 'neutral,' without valuative content of its own.*²⁸

He further states that,

*'technology is not inherently good or bad, and can be used to whatever political or social ends desired by the person or institution in control. Technology is a 'rational entity' and universally applicable---. One may make exceptions on moral grounds, but one must also understand that the "price for the achievement of environmental, ethical, or religious goals...is reduced efficiency.'*²⁹

Arnold Pacey described the person who holds to an instrumental theory of technology. For such a person, when technology fails them or when it has negative consequences, it is not the technology but the improper use of it by 'politicians, the military, big business, and others.'³⁰ But the substantive theory 'argues that technology constitutes a new type of cultural system that restructures the entire social world as an object of control.'³¹ Heidegger claimed that, 'we are engaged in the transformation of the world and ourselves into standing reserves raw materials waiting to be used up in the process.'³² According to Feenberg, 'Heidegger asserts that the technical restructuring of modern societies is rooted in a nihilistic will to power, a degradation of man and Being to the level of mere objects.'³³ Feenberg continued, 'the issue is not that machines have 'taken over,' but that in choosing to use them we make many unwitting cultural choices. Technology is not simply a means but has become an environment and a way of life: this is its 'substantive' impact.'³⁴ Pacey said that 'web of human activities surrounding the machine, which include its practical uses, its role as a status symbol....Looked at in this second way, technology is seen as apart of life, not something that can be kept in a separate compartment.'³⁵

He added that

*'a technocratic value system...gives rise to what is often called a 'technocratic' outlook that is single-mindedly insistent on an unambiguous view of progress, of problem-solving, and of values. Those intolerant of ambiguity see only one course for technology, one that leads to greater progress and efficiency.'*³⁶

Technology is neutral means that 'guns don't kill people, people do', or that a knife can be used to 'cook, kill, or cure.' For controlling widespread easy accessibility a proper regulation is

²⁸ Andrew Feenberg, 'Critical Theory of Technology', 1991, p. 5.

²⁹ *Ibid* at p. 6.

³⁰ Arnold Pacey, 'Technology in World Civilization: A Thousand-Year History', Published by MIT Press, 1991, p. 2.

³¹ *Ibid* at p.7.

³² Martin Heidegger, 'The Question Concerning Technology and Other Essays (trans. William Lovitt)', New York: Harper & Row, 1977, p. 17.

³³ Andrew Feenberg, 'Critical Theory of Technology', 'Oxford University Press, 1991, p. 7.

³⁴ Andrew Feenberg, *Ibid* at page 8.

³⁵ Arnold Pacey, *Supra* note 24, p. 3.

³⁶ Arnold Pacey, *Ibid* at p. 127.

needed where technology will be neutral³⁷ in the fields of broadcasting³⁸, voice over IP³⁹, universal service⁴⁰, spectrum allocation⁴¹, net neutrality⁴², information, communications and telecommunications. In ‘Framework for Global Electronic Commerce’ of July 1997, the US Government stated, ‘rules should be technology-neutral (i.e., the rules should neither require nor assume a particular technology) and forward looking (i.e., the rules should not hinder the use or development of technologies in the future)’.⁴³ In 2000, EU legislative proposed for the first time⁴⁴ and thereby neutrality concept has been adopted in EU technology legislation ever since⁴⁵ and after days, technology neutrality has been recognized by national legislators and international organizations.⁴⁶ The desirability of technology neutral regulation has become part of the general wisdom, and is rarely questioned.⁴⁷ Professor Bert-Jaap Koops is one of earlier

³⁷ The earliest discoverable use of the term describes the aims of the US Electronic Communications Privacy Act 1986 – see John R Kresse, “Privacy of Conversations Over Cordless and Cellular Telephones: Federal protection under the Electronic Communications Privacy Act of 1986”, (1987) 9 Geo Mason UL Rev 335. See also Nicholas W Allard & Theresa Lauerhass, “Debalkanize the Telecommunications Marketplace”, (1991-2) Cal WL Rev 231 for an early use of the term.

³⁸ See e.g. Herbert Ungerer, “Access Issues Under EU Regulation and Anti-Trust Law: the case of telecommunications and internet markets” (2000) 5 International Journal of Communications Law and Policy <http://www.ijclp.org/>; Niloufer Selvadurai, “The Regulation Of The Information Society In The European Union” (2004) 10(6) CTLR 130.

³⁹ See e.g. Shaun P. Montana, “An Approach to the International Regulatory Issues of IP Telephony” (2002) 8 BUJ Sci & Tech L 682, 704; James B. Speta, “Deregulating Telecommunications in Internet Time” (2004) 61 Wash & Lee L Rev 1063.

⁴⁰ See e.g. Allen S. Hammond IV, “Universal Service: Problems, Solutions, and Responsive Policies” (2005) 57 Fed Comm L. 187; Thomas Roukens, “What Are We Carrying Across the EU These Days? Comments on the Interpretation and Practical Implementation of Article 31 of the Universal Service Directive” (2006) 15-SPG Media Law & Policy 201.

⁴¹ See e.g. Patrick S. Ryan, “Wireless Communications and Computing at a Crossroads: new paradigms and their impact on theories governing the public's right to spectrum access” (2005) 3 J Telecomm & High Tech L 239.

⁴² See e.g. Richard E. Wiley, “A New Telecom Act – Remarks” (2006) 31 S Ill U LJ 17.

⁴³ 1 July 1997 <<http://www.technology.gov/digeconomy/framework.htm>>.

⁴⁴ Opinion of the Economic and Social Committee on the “Proposal for a Council Recommendation concerning the protection of minors and human dignity in audiovisual and information services”, OJ C 214 10 July 1998 p. 25 para. 3.2.5: “Regulation should be ‘technology-neutral’: as few as possible new regulations, policies and procedures should be specific to the new services.”; Recitals to the Proposal for a European Parliament and Council Directive on the taking up, the pursuit and the prudential supervision of the business of electronic money institutions, COM (1998) 0461 final, OJ C317, 15 October 1998 p. 7: “... this Directive introduces a technology-neutral legal framework that harmonizes the prudential supervision of electronic money institutions to the extent necessary for ensuring their sound and prudent operation and their financial integrity in particular”.

⁴⁵ See e.g. Amended proposal for a European Parliament and Council Directive on a common framework for electronic signatures, COM (99) 195 final; Proposal for a Directive of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the electronic communications sector, COM (2000) 0385 final, OJ C 365 E, 19 December 2000 p. 223; Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions - Electronic Communications: the Road to the Knowledge Economy, COM (2003) 65 final; Proposal for a Decision of the European Parliament and of the Council on establishing a multiannual Community program on promoting safer use of the Internet and new online technologies, COM (2004) 91 final.

⁴⁶ Bert-Jaap Koops, “Should ICT Regulation be Technology-Neutral” in Bert-Jaap Koops, Miriam Lips, Corien Prins & Maurice Schellekens, Starting Points for ICT Regulation: deconstructing prevalent policy one-liners (The Hague: TMC Asser Press 2006) p. 77, 77-9.

⁴⁷ There is, of course, a small number of dissenting voices, which are examined more closely in part 3.

writers⁴⁸ who started to find the definition of neutrality. The first approved meaning is stated in US Government's Framework for Global Electronic Commerce as thus '*the rules should neither require nor assume a particular technology*'. According to the Bonn Ministerial Conference Declaration of 6-8 July 1997, neutrality means, 'the fundamental rules should be the same online as off-line (or more broadly, the same for an online technology activity as for the equivalent off-line technology activity)⁴⁹; and Legal rules should not favor or discriminate against a particular technology.'⁵⁰ The European Commission accepted neutrality in its 1999 Communications Review⁵¹ initiated in 1997 by the Convergence Green Paper⁵² which was presented as one of five principles⁵³ that would underpin the EC regulatory framework on Electronic Communications. It is currently under review.⁵⁴ According to the text of the 1999 Communications Review, technological neutrality means that '*legislation should define the objectives to be achieved, and should neither impose, nor discriminate in favor of, the use of a particular type of technology to achieve those objectives.*'⁵⁵

⁴⁸ See e.g. Erik S Knutsen, "Techno-Neutrality of Freedom of Expression in New Media Beyond the Internet: solutions for the United States and Canada" (2001) 8 UCLA Ent L Rev 87, 95 ff; Joanna Gray, "Draft Secondary Legislation on Financial Promotion: A Technology-Neutral Investment Marketing Regime" (2001) 22 Comp Law 150; Tapio Puurunen, "The Judicial Jurisdiction of States Over International Business-to-Consumer Electronic Commerce from the Perspective of Legal Certainty" (2002) 8 U.C. Davis J Int'l L & Pol'y 133, 174; Richard W Downing, "Shoring Up the Weakest Link: What Lawmakers Around The World Need to Consider in Developing Comprehensive Laws to Combat Cybercrime" (2005) 43 Colum J Transnat'l L 705; Laura Hildner, "Defusing the Threat of RFID: Protecting Consumer Privacy Through Technology-Specific Legislation at the State Level" (2006) 41 Harv CR-CL L Rev 133; Chad A Kirby, "Defining Abusive Software to Protect Computer Users from the Threat of Spyware" (2006) 10 Computer L Rev & Tech J 287, 303 ff.

⁴⁹ See e.g. Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, Principles and guidelines for the Community's audiovisual policy in the digital age COM (1999) 0657 final, note 17: "identical services should in principle be regulated in the same way, regardless of their means of transmission."

⁵⁰ See e.g. Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, Towards a new Framework for Electronic Communications Infrastructure and Associated Services: the 1999 Communications Review COM (1999) 539 final, 10 November 1999 p. 14: "Technological neutrality means that legislation should define the objectives to be achieved and should neither impose, nor discriminate in favor of, the use of a particular type of technology to achieve those objectives."

⁵¹ 'Towards a new framework for Electronic Communications infrastructure and associated services. The 1999 Communications Review, COM (1999)539.

⁵² Green Paper on the convergence of the telecommunications, media and information sectors, and the implications for regulation. Towards an information society approach, COM(97)623 (December 3, 1997),

⁵³ The principles hold that future regulation should (i) be based on clearly defined policy objectives; (ii) be the minimum necessary to meet those objectives; (iii) further enhance legal certainty in a dynamic market; (iv) be enforced as closely as practicable to the activities being regulated; (v) aim to be technologically neutral. I would like to emphasize here that I indeed regard technological neutrality as a regulatory principle, and not as a policy objective. A perusal of the text of Article 8 of the Framework Directive, headed "policy objectives and regulatory principles", confirms this; under paragraph 1 it is stated that the policy objectives underlying the Framework are set out in paragraphs 2, 3 and 4. Technological neutrality is only found in paragraph 1 of the Article.

⁵⁴ See "Communication on the Review of the EU Regulatory Framework for electronic communications networks and services", COM (2006)334.

⁵⁵ *Ibid* at note 9.

In practice, it is difficult to recognize technology as neutral, e.g., a rule which states that only technology A can be used to comply with it⁵⁶ favors that technology and discriminates against all others. The other reasons are analyzed by Professor Koops⁵⁷ as follows: (i) the achievement of particular effects, in terms of peoples' behavior or the outcomes of activities; (ii) functional equivalence between different modes of activity, in particular offline and online; (iii) non-discrimination between technologies with equivalent effects; and (iv) future proofing of the law in two senses: (a) drafting of laws in a way which is flexible enough not to hinder the future development of technology; and (b) achieving sustainability in the sense that the law should not require over-frequent revision to cope with technological change. Thus the technology neutrality concept is always vague for two reasons; first, 'if it is desired only to regulate the uses of a particular technology, the regulation must by definition be specific to that technology. However, it is often possible to frame that regulation in such a way that it does not favor one or more implementations of that technology over others. This type of technology neutrality has been described as 'implementation neutrality'⁵⁸ and second is potential neutrality which is defined in this way:

*'there will be circumstances when a regulator decides that a particular attribute of a technology, or method of its use, is essential to achieve the legal result which the regulator is aiming for. Unless all existing and potential implementations of the technology exhibit that characteristic or are used in that way, implementation neutrality will not be available as a legislative technique. In these circumstances, the regulator can achieve some level of neutrality between different technology implementations by drafting the legal requirements in such a way that non-compliant implementations can be modified to become compliant'.*⁵⁹

Sometime technology neutral idea cannot be very specific and may produce undesirable consequences for its application in practice. As Escudero-Pascual and Hosein have demonstrated clearly in respect of the interception of communications data⁶⁰, an unsuccessful attempt to achieve technology neutrality has resulted in regulation whose meaning is so vague that its application to the technology is often a matter of guesswork.⁶¹ As a further example, the e-Money Directive defines electronic money as value which is: (i) stored on an electronic device;

⁵⁶ For example, the those elements of English law which require personal signatures for a limited class of transactions, and which limit personal signatures to those written by hand – see *Goodman v. J. Eban Ltd.* [1954] 1 QB 550.

⁵⁷ Koops, *op. cit.* note 4 at pp 83-90.

⁵⁸ This terminology seems first to have been recorded by Professor Amelia Boss; see Amelia Boss, "Electronic Commerce and the Symbiotic Relationship Between International and Domestic Law Reform" (1998) 72 TLNLR 1931, 1971; "Searching for Security in the Law of Electronic Commerce", (1999) 23 Nova L Rev 585.

⁵⁹ Chris Reed, 'Taking Sides on Technology Neutrality', 2007) 4:3 SCRIPTed 263 @: <<http://www.law.ed.ac.uk/ahrc/script-ed/vol4-3/reed.asp>>

⁶⁰ Alberto Escudero-Pascual and Ian Hosein, The Hazards of Technology-Neutral Policy: Questioning Lawful Access to Traffic Data, (2004) 47 Communications of the ACM 77.

⁶¹ In the House of Lords debate on the UK Regulation of Investigatory Powers Bill 2000, the Earl of Northesk was provoked to remark: "One of the many difficulties I have with the Bill is that, in its strident efforts to be technology neutral, it often conveys the impression that either it is ignorant of the way in which current technology operates, or pretends that there is no technology at all." Hansard, House of Lords 28th June, 2000 (Committee Stage), Column 1012.

(ii) issued on receipt of funds of an amount not less in value than the monetary value issued; and (iii) accepted as means of payment by undertakings other than the issuer.⁶² Then, the question arises whether such payment services are dealing in value ‘stored on an electronic device’, and it leads a dispute between the UK FSA. But technological neutrality does not support that only the most advanced technology will solve all existing problems. For example, ICT is used to achieve commercial and social ends but that may be changed by technology development in a way which outdates the regulation:

*‘in the mid-90s, and still oft quoted today, technological neutrality is preached as a standard by which regulation in this field should be measured. Yet, technology is not neutral; ICTs are fundamentally altering the landscape and creating unique issues that policy-makers have to be prepared to address. One principle that would seem to stand the test of time, however, is that of allowing law to lag behind developments, rather than try to anticipate markets. The focus of the Electronic Signatures Directive on certification services, as the basis of a trust industry perceived critical to the mass take-up of electronic commerce, seems, to date, to be an example of how policy-makers can effectively regulate a market to a standstill’.*⁶³

IV. NEUTRALITY PRINCIPLE IN ECONOMY AND COMMUNICATION SCIENCE

The Neutrality principle is applied in consumer protection law⁶⁴ providing information impartially to consumers. The state regulates the market for protecting it from potential market failure by creating information goods.⁶⁵ The cost structure⁶⁶, asymmetric information⁶⁷, externalities⁶⁸ and the existence of public good characteristics⁶⁹ are reasons for market failure and technology neutrality brings positive regulation for states to regulate properly as the information of goods by broadband access is available to all. So in practice, economic theory

⁶² *Ibid* art 1(3)(b).

⁶³ Ian Walden, “Regulating Electronic Commerce: Europe in the global e-economy” (2001) EL Rev 26(6) 529, 546

⁶⁴ See Green Paper on European Union Consumer Protection, COM (2001)531.

⁶⁵ See C. Shapiro and H. R. Varian, *Information Rules. A Strategic Guide to the Network Economy*, Boston: Harvard Business School Press, 1999; M. Appelman, M. van Dijk, R. Nahuis, B. Vollaard and D. Waagmeester, ‘Een economisch vooronderzoek ten behoeve van het rapport van de WRR over de media’, in: W.B.H.J van de Donk, D.W.J Broeders and F.J.P.M. Hoefnagel (ed.), *Trends in het medialandschap*, Amsterdam: Amsterdam University Press (2005).

⁶⁶ The cost structure of information products is such that fixed costs are high, and marginal costs are low. This cost structure leads to economies of scope and scale that in turn tend to lead to market failure. For an introduction to these and further used economic principles see N.G. Mankiw and M.P Taylor, *Economics*, London: Thomson (2006)

⁶⁷ Asymmetric information refers to a situation where it is impossible for the consumer of media content to know upfront how he will value the good. The only way to know this for sure is to experience the product, however, once that has happened, the incentive to still pay for the product will have decreased significantly.

⁶⁸ Externalities arise if activities generate costs or benefits on third parties that are not internalized by the originator of the activity. The most well-known example of a negative externality is environmental pollution; a factory that dumps toxic waste in a river is not immediately affected by this. However, its action does create costs for third-parties, i.e. society, that is not internalized by the factory.

⁶⁹ A typical public good is defined as being non-rival and non-excludable. Non-rival means that the use of the information good by one consumer does not diminish the use of the good to other people. The same property is sometimes defined as non-exhaustable. Non-excludable means that it is difficult to exclude people who are not willing to pay from consuming the information good.

provides a solid basis for technological neutrality.⁷⁰ In the case of communication science, broadcasting is assumed to have a special impact on the formulation of an opinion. The German Constitutional Court has held that its spread effect, its suggestive power and its topicality are the elements that together constitute this special impact of broadcasting.⁷¹ The Supreme Court of the US has held that the ‘uniquely pervasive presence in the lives of all Americans’ is one of the factors that justify stronger regulation of broadcasting. In addition, ‘*prior warnings cannot completely protect the listener or viewer from unexpected program content*’, and also, ‘*broadcasting is uniquely accessible to children.*’⁷² Communication science⁷³ reflects on the impact of media on the public according to following ways: the powerful media approach⁷⁴, the active audience approach⁷⁵ and the audience cum content approach.⁷⁶ Media approach is the most powerful weapon to originate public opinion and belief. Education will be crippled within second if technology is absent from there. The courts, offices, institutions, and governments will be useless if technology does not support them neutrally.

V. RATIONALES OF TECHNOLOGY NEUTRALITY

The basic principle of neutrality leads that State should remain neutral towards technology when regulating. For ensuring it state has to follow four rationales⁷⁷

- Non-discrimination: On the rationale of non-discrimination, the meaning of technology neutrality is that regulation should not favor one technology over the other because this will reduce competition in technology market. If regulation remains indiscriminate

⁷⁰ It must be remembered that the principle of technological neutrality is not absolute; exceptions could be possible provided they are justified and proportionate. The Commission itself has indicated this much in the State aid cases concerning the funding of broadband (see for example Case State Aid C-35/05) and the Commission’s Communication on accelerating the switchover from analogue to digital broadcasting, COM(2005)204 final.

⁷¹ BVerfGE 90, 60.

⁷² Federal Communications Commission v. Pacifica Foundation, 438 U.S. 726 (1978)

⁷³ C. De Boer and S. I. Brennecke, *Media en Publiek. Theorieën over media impact*, Amsterdam: Boom, 1999.

⁷⁴ The first communication models were all, in one way or the other, based on the stimulus-response idea. This idea implied that the media would send out a certain message, to which the public would then respond. In these first, traditional models created by communications scientists, the mass media were assumed to have major power, and audiences were believed to be no more than passive receivers. A generic term to address these first models is the ‘direct effects-model’, but the general theory is mainly known as the powerful media approach.

⁷⁵ Following the phase in which the power of the media was more or less assumed, a period begun in which researchers turned more to empirical research, which led to a new theory in communications research: the active audience approach. Within this theory that seriously affected the idea of the all-powerful media falls the ‘uses and gratifications approach’. This approach turned the ‘direct effects model’ upside down: the public were seen as active individuals, as the selectors of messages, and the media were dependent on these choices. In this model the audience is having the power, ‘deciding’ what media to choose.

⁷⁶ A third school can be distinguished in communications research, namely the audience cum content approach. Within this approach, attention is being given to both the content and the audience. A well known approach within this school is Gerbner’s cultivation theory. The theory of George Gerbner falls within the domain of effects research, but rather than emphasizing effects on behavior, it emphasizes effects on attitudes of people. His research studied how exposure to mass media influenced the consumer’s view on reality.

⁷⁷ Idea from Ilse M. van der Haar, Legal Researcher, Tilburg University, ‘Technological Neutrality; What Does It Entail?’, www.itseurope.org.

between technologies, it will comply with technological neutrality. As for example the definition of an ‘electronic communications network’ of the Framework Directive of United Kingdom is drafted as follows: ‘electronic communications network means transmission systems and, where applicable, switching or routing equipment and other resources which permit the conveyance of signals by wire, radio, by optical means or by other electromagnetic means, including satellite networks, fixed (circuit- and packet-switched, including Internet) and mobile terrestrial networks, electricity cable systems, to the extent that they are used for the purpose of transmitting signals, networks used for radio and television broadcasting, and cable television networks, irrespective of the type of information conveyed.’ This means irrespective of the technology, all networks used for the conveyance of signals fall within the meaning and application of the Framework and that lead to the least complex implications in terms of regulatory changes by ensuring implication of neutral technology.

- Sustainability: On the rationale of sustainability, regulation should be flexible, time-proof and open to technological change concerning with the scope of application of these regulations.
- Efficiency: Under this rationale, regulation can be maintained, imposed or withdrawn, depending on the competitive state of the market. The idea pushes regulators even stronger for moving up regulation not only to cope with technological development but also to respond in an efficient way to changing market structures by way of becoming part of the dynamic rule rather than depending on static rule to evolve with changing market conditions to fulfill consumer demands.
- Consumer certainty: It gives a positive impulse to technological neutrality as benefits and protection measures where universal service must be available to consumers, irrespective of the technology used. A universal service⁷⁸ is defined as a minimum set of services that are available to all at an affordable price. But all types of communication like telephone, mobile or Internet were not available to all for anytime as these services were fixed for place. ‘Now that times have changed and the mobile telephony market is rapidly growing and merging with the fixed telephony market, it might no longer be justifiable to restrict the concept of universal service to fixed telephony; an implication of technological neutrality on the basis of consumer certainty could therefore be that an obligation to provide mobile communications should be included in the concept of universal service.’⁷⁹

⁷⁸ See Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and associated services ('Universal Service Directive')

⁷⁹ This position conflicts with the current position of the Commission on this matter. See the Report written by the Commission regarding the outcome of the Review of the Scope of Universal Service, COM (2006) 163 final. Also, the current definition of universal service in the Universal Service Directive does allow the universal service provider to provide the “connection to the public telephone network at a fixed location” by means of a mobile telephony subscription.

CONCLUSION

Langdon Winner pointed:

*'as the twentieth century draws to a close, it is evident that, for better or worse, the future of computing and the future of human relations-indeed, of human being itself-are now thoroughly intertwined. We need to seek alternatives, social policies that might undo the dreary legacy of modernism: pervasive systems of one-way communication, preemption of democratic social choice corporate manipulation, and the presentation of sweeping changes in living conditions as something justified by a univocal, irresistible progress.'*⁸⁰

He mentioned again that,

'the reality of technological progress has too often been a scenario where the innovation has dictated change for society. Those who had the power to introduce a new technology also had the power to create a consumer class to use the technology, 'with new practices, relationships, and identities supplanting the old, ---and those who had the wherewithal to implement new technologies often molded society to match the needs of emerging technologies and organizations.'

Hume viewed:

*'in a technological world that values individualism and material satisfaction, vigilance must be given to ensure the place of community and sacrifice. In a world where anything is possible, we cannot accept the conclusion that everything is permissible. Moral choices cannot be made by simply observing the state of our surroundings. Or to put it in terms familiar to readers of the 18th century philosopher David Hume, no 'ought' from an 'is.'*⁸¹

So it depends fully on human thinking in which way the technology will be adopted in personal life. New advanced neutral law will not be able to give the best choice of making life comfortable and peaceful but at least it can ensure the neutral application of technology in a proper way.

⁸⁰ This and following quotes from Winner's Who Will we Be in Cyberspace?, no page numbers available. Text available at: URL: <http://communication.ucsd.edu/pagere/tno/september-1995.html#who> [back to text]

⁸¹ David, Hume, 'A Treatise on Human Nature', Book III, Part I, Section I

BIBLIOGRAPHY

- Bill Gates, 'The Road to Ahead', Penguin Books U.S.A. Inc., 1995.
- Sookman, 'Computer, Internet, and Electronic Commerce Law', Thomson and Carswell, 2006.
- Jonathan Benthall, 'The Body Electric: Patterns of Western Industrial Culture', London: Thames & Hudson, 1976.
- Neil Postman, 'Technopoly: The Surrender of Culture to Technology', New York: Vintage, 1993
- Ellul, Jacques, 'The Technological Society', New York: Vintage, 1964
- Abbe Mowshowitz, 'The Conquest of Will: Information Processing in Human Affairs', Reading, MA: Addison-Wesley, 1976
- Michael Shallis, 'The Silicon Idol: The Micro Revolution and its Social Implications', Oxford: Oxford University Press, 1984
- Neil Postman, 'Teaching as a Conserving Activity', New York: Dell, 1979.
- James Carey, 'Communication As Culture', 1992,
- Andrew Feenberg, 'Critical Theory of Technology', Oxford University Press, 1991
- Arnold Pacey, 'Technology in World Civilization: A Thousand-Year History', Published by MIT Press, 1991,
- Martin Heidegger, 'The Question Concerning Technology and Other Essays (trans. William Lovitt)', New York: Harper & Row, 1977
- Chris Reed, 'Taking Sides on Technology Neutrality', 2007) 4:3 SCRIPTed 263 @: <<http://www.law.ed.ac.uk/ahrc/script-ed/vol4-3/reed.asp>>
- C. Shapiro and H. R. Varian, Information Rules. A Strategic Guide to the Network Economy, Boston: Harvard Business School Press, 1999
- S. J. Liebowitz and S. E. Margolis, ``Winners, Losers & Microsoft``, Oakland: The Independent Institute, 1999.
- J. Meyrowitz, 'Media and behaviour-a missing link', in: D. McQuail, McQuail's Reader in Communication theory, London: SAGE Publications 2002.
- Buchanan, R. A. (1994): The Power of the Machine. Harmondsworth: Penguin
- Clanchy, Michael T (1979): *From Memory to Written Record*. Cambridge, MA: Harvard University Press
- Dubos, Rene (1970): *So Human an Animal*. London: Hart-Davis
- Eisenstein, Elizabeth L (1980): *The Printing Press as an Agent of Change*. Cambridge: Cambridge University Press
- Finnegan, Ruth (1975): 'Communication and Technology'. Unit 8 of the Open University Correspondence Course, *Making Sense of Society*, Block 3, *Communication*. Milton Keynes: Open University Press
- Finnegan, Ruth, Graeme Salaman & Kenneth Thompson (Eds.) (1987): *Information Technology: Social Issues*. London: Hodder & Stoughton/Open University
- Goody, Jack (Ed.) (1968): *Literacy in Traditional Societies*. Cambridge: Cambridge University Press
- Heidegger, Martin (1977): The Question Concerning Technology and Other Essays (trans. William Lovitt). New York: Harper & Row

- Jones, Barry (1990): *Sleepers, Wake! Technology and the Future of Work*. Melbourne: Oxford University Press
- MacKenzie, Donald & Judy Wajcman (Eds.) (1985): *The Social Shaping of Technology: How the Refrigerator Got its Hum*. Milton Keynes: Open University Press
- McLuhan, Marshall & Wilfred Watson (1970): *From Cliche to Archetype*. New York: Viking Press
- Winner, Langdon (1977): *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought*. Cambridge, MA: MIT Press
- White, Leslie A. (1949): *The Science of Culture: A Study of Man and Civilization*. New York: Grove Press