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## **mind21 – the Mind of the Nets**

Introductory lecture at the initial event *mind(21)factory* – a pan-European competition for students and graduates of architecture

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### **PART 1 | Networked Complexity**

“Civilization advances by extending the number of important operations which we can perform without thinking about them.” This quote by the famous mathematician and philosopher Alfred North Whitehead implies that a threshold moment in evolution can be surpassed only once humans have been able to automate increasingly complex tasks (e.g. to tie shoelaces and suchlike ☺).

This quote is also the motto of IBM's new perspective on the state of information technology: *the Grand Challenge*. The Grand Challenge of autonomic computing was first announced in public by Paul Horn, senior vice president of IBM Research, in March 2002 at Harvard. IBM believes that we are at this very threshold right now in computing. We believe that we are at this very threshold right now in thinking, too -- in thinking the postmechanical paradigm “Net.”

We live in the Age of the Global Net, whether or not we are inclined to accept it: globality instead of globalization. It is a fact that already happened. Living in the Global Net means living in dynamic open spaces. There is a permanent draught. If we don't perpetually keep on the move, it can get pretty cold. That's why living in the Global Net calls for permanent activity – interactivity. A net only makes sense if there are many nets simultaneously. At its heart, a net is an ambivalent entity. In a net, a) everything is intertwined – 1; b) a net is empty – 0. In a word, a net is a mixed reality environment, dominated by *liquid logic*; a place which “is nowhere in particular but everywhere at once”; a space which “is fundamentally and profoundly antispatial” [1].

Our relation to this liana-like connected world – the globality – is in many respects the same as it was once to the forest: irrational. We have got a feeling that the deeper we are intruding into this new world the more the present is shrinking – the certain, the accessible – , the more the future is expanding – the uncertain, the inaccessible. And that makes us anxious. The solid, the used, the accessible are falling behind. First of all the privileged territories of power, which are losing their natural support – boundaries. The process of decoding and deterritorializing all traditional codes and territories of power, which once capitalism and the Enlightenment unleashed, is getting ready for a quantum leap thanks to recent developments in next-generation computing of the beyond-the-desktop-era. A quite revolution takes place within society, which makes everything permeable – without boundaries – and which nobody seems to wish. All of us have seen it coming. And it stands now before our eyes in a stand-by modus, just like once Hannibal did in front of the gate of Rome. Actually no surprise, but we all do seem to be nevertheless pretty surprised. Living without boundaries: Damn it or bless it? That's the question.

Living in the Global Net, living without boundaries, is not easy. What we urgently need to make it acceptable are solid stabilizers, anchor points in the breakers; e.g. a good command of *liquid logic* or a vertical body – “the body of dance, light as air” (F. Nietzsche). In the ultimate limit, there will be no choice but to go to quantum parallelism in which 1 and 0 are literally present at once. Otherwise there is a menace that our main tool – thinking – will be sucked into the black hole of networked complexity.

If we do not harness and automate the liquid logic of quantum parallelism, running 1 and 0 at once, we will, in the long run, be incapable of taming the exponentially increasing complexity of the Global Net and thus of surpassing the next threshold moment in evolution. That way we will be incapable of keeping up with computing in the future, notably with next-generation quantum computing, based just upon 1 and 0 at once, which will increase computational power by astronomical amounts, inconceivable on conventional binary computers, which – not unlike the current society – run on the principle of either-or, i.e., either 1 or 0.

To give you a feeling what “astronomical amounts“ do mean, I would like to give you as a guide the following example:

“If the fastest available supercomputers take about a year to factor a 150-digit number, then the same computers would take approximately the lifetime of the universe (*13,7 billion years*) to factor a 400-digit number. However, as was first shown by Peter Shor in 1994 an algorithm exists for a quantum computer with which a number could be factored using of the order of  $\log(n)$  operations. This algorithm makes use of the special property that quantum computers are very good at finding the period of a periodic function, which can be related by number theory to factoring a number. If a quantum computer could be built which, using this algorithm, could factor a 150 digit number in about a month, then the same computer would take a few years to factor a 400-digit number” [2].

Well, in order to escape the menace of being sucked into black hole of networked complexity we have to find an plausible answer to the following question that was raised by Félix Guattari – the notoriously omitted co-author of Gilles Deleuze, the favorite philosopher of architects – about a decade ago: “How to produce, tap, enrich, and permanently reinvent our subjectivity in order to make it compatible with the Universe of changing values?” [3].

## **TEIL 2 | About the mind that does not stick in or About the production of a new subjectivity**

We believe that a new kind of architecture – *heterarchitecture* –, conceived as a hybrid, mixed-reality environment, could help accelerate the process of our automating liquid logic in much the same way as IBM’s vision of autonomic computing could help manage the increasing system complexity of high performance information technology application environments, which will be largely self-managing, self-diagnostic and transparent to the user.

Consider the following ON/OFF scenario: You enter a space and switch on, instead of the light, a data flow, which fills the space in a sec with a “world” – yours or somebody else’s. And you are suddenly in the Louvre, at a bazaar in Cairo, on board a spaceship travelling to Mars, in a research lab, or simply at home – *chez vous*. A utopia? Absolutely not! For all you need is data -- plus super-fast data transfer, plus super-fast computing power, plus the right architecture. And all is already in place – apart from the right architecture.

Of course, visions of spaces like that are not new. The cyberpunk fiction is full of them. What we are talking here about are large-scale “instruments of displacement” – mixed reality environments of the post mechanical paradigm ‘Net’, where “the virtual is seamlessly embedded in the physical” [4] – just like a perfect special effect. We must imagine these environments as an omnipresent super-computer of the *beyond-the-desktop-era* embedded in the world, a computer that ... does not exist, at least not as a single piece. What does exist is: a) an interconnected information technology infrastructure for open, distributed and heterogeneous application environments (grid, ubiquitous, autonomic computing), based on quantum information processing, exchange and storage. By implementing this infrastructure, powerful distributed knowledge spaces could be created, enabling higher-order acting by the individual as well as multi-institutional virtual organizations in an unprecedented way.

What does exist as the next level is: b) an architecture which integrates this interconnected IT infrastructure in a way that enables one to conceive buildings as quantum objects, i.e., objects able to be literally in two states at once – ON and OFF, 1 and 0, real and virtual. It is an architecture against architecture – at least of the traditional kind, which knows only either-or; either 1 or 0, either inside or outside, either enclosing or excluding. It is an invisible architecture that makes numerous parallel virtual worlds visible. It is an upside-down architecture. Architecture as a pure infrastructure. Architecture as an enabling platform – for *all*.

William J. Mitchell, one of the pioneers of the digital era, offers a lucid diagnosis of this shift in thinking architecture: “A world governed less and less by boundaries and more and more by connections requires us to reimagine and reconstruct our environment and to reconsider the ethical foundations of design, engineering, and planning practice” [5].

Well, what we are after is an architecture that does not prescribe any particular kinds of spatial experiences, but enables them all. “Location and space as the basic media of architecture are being questioned”, says in this context Peter Weibel and continues: “Nonlocation, dislocation, dematerialization are new radical architectural categories”. (...) “Architecture as spatial design has to adapt to the new spatial understanding. The telematic media ultimately force a new dynamic concept of space onto architecture. This concept of space is characterized by immateriality and nonlocality” [6].

It is an architecture, then, that liberates the body from physical and temporal constraints. But don't worry: “The location, the physical, the physically experienced location is not lost to architecture as a medium, but is joined by the nonlocation space of telematic machines and media, which overforms and deforms the classical spatial experience. Media experience and spatial experience create hybrid forms of a bodiless and body-oriented experience of being” [7].

Well, now you could raise a legitimate question: What is all that jazz good for? The answer is quite simple: To fight the ideology of materiality in classical architecture as representation (of power) and, instead, invest resources saved by mixing the real with the virtual in heterarchitecture into something more reasonable – *mindware*. Ware, as it were, that empower us to permanently “reinvent our subjectivity in order to make it compatible with the Universe of changing values?” (F. Guattari)

Our ambition is to promote a mind in us that does not lag behind, but reinvents itself, again and again, and, in doing so, keeps on joyfully running in sync with *mind21* – the mind of the nets, the mind of networked complexity. A mind that is constantly alive to new ideas, new practices and new opportunities. A mind, then, that does not stick in, but is able “to dance with the winds” (F. Nietzsche).

What we as “developers” of *mind(21)factory* expect of you is not that much the immediate feasibility of your design proposals, but above all your surmounting boundaries. Trans-disciplinary approaches will be in focus during our common avantour.

Of course, it takes much more than a new kind of architecture to generate new ways of thinking and acting, new types of habits and skills, in short: a new subjectivity for the 21st century. However architecture has always been a multilayered discipline playing a catalytic role within society. It has accelerated social processes of both dissemination and concentration; and also the process of „extending the number of important operations which we can perform without thinking about them.” To be architecture, and not just a building, it must add exactly this accelerating dimension, which helps break up a status quo. A concrete effect of this dimension is – inspiration that fires our mind. And a mind full of inspiration does not stick in. Conversely, it automates complex operations on the fly. And this is what we are going for. *mind(21)factory* is a place full of

inspiration thanks to numerous parallel virtual worlds it makes possible by mixing realities. It is a place where spatial experience does not depend on architectural structure (O, Bouman). An act of release for all being excluded from institutional power games of knowing how. In the final analysis – a *designed* design. Action philosophy.

#### References

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