Meditation 5
On Art and New Technologies[1]

Let us begin with a general and thus an automatically (too) rough outline. Computers have radically changed the appearance of the world. This observation refers to more than just the physical distribution of PC's; it refers (primarily) to the impact that they have on our individual lives and the organization of contemporary society.
The computer has changed the way in which we discern and interpret ourselves. An arbitrary, brief and rudimentary summary: the experience of and relationship with reality is in increasing measures mediated by information and communication technologies. *Cyberspace* is no experiential space outside everyday existence, but a space within which everyday existence is transformed and a new nature is created. Under the influence of the computer, the human spirit is currently regarded as a complex system for the purpose of the reception, storage, retrieval, transformation and transmission of information (this in opposition to the notion that describes the human spirit as a primarily hierarchically organized machine). Communities and organizations are no longer geographically restrained, but thanks to Internet, transformed into flexible, virtual networks extending beyond national borders and laws.
For contemporary philosophy, *ICT* (Information and Communication Technology) is not only an object for reflection; ICT radically challenges many of the fundamental ideas of philosophy. One might consider the oppositions appearance - reality, art - non-art (for example in computer games), human - computer (where notions of identity are problematized), private - public (which touches on ethical questions). ICT makes unavoidable the re-evaluation of existing frameworks (of thinking) and through the construction of alternative frameworks, makes possible the opening up of new realms of experience.
Futurologist Alvin Toffler distinguishes, after the agricultural revolution in the Neolithicum and the Industrial Revolution of the 19th century, a third great revolution which is now taking place: the *informational* revolution. Whereas the industrialized societies were based on the production and regulation of energy, the current information societies (Manuel Castells) are predominantly focusing upon the production, regulation and communication of information.

By emphasizing the importance of ICT and computers for our current ways of thinking and acting, it is not desirable to fall back into a certain *technological determinism* which assumes that technological artifacts possess certain characteristics that prescribe their human use (alluding here to sensorial as well as political and societal implications). Following this line of argument, it is also not desirable to defend an instrumental belief that regards technology as a neutral and value-free means of achieving various objectives.

[1] These comments are principally based upon two books:
(1) Mul, J. de; *Filosofie in cyberspace: reflecties op de informatie- en communicatietechnologie*. Kampen, 2002.
(2) Wilson, S.; *Information Arts: Intersections of Art, Science, and Technology*. MIT Press, 2002.

On the other hand, one should also avoid landing in a *social determinism* in which technological development is viewed primarily from the perspective of social actors. In this vision, technologies have no fixed, objective qualities given the fact that they are dependent on their interpretation by social groups. The danger of this belief is that it conceals an assumption of an intentional and rational process.
Following Dutch philosopher Jos de Mul, an approach is chosen for here based on the assumption that technology is relatively autonomous: technologies select, strengthen or weaken by themselves certain aspects of human actions and experiences and in so doing set limits on the interpretative flexibility. But technological developments are also the result of an interaction between a large number of factors of which ascribed meanings as well as reasons and motives to act play a role. De Mul names this 'third way' *technological interactionism*. This socio-technological model presented by de Mul assumes a network of heterogeneous elements within which technological artifacts with their own internal logic, arguments and discourses of different social groups, unconscious motives, societal institutions and power relations, economic organizations and production methods, etc. all find their place and exert influence on each other.

Against this background, which recognizes the importance of new media, ICT and computers but avoids falling into a technological determinism, one should read the following comments.

The barriers between art and technology are blurring. Artists are becoming researchers. Conservatories are becoming laboratories. The production of art is preceded by the mastery of new technologies in order to create unexpected processes and results. 21st-century artwork is more and more shaped by the use of computers and Internet, more and more influenced by the multifarious areas of scientific and technological knowledge. However, this influence by technological developments on art highlights only one possible direction. Art - and the research that takes place within this domain - also leaves its traces in the scientific world. According to the new media artist Vibeke Sorensen, artists have the possibilities of searching out the limits of existing technologies by bringing them, via an artistic process, in 'unusual' situations. Outside of rather stringent economic, scientific or political interests (Sorensen), the artist is able to further investigate certain technological achievements and experiment with them in an unorthodox, artistic manner. In addition, it is also very well thinkable that the artist, in producing art, takes up a critical position towards the implications of certain technological and scientific developments.
Sorensen is not the only one recognizing the possible influence of art on science and technology. In *Information Arts: Intersections of Art, Science, and Technology* (MIT Press, 2002), Stephen Wilson discusses new forms of knowledge which are only (can only be) developed by artists. And the well-known and influential evolutionary biologist Stephen J. Gould phrases it as follows: "Artists can [. . .] be most useful to scientists in showing us the prejudices of our categorizations by creatively expanding the range of nature's forms, and by fracturing boundaries in an overt manner." The artist is thus not only an eager user of new media and new technology, but also exerts an influence over their development. Wilson refers to the Bell laboratories as an example in which the involvement of artists in the investigation of sound has been not only extremely

influential in (thinking about) telephony and 'electronic voice research', but also in developments in the field of electronic music. The result of fundamental research involving both researchers and artists leaves its traces in technology as well as in art production.

This blurring of the dividing line between art and technology is expressively articulated by Wilson: "How is the artist exploring the limits of genetic inheritance by breeding mice to eat computer cables different from a biologist? In parallel fashion, one could ask why couldn't much of the work of scientists, researchers, inventors, and hackers be considered art."
The segmented categorizing by which the artist is predominantly positioned as diametrically opposite to the scientist or 'techno nerd' may very well over time turn out to be an historical anachronism; new, integrated role models are arising in fast tempo in which artists function very well outside the traditional art world and perform more and more as researchers (in laboratories or research institutions, for example). For a number of years the European Union has been supporting on economical as well as political levels initiatives within which artists and researchers work together to develop new technologies (see http://competence.netbase.org/panel2/rapport2.htm).

When the borders between art and technology actually dissolve, this could of course have implications for the way in which professional art education is organized. Perhaps the idea of what counts as artistic material must be re-evaluated or adjusted. Artists should be initiated into the scientific world and acquire skills and knowledge which will enable them to participate meaningfully in this domain. They should develop a way of thinking that is sensitive for not yet explored research directions and any unexpected implications of technological and other scientific achievements. Are artists equipped to find a good mix of artistic and scientific research? Are they able to learn enough so that they can engage in (scientific) research in a sound and qualified way?