

# **The Two Basic Questions of Ethics and the Loss of the Interface in Ambient Intelligence**

*by Klaus Wieglerling*

Each ethical discussion contains two basic questions which themselves are, strictly spoken, not ethical by nature. We can even say that these questions are meta-ethical questions, which also have an epistemological or logical meaning. However, these questions provide the foundation for every single ethical debate and also serve as a guiding light. Each ethical discussion has to face up to these two basic questions to prove its practical necessity or practical significance for certain user areas respectively. One of these questions is the identity of the acting person who is to act responsibly and who is to be responsible for his or her actions. If the identity of the acting person has been weakened or has been compromised as in the case of a schizophrenic then the acting person cannot readily be held accountable. The other question concerns the concept of “Wirklichkeit” in which we are to act. In the German language there are two different concepts for the English term “reality”, that of “Realität” and that of “Wirklichkeit”. I will try to explain the differences later on. If we are to actively operate in the world, we have to be able to define “Wirklichkeit” in the sense of a “lived-in world” i.e. not in an absolute, but in a relative sense. We need a definition which complies with the demands of every-day-life. We have to know that it does not deem proper to interfere when Wallenstein is murdered on stage. In the light of ever smarter new and autonomously operating information systems both basic questions profoundly touch on ethics of media in particular, but also on ethics in general. The experience of “Wirklichkeit“ and the development of a personal identity will be different in intelligent environments modified by ubiquitous systems, because resistance – which is as vital for the experience of “Wirklichkeit“ as it is for the development of personal identity – has been, at least partially, removed by the nearly complete loss of perceivable interfaces.

## **The Vision of Ambient Intelligence**

The technology, which is described in terms of Ambient Intelligence, Ubiquitous Computing and Pervasive Computing and which emphasizes different characteristics of each term, is a vision which can be realized technically in different ways.

Compared to Pervasive Computing the term Ambient Intelligence emphasizes more the social embeddedness of the technology and the interaction with the system. Ambient Intelligence is a kind of intelligence which can be found in our immediate environment in the sense that this intelligence – and this is also a vital part of the lived-in world concept – is readily available to us around the clock. It means the original concept of “Lebenswelt” which is more than a sociological term. But the original concept of “Lebenswelt” is more than a sociological term; the concept was developed by Edmund Husserl as a specific philosophical one in order to lay foundation to the positive sciences. However, Ambient Intelligence also defines the contextuality of information,

especially the confidential treatment of personal data. Therefore Ambient Intelligence does not merely cover the embeddedness into the physically tangible environment but also into social contexts. Søraker und Brey define Ambient Intelligence as an attempt to combine the technology of Ubiquitous Computing and the technology of „Intelligent User Interface“<sup>1</sup>. However, in my eyes the authors mistake Ubiquitous Computing to be an actual technology. But I think it is definitely not an actual and concrete technology. Ubiquitous Computing still is a vision, which can be realized in different technologies. According to Søraker and Brey the term „Intelligent User Interface“ describes other user elements than mouse, keyboard or monitor. These user elements are to be more intuitive, more secure and more efficient, they should be more personalized and more adapted to the context. By the use of Ambient Intelligence a radical change in the interaction with the computer is to take place. Despite all helpful attempts to structure the vision<sup>2</sup> introduced by Weiser, it is apparent that the three terms only stress characteristics emphasized in different ways. They, however, do not define anything which differs distinctly from any other term of his vision. The vision can be reduced to the following elements:

- considerably fewer hardware components;
- adaptiveness of the system;
- self-organization of the system;
- the system is aware of context, thus has the ability to interpret situations; so technology invades a field which traditionally has been filled by cultural studies and hermeneutics respectively;
- the physical environment is augmented by information systems;
- permanent mobile or ubiquitous availability of information systems;
- linking of local and global information.

## **Disappearance of the Interface and Loss of Resistance**

A key criterion for the introduction and success of every-day technologies was the loss of problems in their handling and their ever more easy use. Just as glasses and hearing aids have become so subtle and thus an almost organic part of our physical being, technology should be as unobstrusively and naturally integrated into our every-day life. Consequently, the operation of a system should be just as adapted to our natural and cultural patterns of behavior. Faced with smart technology – which itself has become the „acting person“ and whose impact is no longer immediately visible – this criterion becomes a problem. The adaptiveness of this technology can create a new kind of dependence for us and affect the way we see the world and our personal identity. More than ever it seems to be crucial to make system technologies visible with regard to their functioning and the resistance they overcome. We can only direct and control something if we are aware of it. Only in situations in which the effects of actions can be at least

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<sup>1</sup> Søraker, Johnny Hartz/ Brey, Philip (2007): Ambient Intelligence and Problems with Inferring Desires from Behaviour. In: Phillips, David/ Wieglerling, Klaus (Ed.): Ethical Challenges of Ubiquitous Computing, (IRIE 12/2007)

<sup>2</sup> Weiser, Mark (1991): The Computer of the 21st Century. Scientific American 265 (3)

estimated – even though they might not be understood – responsibility for these actions can be taken.

On the other hand the one concept of reality „Wirklichkeit“– according to Dilthey characterized by resistance against my will to form or to change it respectively and by symbolic links to concrete parts of reality – is gradually altered into an optional state, which is not defined by concrete distances and concrete relations. This is done by systems which informatorily augment the concretely given pieces of reality without me actually having to instruct them or giving my consent. Reality is not actuality and “Wirklichkeit” is always more than actuality, because it transcends actuality.

“Actuality” can be misunderstood in a sense of an effect which is given now in this moment. But historical effects, for example, are not *actual* in every situation, especially in case we are not conscious of these effects. So the effects of the systems are often given with delay and we can not relate the effect to its cause. However, “Wirklichkeit” is characterized and defined exactly by this resistance “against” me. If a system becomes smart, this characterizing point is expressed in a virtualisation. Furthermore, “Wirklichkeit” is a specific connection of different pieces of reality. Thus the “Wirklichkeit” of a normal common Bushman is completely different from the “Wirklichkeit” of a common European. “Wirklichkeit” unifies two aspects, the resistance to my will to form or to change it and the connection of different pieces of the concretely given reality.

We, however, do not experience the world like the artist or the engineer, who views it as a potential which can be molded and shaped in various ways, but rather as something that has been created for us to be used in a certain way – a user stereotype. We are not the creators of “Wirklichkeit”, but the system is. Thus the system creates “Wirklichkeit” for me by integrating given pieces of reality into an imagined “Wirklichkeit“, but removes the aspect of resistance. Thus “Augmented Reality” is actually an expression of Wirklichkeit.

The problem of the interaction between man and information systems within intelligent environments is such that in this vision the actual operation of a system should be reduced to a minimum. Thus there will be more system reactions without my actual order. For specifically articulated operations I, the user, merely trigger the initial spark. The systems will not merely support my desire for organizing and my wish to get orientation, but will, possibly, substitute my abilities for organization and orientation by virtual agents. This way, the actual interface and thus the transparency of the hierarchy levels at work in the system are no longer visible while using systems.

A basic problem when appliances are augmented by information systems is a possible loss of the experience of resistance. When my entire environment has become intelligent, when the entire „augmented reality“ is tuned to my intentions to use them and is rushing ahead to meet me half way, then the basic characteristic of “Wirklichkeit” – i.e. its resistance against my will to shape it – is no longer present. The self-organization of ubiquitous systems has the effect that the system itself becomes the acting person instead of me. In general, actions will be delegated by the subject. However there will be

actions, which run ahead of my wish or which are sensible in a general societal use, which I neither expressively delegated nor wished to be carried out. The system treats me as a user stereotype, who is part of an anonymous group whose membership I cannot simply cancel. Thus the system operates in a way which I cannot control any longer.

The context sensibility of a system based on de-contextualizing exacerbates the mentioned problem in the sense that it works by reducing services, situations and behaviors to match typical stored data bits or by disarticulating certain areas of “Wirklichkeit“. Faulty “linking” is likely when systems can no longer be actually operated and controlled, when the option to interact with the system is no longer available, because the interface within the system is not visible anymore.

When hierarchies in systems and the borders of systems have become invisible, the result will be less individual competence and in consequence the development of personal identity will be affected, because every personal identity is formed by acknowledgement and non-acknowledgment of his or her actions and by the development of individual competences. That means in particular the development of routines and techniques, by which intentions can be realized and the resistance of the world can be arranged in a bearable way. Since systems exchange, process and trade acquired data autonomously, the process of how the system arrives at a certain conclusion can no longer be easily traced. Consequently, we are faced with the challenge of how to preserve the resistance inherent in “Wirklichkeit” as a basic experience necessary for any cultural and explicit technical activity.

It is vital, however, that the loss of this resistance is not understood as an obstacle to man’s development of personal identity in the sense that man can only develop personal identity when he is literally constantly struggling against obstacles and insecurities of every-day life. This would question any means to make life easier which are a prerequisite for higher cultural achievements. Loss of resistance is a characteristic of any cultural development. In every advanced culture more and more means are developed to facilitate work and life; this leads to a loss of resistance. If the means to make our lives easier – the medium so to speak – are no longer visible, if they melt into the material mesosphere then we are up against something like we have never experienced before. In order to experience resistance we need to be able to be aware of the fact, when and how a medium is used, otherwise we cannot act autonomously. The medium necessary to facilitate higher cultural achievements has to be in service of novel ways for operating and offer possibilities for self-determination. It is not enough to have traces of this medium, but rather the fact that the medium is something to be operated and controlled should be the point of focus, otherwise it will slip out of our hands and will degenerate into an apparatus for our incapacitation where the machine will tell us what to do – if not in a direct, then in an indirect way. The focus should be on providing options for operations and making visible possibilities to control various hierarchy levels in an autonomously operating system, and thus to make man understand how such a system works.

## The Problem of Alternative Methods of Information Input

Lately we have seen more and more research on alternative data input and output, because we do not want to waste our attention on the operation of systems. In this vision, the environment where action takes place is to become a display, i.e. a kind of Ambient Display is to be created, in which everything the environment offers could possibly become an element of service. "In theory Ubiquitous Interfaces can be completely traced back to the material world," states Lauritz L. Lipp, "the abstract notion of 'Move something here – something will happen there' can take place in a common physical room, not just on a common screen."<sup>3</sup> The question is, however, if this doesn't conceal the very problem we are discussing here. The goal for so-called "mixed realities" – characterized by elements of Ambient Display, Tangible User Interface, that is by an interface that can be touched, and by Augmented Reality – should be re-naturalized as much as possible. The question to ask is, what do we gain by this? When discussing alternative server elements we work with the assumption that there is an existing physical world which merely has to be augmented by information systems. However, the world – and here we speak of the physical world as well – has always been symbolically shaped and augmented by culture and individual experiences. As Cassirer, the great philosopher of the symbolic forms, has shown, the world of science obviously is a world of specific symbolic forms and specific symbolic connections like other types of symbolic spheres – as e.g. religion, myth, arts, technique etc. But the resistance we experience is articulated not only by the physical world, but indeed also by social and cultural institutions as well as by ideas. The plan to bring server elements into the world we can physically experience might not merely conceal the faultiness of the systems but also the fact that our intentions are possibly guided by these systems. The work of a person in highly technical and complex societies has long reached a high level of abstraction and can only be defined to be natural in a very limited sense of the word. Thus the advantage of such a re-naturalization, in my view, is minimal. Whether an engineer works by moving blocks around or by moving a mouse is not likely to make his work any simpler. Furthermore we have to ask ourselves, whether the actually natural or manual operations could not be carried out by robots in the near future. It is likely that there will be less focus on options, alternative offers and less information on how information has been compiled. The question is whether the attempt to focus only minimally on the use of the system is beneficial to the task? There are good reasons to doubt this, which doesn't mean that it is necessary that the operation of a system be simple as long as there is no loss of autonomy.

The vision of simplicity and unobtrusiveness as ubiquitous systems accompany our every-day life can become a fundamental problem regarding our self-determination in view of our acting autonomously and our sense of "Wirklichkeit".

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<sup>3</sup> Lauritz L. Lipp: Interaktion zwischen Mensch und Computer im Ubiquitous Computing – Alternative Ein- und Ausgabemöglichkeiten für allgegenwärtige Informationstechnologien, Lit Münster 2004. S.43

When developing ubiquitous systems, the goal should be to continue to let the tracks of this medium which permeate our every-day world remain as noticeable as possible. Furthermore, the system user should have the possibility to control and relegate or interrupt. Of course it is not possible to control these systems all the time. On the one hand, it would not work because there are situations in which lengthy controls would offset the advantage of using the system – for example in an emergency situation. On the other hand, it couldn't work because complex, constantly changing systems could not be checked by a single individual, without expert knowledge and without the help of other expert systems. The personalization of the system control – which is talked about frequently today – is indeed a lie. System control for the layman is only possible in a very limited range and merely selectively. Systems should however to be accessible in the sense that the user is provided with meta-data in certain situations, thus giving him the opportunity to ascertain when, where, how and, possibly, by whom certain data was compiled. This is the only way that control and the option for actions can be maintained in intelligent environments. In the Stuttgart philosophy of technique we try to develop a special concept, which is called “Parallelkommunikation”, “parallel communication” in English. This concept, especially as a concept of man-system-communication, should help to get new options for guidance as well as new possibilities for controlling smart systems, while it makes the systems visible in ad hoc modes. But the concept does not only have a technical aspect, but also a social or political aspect. Not all problems of smart systems can be solved in the way of an individual interaction with the system. Indeed, embedding systems into social interactions is necessary. This also means that it is necessary to solve, or at least to moderate, the problems of smart systems by a discourse within society. Lawgivers in particular have the responsibility to control the installation and adoption of these systems. In this regard, the question, how we should handle smart systems has at least also a political aspect.