Architecture, Imagospheric Horizon and Digital Universe

Jüri Soolep

Archimedium

Lincoln Cathedral is a piece of architecture ...

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Preface

This collection of essays and lectures has been written over the last ten years. They are quite different but move in the same direction as architecture and architectural education. Some of them are wild speculations that play with the ideas of future, while others are more descriptive analyses of the state of affairs in architectural phenomena. Some of the essays were created for different academic purposes and were then developed further for publication. The introductory lecture is slightly older as it was a programmatic guideline for education and research ideas in the Faculty of Architecture of Estonian Academy of Arts. To a certain extent, other essays and lectures published here and written for other schools took their direction from that original programmatic presentation. The collection is arranged chronologically.

There is one concept that can be found in nearly all of the essays and lectures collected here: it is called *imagosphere,* or to put more modestly *imagospheric condition* or *imagospheric horizon*. At the beginning it was a working metaphor, which gradually became invaded by several meanings until the understanding of the Third Industrial Revolution and the Digital Platform were established by different publications in the current media. Still, I believe the *imagospheric condition* has remained an important explanatory principle for me in understanding the development of our culture within the evolving processes of the Third Industrial Revolution. The need to return to this concept again and again proves that it has not yet developed to its full potential, or utilised all energy of its potential meanings. It also seems that the *imagospheric condition* can be treated as an indication of paradigm changes in architectural phenomena, in particular of two paradigms – the one that started with the Renaissance and the other that started with the First Industrial Revolution.

The concept of *imagosphere* covers the peripheral but very important edges of architectural phenomena: the architectural design project; the representational system in architecture, including the images of architecture; the communication process in architecture and the current development of media and technology. In the same way as air around us forms the atmosphere, the images around us are the building blocks of *imagosphere*. The multiple screens we use with online connectivity have formed a new visual layer around us. This addiction to screen has transformed how we experience the existential. Seemingly clear and vivid, the *imagosphere* is actually difficult to penetrate and difficult to unencrypt.

The question I would like to ask is what happens to space and architecture if we are to believe that the *imagospheric condition* can be noticed in current life in the form of different fragmentations, hybridizations and amalgamations. Several of these contradictory processes are in formation and can be described as a plenitude of information; amalgamation of public and private

as well as reality and fiction; hybridisation of digital and material (IoT and WoT); augmentation of informational and visual/existential (Google Glass and other head mounted displays) and amalgamation of digital and conscious (bionics and prosthetics).

We notice today substantial changes within the sphere of architecture, design and building. Due to the digital development of information, communication and entertainment technologies, the current nearly six hundred years long paradigm of architecture is at the state of disappearing or collapsing. It concerns the representational system of architectural design, the means of producing architecture designed and the authorship of architectural designing. I believe these changes constitute several possibilities for future development that are worth considering in architectural education and research.

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Here it is also appropriate to mention the close collaboration with Professor Peter Kjaer. Many of the ideas in these essays and lectures were developed as background studies for certain policies and research directions proposed by us within the Nordic Architecture Academy and Prague Institute (now called the NC State European Center in Prague). The essays *On Collapse* and *Looking Glass* were originally prepared for research conferences at the Umeå Arts Campus. They would not have taken their present shape without a rich exchange of ideas with the philosopher Per Nilsson. Two of the essays, *The Things of the Order* and *Looking Glass,* were facilitated through the research grants from the Swedish Research Council *Formas*.

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This is the second and extended edition of the book published previously in the series of Prague Paper One.

Instead of Introduction: On Space

The lecture was held 12.02.2004 for the students and faculty of Department of Architecture of Estonian Academy of Arts.

Good colleagues and students!
Dear friends!

An old friend of mine has asked me one and the same demanding question: what is the idea, according to which the architecture as education needs to develop; what is the main direction, according to which education of architecture should move forward?

This question is far from being a joke or play on words – on the contrary, the question is fundamental. It is fundamental for the thinker who attempts to answer it, but it is also fundamental for the education of architecture itself. Those who participate in the education of architecture have to be able to answer it and they also have to be able to interpret it to the public in general what it is about.

The process of answering the fundamental question brings forward new questions , which are not any simpler: what is the state of affairs in architecture here and now? Is it at all possible to guess, describe and evaluate the state of affairs in architecture? If yes, is the state of affairs in architecture connected to the architectural education? A dozen more questions of the same kind will emerge.

Thus the **father of all these questions can be identified**: What is this phenomena, what *we* call architecture; What *I* call architecture; which may or may not be in essence the same What *you* call architecture?

One could answer this question with the words of the ancient philosopher Heraclitus: *I have searched myself*, and to add: *the nature loves to hide*. The honest answer is: I do not know ... yet!

Architecture is a complicated phenomenon, it deals with mind and space, it is extremely personal and intimate as it is at the same time open to everyone collectively. If we look at the surrounding life, it feels like everybody knows all about it, yet no one can really do it. This is because architecture is not made but it is born.

It is not easy to answer the fundamental question: what is the idea, according to which the architectural education needs to develop. Answering it in a simple and concise form, the answer is destroyed in simplicity when trying to overwhelm all the being. Answering the fundamental question in a complete and satisfying form, the whole life is not enough as new and new questions need to be answered before the final clarity.

Not knowing the answer, I still want to think about architecture in this presentation as a universal phenomenon that adjusts humans and space in the process of being born – architecture bears humans and space into being. This lecture is about the method or path to approach at least partially the fundamental question. This is what I believe and will try to follow.

We discuss *space*. I consider *space* the most determining and influential general notion, which is the beginning of everything. How this notion is explained, experienced, acknowledged and evaluated is the foundation of architecture in its entirety, including the education of architecture. I feel today that the good old notion of "the **art of building**" *(ehituskunst)* as the synonym of architecture is no longer able to describe the complexity of the worlds we live in. Like a good friend or house let it be with us, but art or building alone or together, are not enough for self-critical architectural thought.

Building as a declining art

Modernism, the period in which building in general has gradually lost its leading position, is most probably ending. Looking back into history it is probably not accidental that the great mind witnessing the birth of original Modernism – Leon Battista Alberti – called his second edition of his magnum opus in 1550 – *De re aedificatoria*. He used that as a synonym for architecture – *L'architettura*. Thus it remains the short heading of the book and synonyme for architecture for the next five hundred years – *On the Thing of Building* (Tavernor 1998, 251).

When Medieval master masons were building cathedrals – which were at that moment probably the most powerful theological, visual, cultural and technological media available – they did not try to emphasise the art of building. It must have been the most visible manifestation of collective being and raised no questions. When Alberti was publishing his book, the name *architectus* was already used instead of *master mason* and building as art and technology needed to be supported. It was the moment when books stated to shape the world around us. Books, first in manuscript form but soon in mass print, started to transfer human thoughts through space and time. This medium became much more powerful than artefacts of the art of building.

Today the art of building as the creator of possible worlds has surrendered its position to books, journals, television and, of course, to the world wide web. The buildings have become shells for other worlds, not created by builders or architects.

Alberti has, besides being the visionary, who proclaimed the loss of existential energy and value in the art of building, another important role. He was the one who postulated the language of architectural representations passed on to us and remaining nearly the same for the past six hundred years. By the end of the fifteenth century *perspectiva artificialis* had fully distanced itself from traditional optics, because it developed within the mathematical paradigm. Experiencing the world in seeing and in mathematical (geometrical) description became two different phenomena.

> Writers explicitly downplayed philosophical questions concerning the propagation of visual rays and the movement of an image from an object to the mind. In book 1 of *De Pictura*, Alberti writes:

> Indeed among the ancients, there was considerable dispute as to whether these rays emerge from the surface of the eye. This truly difficult question, which is quite without value for our purposes, may here be set aside.' In accordance with the Renaissance pyramid of vision (inherited from the Euclidean notion of visual cone), a perspective image was regarded as a window on the world, although many still believed that the eye projects its visual rays onto an object and that perception is a dynamic action of the beholder upon the world (Perez-Gomez, Pelletier 1997, 19).

Since the experiments with perspective of Filippo Brunneleschi it gradually became clear how the experience of a building and its descriptions (now so commonly known as plans, elevations and 3D drawings) are connected to the materialised reality, ideal structure of mind and geometry. This condensation of representation as an ideal geometrical construction gradually started to be isolated from the existential experience of world. Later another drawing was added: the section, which became the prophet of positivistic science: the sectioning of something enables us to understand how it is built up and how it works. It was the imagination of the rays of Sun that dissect the building and draw the shadows on the floor like sundial (Perez-Gomez, Pelletier 1997, 112).

Alberti wrote, how an architect needs to depict the space when he draws the plan of a building – *ichonographia.* In the literary sense of the word it has to be parallel to the plane of horizon (in Latin – *ex fundamenti descriptioni*). The other elevations stand for each side of the building – *orthographia* – contour and its parts are to be projected to the vertical plane without corrections to the lines and keeping the actual angles (Perez-Gomez, Pelletier 1997, 27).

Drawing of perspective thus represented simplified section of the visual pyramid as one might see it and the elevations and plans represented ideal facades and horizontal section as they exist only in pure mind according to the rules of geometry. Renaissance as seemingly mythical and symbolist era in the field of building becomes rational and instrumental. It feels as if Plato's *techne* conquered the *metis* of Daidalos.

Geometry as ideal knowledge was nevertheless still sacred. The knowledge of geometry was divine as it mirrored the nature created by God. It was enough to learn the basic postulates and rules, after that the results started to make sense and describe the universal structure of the universe. Geometry allowed to create – mirroring the creation of God – *creatio ex nihilo.* Out of nothing, but according to Logos, was born something. Geometry, at least partly accessible to human understanding, belonged to the sphere of pure knowledge and must have been in concordance or even in direct contact with the truth and virtue of God. The Medieval master mason, being under the influence of geometry not only copied God but was also existentially participant in the universal creation. It was that moment when God was depicted with a compass creating the world according to the "true measure" – the geometrical truth.

This universal and collective quality of geometry was emphasised by Edmund Husserl[1]. Geometry and mathematics in his proposal are constructs of consciousness, being of which in the spatial and temporal lifeworld has "sedimented" as large complexes into passive, latent form and do not participate as active experience in knowledge build-up. Still it is possible to "reactivate" the meaning and essence of geometry for the lifeworld.

1. But now questions arise. This process of projecting and successfully realizing occurs, after all, purely within the subject of the inventor, and thus the meaning, as present originaliter with its whole content, lies exclusively, so to speak, within his mental space. But geometrical existence is not psychic existence; it does not exist as something personal within the personal sphere of consciousness: it is the existence of what is objectively there for ""everyone" (for actual and possible geometers, or those who understand geometry). Indeed, it has, from its primal establishment, an existence which is peculiarly supertemporal and which - of this we are certain - is accessible to all men, first of all to the actual and possible mathematicians of all peoples, all ages; and this is true of all its particular forms. And all forms newly produced by someone on the basis of pregiven forms immediately take on the same objectivity. This is, we note, an "ideal" objectivity. It is proper to a whole class of spiritual products of the cultural world, to which not only all scientific constructions and the sciences themselves belong but also, for example, the constructions of fine literature(Derrida 1989, 160).

The Renaissance allowed geometry to distance itself from the existential lifeworld even further. Descartes, when postulating analytical geometry, instated world as finite analytically calculable coordinate system. Already Kepler claimed that it was not important to describe light mathematically, but to understand that its *essence* is mathematical, *mathesis universalis*, which is also the connection between body and mind.

After postulation of classical mechanics by Isaac Newton and inventing the mathematical apparatus of differentiation and integration, the description of world was created and it seemed absolutely perfect. Things and events took their shape according to mathematical and geometrical laws in absolute space and time. Humans found themselves in an instant when and where everything could be calculated, and thus believed that it was possible to know everything[2].

This development brought forward for architecture two extensive changes in the epistemological direction.

Firstly, the Renaissance still used the medieval assumption that numbers and geometry are *scientia universalis* – the connection between God and human – and moved forward to investigate that notion with scientific and philosophical methods. At the same time technology alongside with handicrafts discarded the traditional magical meaning attributed to them so far. Master masons and architects started to imagine their task more like technological challenges, the problems of which can be solved with two conceptual instruments: numbers and geometry. The thousand years old tradition of *daidala* and *metis* faded away.

Secondly, the contradiction described above was not yet final – the omnipresent principle of an act of God in the form of creation was still there in the form of nature itself. The description of the world by Newton paved the way for systematisation and mathematisation of knowledge. This direction also proposed that mathematical knowledge was finite and can be achieved through observing the natural phenomena. So the myth of an act of God slowly disappeared behind the empiricism started by Francis Bacon and strengthened by rationalist physics of Newton. Faith and reason were finally separated. Scientific thought became the only serious and lawful interpretation of reality. The need for metaphysical truths disappeared and with them the poetics of making and building.

The Euclidean geometry was functionalised. Differential calculus lost its symbolic and practical meaning. Geometry and mathematics became formal disciplines – the tools of technology and rational *instrumentarium*. **Tamed by the forthcoming positivist science, architecture lost its traditional function of creating higher poetic and magical realms.**

Architecture was removed from the worlds of Homer and Dionysus into the Republic of Plato and humiliated then as a part of technological process or art of decorating. So architecture dropped to be somewhere between building and liberal arts and remained there until today.

The rational modernisation of the Renaissance also removed building as a process from the domain of architecture. Building became a straightforward and easily describable profession and needed no support from existential and

2. It is not too difficult to discover that this oversimplification has its roots in the dogmatically accepted belief in the universality of technical (instrumental) thinking. As result, not only technical thinking itself but also a technical way of making have become the standards against which any kind of making is measured. ... It is important to see that it was not utilitarian and purely technical interests but a metaphysical quest that gave mechanics such a privileged position. It was in the domain of mechanics that the mathematisation of physical movement could be investigated or explored and finally accomplished....The science invented by human ingenuity is a construct. It is a productive science, motivated by an ambition to be nothing less than creatio ex nihilo, traditionally linked only with divine creativity.... This new, unusual confidence has its origin in the drastically simplified representation of reality, which became possible because of the deep metaphysical faith in the mathematical nature of reality sanctioned by divine presence (Vesely 1995, 44;49-50).

poetic realms. Further isolation of architects and engineers after the French Revolution made the division even wider. The final process of simplification of architectural profession was enhanced in Europe by the World Wars, the power of destruction of these was immense.

Let us not go too deep into the labyrinth of history. The rise of rational Modernism in Estonian architecture after the awakening from the lethargic sleep of Soviet suppression has been quite dramatic. The relations between humans, property of land and space we share, that have developed in Europe during hundreds of years, had to be established here in a decade. With sadness one has to accept that they have already been established in the form, which is difficult to change.

The form of these relations can be described by greedy, jealous and possessive tenant, who desires to become an owner, preferably a slave-owner. The general direction of politics in cities as well as in our state looks more like the realisation of a business plan not as responsibility for the shared values. Speculation with land and building as hyper-interest obtaining machine are the visible fruits of this emerging political culture.

One can remember the Machiavellian recommendations for grabbing and holding the power, not bothered to be masked with morality: the first *terraferma* by Venetian merchants, when the business moved from the Mediterranean to the Atlantic Ocean or the Palladian villas, where the value of architecture is comparable to the view of land, which earns interest as bank deposit. Thus Villa Rotonda becomes an interest earning machine that cultivates the fundamental of act of God – it profits from the nature itself.

The Estonian developer today masks himself as effective, dynamic and progressive philanthropist, but behind that the only value and credo is money. And that money needs to be squeezed out at any cost, and that cost can be transformed into money again. With money one can buy political ideas, support and decisions.

Building as the covering shelter, building as the respect to God and human, building as the being between earth and heaven has been transformed into a money making machine. As I realised myself through the recent experience of spa building *Viking*, architect with other slaves has been harnessed to turn that machine around, whether he likes it or not.

Academy has wanted to be free and independent from the times of Plato's grove. Our freedom and independence in space here and now has been deeply covered by a clumsy legal system, impotence of planning departments and sovereign power of magnates. In reality there are no institutions which could evaluate the freedom of space and protect it. The place to study architecture - the Department of Architecture must become the champion of that freedom with its teaching and research.

Place and Outline

How to proceed when building declines and the art of building (*ehituskunst*) has not been able to sustain its traditional task of bringing humans and space together. When in future we want to proceed with this task, we need to think and discuss the method how humans and space are brought together without the worn out concepts of building and art.

Making a building and being in building are intuitively powerful ways of thinking. This given in being was described by existential philosopher Martin Heidegger. He observed the notion of being – *sein* – etymology and archetypal background[3]:

> The entire range of the inflections of the verb "sein" is determined by three different stems.... 2. The other Indo-European radical is *bhu, bheu*. To it belong the Greek *phuo*, to emerge, to be powerful, of itself to come to stand and remain standing." (Heidegger 1959, 71) " What, then, does *Bauen*, building, *mean*? The Old English and High German word for building, *buan*, means to dwell. It signifies: to remain, to stay in a place. The real meaning of the verb *bauen*, namely to dwell, has been lost to us.... Where the word *bauen* still speaks in its original sense it also says how far the nature of dwelling reaches. That is, *bauen, buan, bhu, beo* are our word bin in the versions: *ich bin*, I am, *du bist*, you are, the imperative from *bis*, be. **What then does** *ich bin* **mean? The old word** *bauen***, to which the bin belongs, answers:** *ich bin, du bist* **mean: I dwell, you dwell....** Building as dwelling, that is, as being on the earth, however, remains for man's everyday experience that which is from the outset "habitual" - we inhabit it, as our language says so beautifully: it is the *Gewohnte*. For this reason it recedes behind the manifold ways in which dwelling is accomplished, the activities of cultivation and construction. These activities later claim the name of bauen, building, and with it the fact of building, exclusively for themselves (Heidegger 1971, 146;147;148).

3. Heidegger named three stem words. Firstly: *es*, comes from the Sanskrit word *asus* and means life, living, standing on itself, one that moves and rests in itself, self-sufficient. Secondly: *bhu, bheu*, which is related to Greek word *bhuo* and means: becoming visible, being powerful, self created and self-sustainable. Thirdly: *wes*, which is connected to Sanskrit word *vasami* and German *wesan* and means living in and being located (Heidegger 1959, 71-72).

Thus the notion of being according to Heidegger has been covered up by the many-layered concept of building. The process of building is addressed with two human activities – cultivation and construction – the Latin words for these are: *cultivatus* and *construo*. In the visual metaphor this can be seen as the growing of roof and piling up the walls. These poetic makings take the old name of being – *bauen* – to themselves and *supress* it to the process of building.

When dismissing the concepts of building and art as the foundation of architecture, we need to look for the Estonian etymology and context of space which would be of the same potential energy as is the Heideggerian discourse of building as archetypal *being* within Indo-European understanding. It is inevitable as the usual word *ruum* we use today is a Germanic loan – *rom, room, raum*. Thus the word *ruum* is not a neutral empty vessel, but it bears the archetypal content that Heidegger described in another instance:

> That within which something becomes is what we call "space." The Greeks have no word for "space." This is no accident, for they do not experience the spatial according to *extensio* but instead according to place (*topos*) as *chôra*, which means neither place nor space but what is taken up and occupied by what stands there. The place belongs to the thing itself. The various things each have their place. That which becomes is set into this placelike "space" and is set forth from it. But in order for this to be possible, "space" must be bare of all the modes of appearance, any modes that it may receive from anywhere. For if it were like any one of the modes of appearance that enter into it, then in receiving forms, some opposed in essence to it, some of an entirely other essence, it would allow a bad actualization of the prototype

> to come to stand, for it would make manifest its own appearance in addition. /.../ That wherein the things that are becoming are set must precisely not proffer its own look and its own appearance. [The reference to the Timaeus passage not only intends to clarify the correlation of /.../but also tries to intimate that Platonic philosophy - that is, the interpretation of Being as idea -prepared the transfiguration of place (*topos*) and of *chôra*, the essence of which we have barely grasped, into "space" as defined by extension. Might not *chôra* mean: that which separates itself from every particular, that which withdraws, and in this way admits and "makes room" precisely for something else?] (Heidegger 2000, 69-70).

In order to find the method, background or context, which would help us substitute the concepts of *building* and *art*, let us assume that architecture deals with adjusting humans and space. I would like to suggest that space itself contains those possibilities and uncovers ways for that purpose. When saying that architecture adjusts humans and space, one might ask – in what way is the adjustment conducted. What is the *modus* of that adjustment?

We can answer that an architect adjusts humans and space with the help of imagination. We imagine humans, very often the particular people we work for, and imagine space, very often the particular space we work in. Within our imagination we transform the space until it fits the humans. Rarely, but still sometimes, we transform the humans to fit the space. The result of this imagination, usually being a rather long and complex process, is an image. This image is made visible in different descriptions, some of which are so exact that rebuilding of the space can be started. Thus an image has a potential to become reality here and now.

We can think that architect deals mainly with things that are not. More precisely with those that are not yet. *We step and do not step into the same rivers; we are and are not*[4]. Architect deals with the things of the future in the form of imagination and ends up with an image. The image of future, the seeing of future can be condensed in the concept of *insight*. **With in sight, within sight** we see the future[5]. In sight means "in front where we can see". The old Proto-Indo-European stem word would be *sek*^{w} – to see, to show, to speak (*bemerken, sehen, zeigen*)[6]. Imagination and image thus have a double function that is emphasized by the stem: we see and what we can see, we can also show. The imagination can be of what we have seen before and we bring it in front of us in our mind's eye. This means: we remember something and try to depict it. The imagination can be of what we have not seen before and we bring it in front of us in our mind's eye. This means: we fantasize about something and try to depict that. Sometimes we fantasize with closed eyes and if the fantasy becomes unpleasant and vivid, we need to open our eyes and let the reality as newly seen to dilute the fantasy.

Something seen before can be made visible to others either by showing, pointing or saying. In case of past and future imagined: it can be made visible by drawing – depicting – making into a picture. Thus it can be shaped into an image.

Image as insight has also an epistemological function. Insight does not only mean the seen, it already includes some understanding of it. It possesses some knowledge of what is visual. A concentrated and prolonged gaze can

4. https://en.wikisource.org/wiki/Fragments_of_Heraclitus

5. The following conversation was a speech that made use of older dialect words and forceful pronunciation of current words in Estonian. It is impossible to translate it fully. The translation here should be seen as an attempt to describe the general direction of the conversation. The main conclusion of it can be reduced to the following thought: imagination includes two modes of being: space and time. The future of time and the front of space constitute the plane of possibility for architectural process. The architectural image in the form of architectural project documentation establishes the horizon of presence and architectural image thus stretches into past and future. Within the architectural image there is no quality that by itself can decide whether it depicts the future or past.(Kõige võimsama jõu annab sellele meetodile muidugi mõiste *ette*. Ta on seotud *kohalolekuga* – see, kes on kohal, näeb enda ette. "Ees" ja "ettepoole" on ainult suhe kohaga - ollakse sellest ees või suunatud ettepoole. Oma kohal olemata kaotab tähenduse ka sõna "ette". *Ette* võib tähendada ka ees, eespoololev ja sellisena viitab ta esiküljele. *Ettepidi*, *ees, ettepool*. Eespool on esimene pool, on see pool, mis paistab välja. On *eespool*, on *esil*. Eespoolsusega saab *esitleda*, saab midagi *ette panna*. Kui mingi asi on ette pandud või esitletud, siis ta viitab juba sellele, et midagi on antud millegi asemel. Teeb kellegi eest, see on otsene tuletus eesolemisest või ette kujutamisest. *Teeb kellegi eest.* Kust? Eest. Midagi on ees (*esis*), see võetakse eest ära, tehakse ära, *keegi teeb midagi kellegi eest.* On hämmastav näha kuidas selline kõneväljenduses algupärane ruumiline mõiste muutub ruumi välistavaks või unustavaks. Kui keegi on kellegi asemel või kellegi kohal, siis ta *esindab, esitleb, seab ette, toob välja, toob esile, toob nähtavaks, on eespool* - selle mõttega, et **ta vahendab.** Ruumi ette kujutades me esitleme seda, eelkõige enda jaoks, toome välja, seame ette, teeme nähtavaks. Ruumi ette kujutades oleme ruumi *asemel* või ruumi *kohal*.)

6. https://academiaprisca.org/indoeuropean.html

gradually open up what we see and the layers of essence of seen start to appear. We know at least partly the meaning of the image. Similarly in the fantasy of architectural nature the establishing of image, presentation and re-presentation of it, creates and details the essence of imagined space. Thus the insight plans, shapes and designs the image.

Insight also represents the bodily presence of imaginator. We can say: **"In sight"** and **"sight in"**. Inside the visual field or plane as well as seeing into that field - both represent human look in front. In front of our eyes. The front is both existential category of space and a construct of apprehension to our mind. Without the place of the body the front does not exist in our eyes nor in our mind – it is without its presence.

Insight has in the process of imagination also another quality. As most humans share the understanding of being in front, the seen or imagined can be shared, even if being there, in that place, is not shared. The same is possible if being of there is shared but the insight turns to the past and the future that cannot be shared. This is the occasion when the image can present **instead.** Like **in sight** the **in stead** deals with existence. The Old English word *stede* means the place, location, standing, firmness, stability. The Germanic stem means standing and city[7]. When we are somewhere instead of somebody – we present and represent that person. We take somebody's place, we are in his/her place we are **in stead** of that person. In architecture insight can be instead of humans and instead of space. When we imagine space we are instead of it, we present and represent it in the architectural image.

We can see how *insight* and *instead* can obtain and loose the spatial presence. Being instead is actually negation – somebody or something is missing and something else has taken its place. Architectural imagination and image are **insight of space** and **instead of space.**

In Estonian language the word *koht* means: place. When we look closer to the dialect words and etymology of Finno-Ugric languages we find that the place transforms into the metaphoric and literal form of house, roof and place – *koda, katus* and *kotus*. The first form of the word *koda* (in the meaning of primordial living place) is shared by most of the Finno-Ugric languages. The related forms of word *koda* – *hata* and *casa* are in the distant past connected to the Indo-European word for house. There is nothing surprising here as the notion of place, home and house must be inevitably universal and very old.

One more quality of insight and instead can be found in the process of imagination. The seeing in place and being in place include a border or periphery. We cannot see or stretch beyond it. At the borders or at the edges of image as well as at the edges of place the existential and nominal meanings transform into something else. We might also call it outline – the horizon which separates. When we imagine we gradually understand what we remember or fantasize. The imagination becoming image is thought or drawn into the outline of its essence – it is taking its shape and it is obtaining its meaning. Very often these two are inseparable.

Image as a presence of imagination can operate in two directions: to the past and to the future. Roughly it can be simplified as remembrance and fantasy, but only to a certain extent as the past can be fantasized as well. In archi-

7. It is enjoyable to see how deep into the history of mankind this particular word and largely spatial and architectural concept behind it really travels. The Proto-Indo-European stem of the old *stede* is *stāi-, stī-, stį-ā-* which means to condense, to press together. The stems *stāk-, stek-* mean to stand and to put. It is easy to see that both present a place to stand. The next stem is nearly the same and still means to stand: *stā- : stə-*. The stems *steb(h)-* and *stēb(h)-* mean: post, pole, pillar, stump; to support but also to step and to stop. Out of here develops the Egyptian *djed* column with its own complex cosmology (https://academiaprisca.org/indoeuropean.html).

tectural imagination past, present and future are interwoven into inseparable fabric. As said: architect deals with the things of the future in the form of imagination and ends up with an image of future. Within that image two important transformations happen. Firstly, past of the place, knowledge, aspirations and constraints inevitably become included in the future. Secondly, the imagination takes several forms which alienate the image of architectural thought. It can happen in the form of models, drawings or things. These touch the world around us. The outline, shape or form become materialised in the reality of being. They become shared with other humans, but more importantly they enter the imagination of the imaginator as artefacts of new reality. Thus they become elements of the past that have not yet fully taken their shape in the future. They can be called the memories of the future. Thus we imagine of before and after and experience it in the image of presence.

The future imagined is always conditional. In Estonian and Finish languages the future tenses of verbs are missing. We cannot translate directly the meaning of English sentences: *He will be here, I will be there or she will be working.* To translate one needs to use the verb *to start*, which specifies the moment of starting of that particular future or alternatively use the conditional speech. The conditional speech by its essence signifies several possibilities, which have not yet actualised and need to be chosen in the future.

The meaning of an image because of the conditionality of the future thus always becomes to certain extent blurred. It can refer to several possible worlds, none of which need necessarily to be realised. It also tells us that imagination is different from experience of the reality and understanding the reality. For architecture the concepts of *place* and *outline* instead of *space*/*raum*/*ruum* open the possibility of imagination. So architect deals with something that is not yet in two meanings: he/she outlines humans and space in sight (as being present) and places them in stead to future (as being possible). Because of the archetypal mode and density of meanings the concepts of *insight* and *instead* could be called mythologisms.

Space and time

For me the imagination in the domain of architecture is an active state of consciousness, where thought is directed to space, understanding of space and evaluating of space. It is even irrelevant for the current lecture if the notion of space belongs to the reality of mind or reality of matter, or both simultaneously. We can believe it is open to majority of humans as thinking and experiencing subjects.

Architectural imagination, which can be seen as designing architectural image, can be described on the example of everyday practice of architectural offices. The whole process of designing takes place between interviews and meetings with the clients. These meetings, sometimes very lengthy, usually consist of discussions on the bases of drawings and mock-ups. The drawings or mock-ups of the design can be called design descriptions. The common everyday language in the form of a dialogue is used to create meanings for the design sketches or drawings and after that the meanings of these are debated and discussed. At the beginning the meanings of lines, colours and planes are settled and then these meanings are related to the desires and possibilities of the clients. This we might call the **first dialogue**.

A dialogue as an imaginary precedent can take place within the phantasy of designing personality when he or she, is developing design ideas. The possible meanings and interpretations from the viewpoint of society or client can be imagined by the designer and the modifications made without the real dialogue going on. It can be seen as a certain self-criticism, or even a censorship, applied by the designer. He or she acts as if from different roles or modes of social being, incorporating means and ends simultaneously. The designer's mind acts as if from different points of view and creates a series of possible scenarios of dialogue as well as a series of possible worlds to adopt to these scenarios. This **second dialogue** takes place between the design meetings.

The internal second dialogue also predicts us the **third type of dialogue** between the design ideas and the reality as imagined by the designer. In this case, the dialogue is between the possible qualities of places and outlines (which can be described as alienation, thingness and materiality) and the designing subject. The foundation for this type of dialogue is the education or personal experience drawn consciously or unconsciously directly from the lifeworld. This dialogue can thus be seen as "touching", reflecting or simulating the reality as experienced and imagined by the designer.

When the first dialogue and probably partly the second are held in common language, the third dialogue is highly intimate and personal. It seldom takes the form of verbal explanation. It usually involves sketches and drawings, but can be also a pure and synthetic imagination.

All these dialogues involve the directedness of thought and duration of time. One thought or idea follows another and on the contrary – something proceeds the latter. The dialogous thought allows us to experience the duration of internal time - these processes have temporal extension. I believe this constant modification of design ideas is the actual process of designing. As the tense of the word indicates, it is "being done", **it is the presence of designing something.**

We can describe that presence as the experience of a present moment – "here" and "now". This is also the awareness of the ideas and understanding of the relationships of these ideas in the focus of the mind. It is only within this particular presence of the moment, "hanging on", that we can imagine the design as a whole being gradually created, sedimenting layer after layer into its place in given outlines.

Within this presence we can operate with the elements that are conscious, or were conscious and are remembered. If something is totally unconscious (either of personal or collective type) it cannot be focused on and has to be investigated by other means.

We find the phenomenological interpretation of similar problem of temporality in Husserl's *Lectures on the Phenomenology of the Consciousness of Internal Time*, which were delivered between 1905 -1917 and published by Heidegger in 1928. In these lectures, Husserl develops Augustine's line of thought into a phenomenological interpretation of time consciousness.

There are three main elements of Husserl's theory that can be used to explain the focus of mind and the inner temporality of the design process in architecture: firstly, the unity of temporal objects in **retentions and protentions**;

secondly, **double intentionality** within the re-presentation of temporal objects; thirdly, the **different modes of re-presentation** - constituting special freedom of thought. Interplay of these elements can give us an explanation of how the mind works within the architectural design.

Let us try to describe these elements. We assume that while designing, an object of this activity is held within the focus of mind. This means that when the mind deals with it, it does this as "here" and "now", within the present moment. During a certain period the "now" is clear and vivid, then other thoughts follow, sometimes these are related to previous thoughts, but not necessarily. The new thought "covers" or "shades" the clarity of the previous ones and establishes itself as another "now", pushing the previous to the "past". In every "now" the thought is held steady and focused, having the structure and identity of its own.

This "running-off" mode of an object, whose identity and entity can be held in the focus of mind, is described by Husserl as a **reverberation or retention.** As long as the retention lasts, the thought or experience has its own temporality; it remains the same and its duration can be perceived as the same. This "now", the "source-point" from which the object of thought starts its enduring, is called a primal impression.

As the imagination endures and changes, we can return again to the once primal impressions that we are aware of. That is, to return to the object previously thought and then abandoned for a shorter or longer period of time. This is a memory. The **primary memory**, the reverberation of the moment, as the "comet's tail", is a series of retentions and the object still has the identity of its "now". **The secondary memory** - the true recollection - is quite different, it must be distinguished from the primary memory as retention.

Husserl distinguishes at least three different modes of secondary memories (referred to also in his text as reproduction or recollection). They can be described as the following: **Flash** - a memory rises to the surface, as a slice or flash. The remembered is a vague, probably intuitive and momentary phase. The object of thought is not repeated. **Continuum of re-presentation** - a memory in which the temporal object is completely built up afresh in a continuum of retentions and in which we perceive it again as it was – and only "as it was". The whole process is a re-presentational modification of the perceptual process with all of the latter's phases and stages right down to and including the retentions: but everything has the index of reproductive modification. **Fulfilled reproduction** - an object of thought is completely built up. This remembered object can be grasped as "complete in one time-point". The characteristics that are built up originally in the temporal process (its duration) - become constituted member by member, phase by phase and can now be grasped in this retrospective as something intact. The looking-toward or looking-back at what is given retentionally - and the retention itself - is fulfilled in re-presentation proper: what is given as just having been, shows itself to be identical with that which is recollected. The essence of the primal impressions object is outlined. This can be seen as **an intentional object with its possible meanings.**

As there is the primary memory, there is also the primary expectation - protention. The antithesis of the "now" - perception - are the retentional and protentional directions of the mind. So perception and non-perception in the form

of retentions and protentions constantly blend into each other. The presence of the moment can be seen as a result of weaving together the continuum of modifications of primary memory and the continuum of primary expectations, soon becoming "now". These primary expectations form a similar continuum of constantly modified objects of thought. The modification takes place on the basis of fulfilment of the expectations.

According to Husserl, the protentional direction is founded by every memory. Recollection is not expectation, but it has an horizon directed towards the future. In a way, every recollection fulfils its former expectation layer or horizon, but this horizon is fixed. It is fixed by the present moment, when the recollection takes place. The consciousness flows continuously. This also means that memory as re-presentation flows continuously. Everything new reacts to the old, the forward-looking intention belonging to the old is fulfilled and determined.

There are further important aspects of exposing the immanent time flow that seem to be essential from the viewpoint of architectural design. When Husserl discusses the recollection or re-production he points to the **freedom** involved in it for the thinking subject.

The original presentation and its running-off modes of experience are something fixed, something of which we are conscious through affection. Husserl draws our attention to re-presentation. This is something not fixed. On the contrary, we are free to run the re-presentations at will. We can do it at different speeds, with differing clarity and with different articulation. This is exactly what happens during designing – we constantly return to the once thought ideas or objects and play them "off" as different modes of secondary memories, recollections, and after that adjustments are made. This is done until the designer is satisfied with the modification and the object of design is fully developed.

But this type of approach to the world is common to many human activities. All our being in world as well as being of mind is probably conducted in the same way.

In architectural design we can point out a clear speciality – the recollections of design ideas and sometimes the development of design are represented in another medium than language or pure thought. They are transformed into design sketches, scribbles and drawings. Sometimes into models and mock-ups. From Husserlian point of view these are representations of re-presentations.

The epistemological sequence is prolonged and enriched: we deal with presence of (1) thought, (2) the secondary memory of this thought, (3) the alienated representation of the thought as memory and (4) the new presence of reality on the basis of the thought as **being given** again as "now" on this very moment. The new presence as interpretation of one's own design ideas reacts retentionally and protentionally. This can be seen as double intentionality. The object of thought is seen in its identity and entity, but within a new time frame of its own entity, present "now" – making it a reflection, something that is alienated from one's continuous life-world. Within the alienation the design ideas are also partly welded into the thingness and materiality of the lifeworld.

The object of design is reflected in the focus of mind as manyfolded and clarified result in different meaning layers. It can be seen as development of personal ideas and goals. It can be seen as a solution of design task. It can be seen as holistic spatial and structural entity. It can be seen as a social statement etc.

But a powerful impact can be seen in this second cycle of architectural design **being given** as "built". The once personal, intimate or veiled is blent to the lifeworld, to the existence in its raw presence as thingness and spatiality. The two cannot be easily separated.

In the natural attitude of cognising the lifeworld no such parallel layers of imagination and reality are consciously built by the mind of observer. If in the natural attitude, layers of protentional phantasy are indeed built in the process of cognising, they definitely do not exhibit the same existential power as in the design process. On the contrary, to operate constantly and correctly in the lifeworld the re-presentations with the index of existence (immediate past) and the fantasies with the index of non-existence (possible future), are kept clearly separated.

In the sphere of design, the drawings or whatever form the design descriptions take, create a frame **where the index of existence and non-existence are mixed.** The sophisticated drawing can represent a possible building (still existing only in the focus of mind) or actual building as a measured worldly thing. The drawings can even represent a building that once was a worldly thing and has now perished.

What will become, is thus treated as **present** (in the focus of the mind) and as **past** (re-presentations with retentional modifications) within the very same moment.

This participation as presence in focus of the mind, is the platform of joining together the different modes of consciousness. In architectural design, it usually starts with watching, not just glancing, but with a systematic and repetitious watching. Within this process the different modes of consciousness emerge and complicated time frames are created.

I believe this **radicalised attention of blending the actual and the possible,** existential and imagined can be explained through the expression "having-been-designed". Before any real design project starts, the knowledge of designing has to be there. This knowledge is in the form of a goal or a method. It is also in the form of previous education. It is also the knowledge of social and personal practice in the form of experience. This goal or method builds on the specific credibility and "latent existence" of design fantasies in advance, as an epistemological setting.

The blending of the past and the future into the presence of designing has another powerful source. It is the knowledge of a social and personal practice of **having-been-built** as the realisation of design. This gives the design imagination an especially powerful ontological load, as the possibility of existence in the form of an actualisation. The knowledge of building, either personal or through the practise of the language of social origin, is so powerful that it gives to the design imagination and re-presentations, and also probably to the conventional representations of design, a specific meaning described by

Husserl as "memories of the present". It is probably not a coincidence, that in his account on "being", Heidegger makes use of the practise of building and dwelling as a powerful archetypal and existential source.

To conclude this lecture I would like to point out one more possibility of understanding the actual and possible, existential and imagined or in the context of this text - present and future. **The future is always conditional.** It is possible, but not certain, as the presence is in its participation. For architectural design this triviality has a major interpretation. Due to the complex shifting between presentations and representations and re-presenting of these, the past, present and future are layered together. What **will be** or **can be** - is being given as something that **was** – was described. What belongs to reality, existence, what is **actual** - is being given instead as **possible-**possible image. What is **possible**, what is conditional - is being given as real, existential and **actual.**

We believe this radical epistemological shift is the goal of architectural education and constitutes the essence of architecture - **architecture as being given.**

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Remarks for Diagnosis: Imagosphere Come

The article is based on the lecture course Contemporary Problems in Urban Design, held at the Estonian Academy of Art in the autumn semester of 2007.

Introduction

A new era has arrived! All around, I often hear it said: "I don't understand what is going on, I don't understand why things are going this way." I believe that, in the Department of Architecture, we do understand what is going on and also why, but let us be honest - **it is hard to believe.**

It is hard to believe that a new era is at hand, especially since we are accustomed to the old. Naturally, every era boasts, through the voices of the people within it, that a new era is at hand, yet now it seems that it has indeed arrived. What allows me to believe this sentence? I would like to share some memories and assumptions with you:

First memory. 1986. Moscow. I am visiting friends and we are drinking tea. An emigrant from Russia to Holland has come to visit Moscow. It is the first time he has been permitted to return to visit his homeland. Along with everything else, he describes the wonders of the Western world to the people gathered around the table and everyone listens in amazement. Somebody asks what will happen next. The visitor thinks for a moment and then grabs a bottle of cognac from the table, saying: I wouldn't be surprised if soon this bottle will have a keypad and the cork will fly off when you punch in the right code. Everyone laughs. Personal computers are just starting to appear in Russia.

Second memory. 1996. Defence of diploma theses at the Estonian State Institute of Art. The computer is no marvel, yet Rasmus Tamme's thesis is one of the first diploma theses that attempts to create a virtual space and to interlink spaces. "Linking" is a new word. Relatively little of the thesis itself is visible, especially the part which we customarily refer to as being architectural. I am a reviewer and I present an *apologia* for the new era that is just about to arrive. I am an optimist and I believe, in ten years, a new era will be at hand, yet, deep down, I think that it could actually take more time.

The year is 2007. We have trouble believing, but we become convinced again every day, that the new era has indeed arrived. Like the Toyota commercial on Euronews, *this day is today.*

How can this new era be described? It needs a name. How can it be found? The following ideas come to mind as emotional strokes that create a whole, in an *alla prima* manner:

- Populist politics
- Advertising covering everything
- A world that is evil and does not manage to make its ends meet
- Global flows of goods and media
- Digital matrix
- Images everywhere

I consider the word *image* with great interest. We find in the Lexicon of Antiquity: *Imagines* - Representations of ancestors. In the case of Romans, portraits moulded from wax as death masks. An actor carried such a portrait at the funerals of higher officials. Representations of ancestors were also carried in the funeral processions of deceased relatives. They were kept in the closet the rest of the time. Their preparation was closely connected to the making of death masks and has become known as one of the roots of naturalism in Roman portrait art (Lexicon of Antiquity 1983,142).

We find in a Latin dictionary concerning the word *imago:*

> Figure, image, picture, representation, portrait,
> bust/.../ *imagines maiorum:* wax figures or masks of ancestors /.../ phantom, figure from dreams, vision, apparition, semblance /.../. But also: reverberation, allegorical picture, metaphor, view, manifestation (Latin-Estonian Dictionary 2002, 538).

The words *imagino, imaginatum, imaginare* also derive from this - to depict, to express, to reproduce.

While Latin culture uses the word *imago,* it cannot be found in Greek culture, which enriched Latin culture to a great extent. Picture, pictorialness and depiction nevertheless do exist.

Let us at this point consider words such as:

- Εικόνα – *eikona* – picture, icon, reflection and imagination – μεταφ
- Εικονικός – *eikonikos* – pictorial
- Εικόνισμα – *eikonisma* – icon
- Εικονογραφημένος – *eikonografemenos* – illustrated
- Εικονοκλάστης – *eikonoklastes* – destroyers of icons, iconoclasts
- Εικονοστάσι – *eikonostasi* – ikonostaas – self-standing sacred wall

Unlike Roman culture, the concept of imago was not desacralised in Greece and it continued to bear its sacred or magic meaning. More precisely, Greek culture transmitted Egyptian tradition, where, during Ptolemy's era, embalming disappeared and the icon appeared in its place - a portrait drawn on a wooden tablet. Early Christianity did not know either icons or the symbol of the cross. Icons are nothing more than pictures of the mortals Mary and Jesus, or of saints. These pictures have become or been made sacred through martyrdom. It was precisely in evolving Byzantium that *iconodulism* - the worshipping of pictures - spread, and developed into iconoclasm. Later, the Protestant Reformation also went through a similar process. Nevertheless, icons

have survived to the present in Eastern European orthodox tradition. We still see the tradition, extending back to Egypt, of honouring the portraits of the deceased in Orthodox and Russian cemeteries.

The function of the icon, however, is entirely different from the image or *imago.* The icon is a gateway to the magical and sacred world that is opened up by prayer or meditation. The hopes of generations that have been prayed into the icons can be experienced directly as religious ecstasy and their semantic field is relatively clearly defined.

The imago and the *imagosphere* only marginally bear this kind of experience. The archetypical meanings of the *imagosphere* are hidden deep beneath the modern, alienated surface layer and the nature of phenomena. These meanings remain mostly hidden from the viewers, creators and cultivators of *imagos.*

It seems to me that the **ima:gospheric world** is an appropriate name for the new age. Just as we are surrounded by the atmosphere, or as the lithosphere gives us support, so the difficult-to-penetrate and difficult-to-unencrypt *imagosphere* surrounds us here and now.

Not **imagosphere, but rather ima:gosphere,** swollen and sensual like the cover photo of *Kroonika* (Chronicle) magazine. This sense of contemporary time contains all that the old Latin word carries with it: the fictitiousness of the world, its subjection to the current of pictorial media, its abandonment of science and rationality. And even the sun has departed into an entirely new sign of the zodiac - Aquarius - after remaining in the Pisces zodiacal constellation for 2000 years.

Empirical establishment of the imagosphere

Media

Nowadays, the global economy, culture, politics and advertising have amalgamated. If we see the origin of the public sphere, as defined by Jürgen Habermas, as an important attribute of the modern era, then we see something entirely new.

If we consider how the world has changed - take the early Middle Ages for example - we see a situation where public and private were completely compressed. Kings or nobles, their families, power, their bodies, blood and presence were an indivisible whole. This lasted until the late Renaissance. The bank of the Medici, which was also the municipal treasury of Florence, can be mentioned as an example of the interweaving that took place later on. On the one hand, it was a bank that was personal property, and on the other hand, it was a public municipal treasury. These two were intertwined.

Or the family of the medieval master craftsman is another example: the room of the master in Medieval Tallinn was his workshop, living room and reception room all in one. His public and intimate matters existed in the same time and space simultaneously. They were united into a complete and holistic environment. They could not be separated. The fortunes of his family and his

business were one. These two sides began to diverge in the late Renaissance, until the public and private worlds split into two completely, clearly different worlds at the height of modernism.

This was the moment that Habermas described as the origin of the public sphere. This was a change in the structure of what was considered public. New journals appeared - initially letters of merchants, news bulletins that disseminated public information. The invention of the printing press during the transition from the Middle Ages to the Renaissance made a new layer possible: the appearance of public media. Among other things, this changed architecture beyond recognition. It is suspected in architecture that if Lord Burlington had not published catalogues and journals, some aspects of neo-classicism would not have taken place.

The origin of the bourgeois republic, and the separation of the public and the private, accompanied the triumphal progress of the public print media. Some private drawbacks that unpleasantly forced their way into public view were buried out of sight of society in jails or insane asylums as described by Michel Foucault.

Nowadays, a new amalgamation of public and private has come about - its attributes are all manner of tracking systems, including systems for tracking terrorists, which are, in turn, evolving into new information systems. These kinds of systems bring us to the point where soon there will no longer be an intimate sphere. The intimate sphere has become public by nature. Big Brother is the artificial laboratory of this intimacy, from which this type of media has already broken out. The tabloids inform the public of the most intimate facts of private life. The bodies of athletes, for example, are public, since the nation and consequently the people are paying for them. This is observable from the public knowledge of Kristiina Shmigun's menstrual cycle and of the anal nuances of Robert Fazekas's urine sample of doping scandal. The truth about public bodies must be public knowledge!?

Post-modernist society has thus done away with the gap between the public and the private. Tracking systems can be extended to each individual so that every person can be identified in detail. I recently saw a documentary film about the identification of goods. Each package has its own individual identification code. It is always possible to ascertain where goods are being transported in the world at any given moment using GPS. Nowadays, if one goes in Tallinn from the Academy of Arts to the Town Hall Square (Raekoja Plats), there are several cameras observing that route. This environment is already active in terms of observation. Somebody is watching us and we are happy, in the naive hope that Big Brother is protecting us from evil.

In some sense, we have crossed the threshold of the new era. **New digital-technological systems** are the foundation for this new era amalgamation of the private and the public. I would refer to this as a digital platform. Whatever phenomena of life we may study, in close up they are subordinated to the digital platform. The analogical-causal events or systems, where the relationship between cause and effect is at least theoretically open to the observer, are losing their primary essence. The result of this is a decrease in the sphere of direct experience of existential life.

As Hans Georg Gadamer describes:

> Being present does not simply mean being there along with something else that is there at the same time. To be present means to participate. If someone was present at something, he knows all about how it really was... .Thus watching something is a genuine mode of participating. Here we can recall the concept of sacral communion that lie behind the original Greek concept of *theoria*. *Theoros* means someone who takes part in a delegation to a festival.... *Theoria* is a true participation, not something active but something passive (*pathos*), namely being totally involved in and carried away by what one sees (Gadamer 1997, 124-125).

The prevalent function of the digital platform and the dependence of the world on the screen dehumanises the human existence. We communicate a great deal with our friends online, but through a screen. I could write this lecture on paper but I chose to write it on a screen. We communicate with the people close to us by telephone, which involves the disassembling of language into electronic particles and putting them back together again. Photographs of gatherings are again only on the screen. The contents of our evening shopping cart are digitally stored somewhere and become an *imago* if I connect them with a discount card that bears my name and other data. It is funny that the card functions even though I have presented false data on it. For a couple of months now, a mellow and low male voice has invited me to Sampo Bank to discuss my bank contracts. This is not a man, as I discovered in conversation with a young bank teller; rather, it is the 'bank's contact centre'. As if some anonymous character has lent his voice to a machine. The answer to my question of why I had to physically come to the bank (I naturally went out of curiosity in preparing this lecture) was more than strange. "Yes, and you can change everything personally on the bank's homepage in 'e-life"'. Even my signature is no longer mine, but rather it is digital - and soon that digital signature that is identifiable by a number and a card will indeed be much more real than me and the letters (*pookstav, bokstafr*) I have formed with ink.

Gutenberg's Galaxy

The word "letter" takes us to the next subject - the written word. The Estonian word for letter – "pookstav" is directly derived from *book stav* - a book mark, a cut - probably an Old Norse word. Marshall McLuhan deduced the changes brought about by the printing press, which he fondly referred to as Gutenberg's galaxy, when he considered the birth of the new era in the book he wrote in 1962. He wrote:

> When technology extends *one* of our senses, a new translation of culture occurs as swiftly as the new technology is interiorised (McLuhan 1995,40).

This sense is the sense of seeing, in which the verbal context of language, or that based on hearing, is alienated from its original form - the living word of speech. This takes place mostly in Western Europe and Northern America. The first alienation takes place through the adoption of written letters as replacements of phonetics. This impoverishes and destroys the variety and multivalence of language. The alphabet is an aggressive and militant absorber and transformer of cultures (McLuhan 1995,48). The increase of visual stress

among the Greeks alienated them from the primitive art that the electronic age now reinvents after interiorizing the *unified field* of electric all-at-onceness (McLuhan 1995,63). A wonderful word - *all-at-onceness.* In 1962, nobody knew what *online* meant.

Nevertheless, tactile and personal self-expression still remained in manuscripts. Writing and existence were inseparable. Cultural identification still survived in both Antiquity and the Middle Ages. The manuscript had a tactile and existential composition. Holding a manuscript in one's hands was a solemn and sacred act. The author's hands had touched it, or at least the scribe's hands, who had to be the author's researcher, interpreter, editor and publisher. Manuscript culture is conversational if only because the writer and his audience are physically related by the form of publication as the performance (McLuhan 1995,84).

The printing press brought ultimate seclusion with it: the invention of typography confirmed and expanded the new visual stress of applied knowledge, providing the first uniformly repeatable *commodity,* the first assembly-line and the first mass-production (McLuhan 1995,124). Thus Gutenberg's galaxy created an entirely new situation - the synthetic mode of cognition that had evolved primarily in the context of language and in the natural landscape in traditional cultures was replaced initially by a literate, and thereafter, a literary way of cognition, from which a new media evolved over time – journalism, which combined unified records, pictures and advertising. Radio and television compressed this into a completely amalgamated new environment - the environment of the mass media.

Thus the essential parts of the *imagosphere* have been built up. The apparent and illusive method of depiction is gradually attaining a more prominent position. Transition to the digital platform and its new applications is only a question of time. The digital platform allows the existing parts of the imagosphere to amalgamate into a synthetic whole. Quantity grows into a new quality.

A perfect little cell of the *imagosphere* accompanies us everywhere - **a small instrument** that makes telephone calls, takes photographs, sends e-mails, plays music and does many other things. The screen accompanies us everywhere. It is **a new membrane or filter** through which we communicate with the world. The city, its houses, billboards, walls and screens have also transformed into this kind of a epistemological filter.

In terms of learning and cognition, though, a new and very interesting situation is developing. The speed of contact within the media is making the message ever shorter. Jeffrey Olick wrote in a recent issue of the weekly cultural newspaper *Sirp:*

> If you visit a good library and peruse the lists of loaned books, you can see that most of the books have not been taken out by anyone for years because there are simply too many books. As Paul Valery wrote: modern man is interested only in what can be shortened into a summary. Yet we also simply have a practical need for brief summaries, so that now there are already registries of textual registries (Peiker 2007,13).

Simultaneously with the shortening and simplification of the message, it overlaps with an entirely new phenomenon - advertising. When man learned to speak, he learned to lie because words are only words. When man learned to write, he also learned to falsify.

Information, messages and advertising are indistinguishably placed on top of each other in the *imagospheric* world. The weekly newspaper *Eesti Ekspress,* which immediately set about inculcating and discovering the new world in 1989, was undoubtedly present at the birth of this *imagospheric* era. The constitution of the *imagospheric* world is also good news: it was announced on August 1st 2007 that well-known media mogul Rupert Murdoch had bought the Dow Jones publisher that published the *Wall Street Journal.* Naturally, the mogul gave assurances that the newspaper would remain independent in the future as well.

The imagosphere has become a separate living organism that spreads out in all directions.

Personal Imagosphere

Thus a complete new reality has come about, where *imagos* replace processes, phenomena, people, things and everything else. This *imagosphere* is established in every location where the digital media network floats. It is eager to go along with you even to vacation. It is vigilant and awaits the moment that your gaze happens to rest on a computer, telephone, newspaper or television set. Advertising becomes personal.

It does not matter that your personal data is secret. Personal advertising searches for and finds the preferences of your Internet browser, rummages through your key words, and starts threatening and sending junk mail.

The individuality of the digital platform inevitably leads to the individualisation of the *imagosphere* as well. Its central institution is a new media phenomenon - blogs. The quicker and more skilled politicians have their own blogs. This is a new way to make yourself visible.

As is customarily said, they communicate at the grassroots level. Edgar Savisaar has written:

> Political blogs became popular in Estonia prior to the last election. Then they were somehow in fashion. Nowadays the initial enthusiasm has cooled off, but I believe that blogs will remain in politics as a direct means of communication. The Internet has changed political communication altogether. This has been a revolution in the field of communications. As a result of this, discussion and the exchange of ideas are continually speeding up (http://savisaar.blogspot.com/).

Blogs are like online memoirs. My professor Leo Gens used to warn us that the memoir is the most dubious literary genre of all. Who would want to create a disagreeable or foolish impression of themselves? This impression must always be good and personal. Savisaar:

> I have promised the readers of my blog that I will try, to the best of my ability, to write about animals and people, cultural phenomena and

> sciences, something besides politics. The message below is a step in this direction. The news is that my German shepherd Othello took his first steps yesterday on the difficult path of education, similarly to many Estonian children, who in just over a week's time will also set out on the path of education on 1 September - some for the first time, some for yet another in a succession of many years (http://savisaar.blogspot.com/).

A good friend of mine, who writes a regular blog and uses it to administer his school, believes that soon people will not even be able to get work if they do not have their own blog.

Imagosphere's theoretical constitution

Simulacrums and hyper-reality

After my first attempt to empirically describe the *imagosphere*, I began to seek authors who had previously considered these kinds of phenomena. I found an excellent endorsement from Jean Baudrillard, who, in 1981, had already, with great foresight, written about events visible today (Baudrillard 1981). Back in the days when only visionary optimists dared dream of a market economy in Estonia.

I was fascinated by five themes in Baudrillard's writings that, to some degree, help us to progress in describing the nature of the imagosphere and also explain its continuous evolution:

- The simulacrum as a crystallisation of a representation or imago and a way of acting in contemporary society.
- The alteration of new media.
- The identity of advertising and politics.
- The new reality of goods and department stores.
- The replacement of science fiction with hyper-reality.

First of all, there is an escalating destructive power of imago, which draws its energy from the relationship of meaning between the representation and the original:

> Thus the destructive power of the representation, the power that destroys reality, the power that destroys its own original has always been at stake, just as the icons of Byzantium could destroy divine identity. This destructive power is countered by the dialectic power of the representation, the power of Reality to convey the visible and comprehensive. All Western religions and beliefs are engrossed in this bet of depiction: could the sign refer to the depths of meaning, could the sign *replace* meaning, and could something - God, of course - be the security deposit for this exchange? Yet what if God himself could also be simulated, that is, reduced to signs that bear witness to him? Then the entire system would lose its footing and it would, itself, also be nothing more than a gigantic simulacrum - not unreal, but a simulacrum. This means that it would never be possible to exchange it for reality. It would change itself only into itself in an endless chain, which has no fixed points or boundaries anywhere (Baudrillard 1999,14).

Baudrillard's typology for cognition of representations describes quite well the ever-growing weight and universality of imago. If depiction attempts to swallow up the simulation into itself, interpreting it as a false depiction, then the simulation surrounds the entire building of depiction as if it was a simulacrum itself. In Baudrillard's opinion, the phases of depiction may be as follows:

- it reflects deep reality
- it disguises and distorts deep reality
- it disguises the *absence* of deep reality
- it lacks any kind of connection to any kind of reality: it is its own genuine simulacrum.

Baudrillard briefly characterises the result of this kind of partition as follows:

In the first instance, the depiction is a *good* semblance - the depiction belongs to the sphere of sanctity. In the second instance, it is a bad semblance - from the sphere of evil. In the third instance, it pretends to be a semblance - it belongs to the sphere of sorcery. In the fourth instance, it no longer belongs to the sphere of semblance at all; rather, it belongs to the sphere of simulation (Baudrillard 1999,14-15).

Precisely the latter condition describes best the situation of the saturated imagosphere. Chat rooms,"second lifes", and "rate me's" also definitely belong to the same category. Here we do not know if we are holding a conversation or flirting with our neighbour, or even with his hundred-year-old mother-in-law. The individual becomes *Avatar,* which often lives a much more real life than the person does. All of this is accompanied by the establishment of rules by the webmaster or host. In this kind of life, thrills take the place of experiences. Historicity is permanent only in the logs of spy computers. Culture founded on language gives way to primitive Anglo-America-based computer language. Broader communion, based on culture, is split up into ever-smaller atomized tribal interest groups. The simulacrum has created a completely new reality. The imago of the simulacrum starts to demolish itself creating a new-new reality reflected by it.

Baudrillard also describes the dissolution of media into everyday life. The digital platform has now given it awe-inspiring dimensions:

> We no longer live in a society of spectacles, which situationists speak of, or in the particular kind of alienation and suppression that goes with it. The media itself is no longer recognisable, and the intermixing of the medium with the message (MacLuhan) is the first important formula of this new age. There is no longer media in the direct sense of the word: it is now intangible, dissipated into reality and broken, and even the assertion that actuality has been changed by it can no longer be made. This kind of intrusion, this kind of viral, endemic, chronic, frightening media presence without the possibility of avoiding its consequences /.../ (Baudrillard 1999, 50-51).
>
> Information devours its own content. It gobbles down communication and society, and does so for two reasons. 1. Instead of transmitting something, *it uses up its strength on staging transmission.* Instead of creating meaning, it uses up its strength on staging meaning. /.../

2. In the shadow of this sharpened staging of communication, means of mass information and forced information continue to disintegrate society with irresistible force (Baudrillard 1999,121-122).

Thus the media does not carry out collectivisation on the digital platform, but rather the complete opposite is true: society dissolves into atomic parts, each of which has its own personalised, custom-made news and entertainment portal. The idea is that all states of meaning have been swallowed into a single dominant form of media. The media alone create events - regardless of what the content of the message is conformist or horrifying. The media contain meaning and counter-meaning within themselves. They manipulate society in every direction. Nobody is capable of controlling this process (Baudrillard 1999,123; 127).

There is yet one more historical attribute of the establishment of an *imagosphere* under the all-embracing quality of the media digital platform, and this is advertising. It follows a path of temporal evolution. We live in a period that is characterised by the absorption of all virtual means of expression by the advertising means of expression. All original forms of culture, all defined languages are absorbed by it because it lacks depth. It is momentary and forgotten after a moment. This is the triumph of superficial form, the lowest common denominator of all meanings, the ground elevation of meaning. It is the triumph of entropy over all possible tropes. The lowest form of the energy of signs (Baudrillard 1999,131).

Advertising and propaganda really intensified, in Baudrillard's opinion, beginning with the Russian October Revolution and the global crisis of 1929. Both were mass languages that were derived from the mass production of either ideas or goods. Their initially separated registers gradually converged with each other, and they bore within themselves the stamp of *imago* becoming empty of meaning. Propaganda becomes a means for marketing and selling guiding principles, politicians and parties, containing their own certain "image signs". Propaganda converges with advertising as the only model for starting a great and real guiding principle in this competitive society: goods and trademarks (Baudrillard 1999,132).

The global, and at the same time individual, power of the *imagosphere* to command attention has changed Modernist representative democracy without bringing about new forms of participatory democracy. People nowadays cannot be bothered to listen to the debates of politicians. They cannot be bothered to delve deeply into the platforms of the parties, and politicians are grateful – so the only political question is how and where to get money for advertising.

Instead of the political face, we have the grotesque *imago*, where the kind of glasses worn is sometimes more important than the message, or the green colour is more important than the object. And while Plato scornfully noted that democracy brings the most skilled liar to power, nowadays the one who buys the best advertising made by the most skilled liar comes to the power. Unfortunately, this is usually also dependent on the amount of money available. Money can be used to buy a suitable *imago*, which is separated from reality by an impenetrable PR wall. Everyone who can afford to buy an Avatar – their true *imago* - can do anything until the *imago* is intact.

The society that is present everywhere, absolute society, which has finally materialised in absolute advertising - this means that society itself is also completely dissolved. Society as a spectral trace on all walls in the simplified form of social demand, which is immediately satisfied by the echo of advertising. Society as a screenplay and we as its frenzied audience (Baudrillard 1999,133).

> In this manner, all of society and its social life is devalued into a commercial-monetary relationship. The old saying is quickly transformed: tell me what you buy and I will tell you who you are. Buying and selling become the central means of existing in the *imagospheric* world. It is no coincidence that advertising, after being the instigator for a long time of the implicit economic type of ultimatum that tirelessly proclaimed and repeated: 'I buy, I consume, I enjoy', nowadays repeats in all manner of forms:' I vote, I participate, I am present, I am involved' - a paradoxical mirror of ridiculousness, a mirror of the insignificance of all manner of *public* meaning (Baudrillard 1999,136).

Commercialisation has grown to such a scale that goods also define the emerging spatial structure:

> Signposts within a radius of thirty kilometres point you in the direction of those large distribution stations that hyper-department stores serve as, in the direction of the hyperspace of goods, where a new kind of sociality evolves in various senses of the word. The hyper-department store is already a model at a higher level than factories and traditional institutions of capital. It is a model of all future forms of controlled socialisation: the reunification of all dispersed functions (work, leisure time, eating, health care, transportation and media culture) of the body and social life into one homogenous space-time;/.../ (Baudrillard 1999,113; 115).

> The hyper-department store as a *nucleus.* The city, and not even a modern city, can no longer swallow it into itself. The hyper-department store establishes an orbit in which agglomerations move. It is an *implant* in new formations, as a university or factory sometimes is - no longer a 19th century factory, but rather a decentralised factory that settles in the suburbs without disrupting the orbit of the city, /.../ (Baudrillard 1999,116).

Toward the end of his book, Baudrillard also discusses science fiction as a change in literary genre. He considers James Ballard's book *Crash.*

In Baudrillard's opinion, *Crash* is no longer fiction or reality. *Imagospheric* hyper-reality destroys both (Baudrillard 1999,181). Ballard published a new book entitled *Kingdom Come* in 2006. It is much like an homage and proclamation after Baudrillard's conceptual revelation concerning hyper-department stores. Ballard's dystopia in his writing acquires a threatening tonality in its possibility and depiction of the colours of the times - a hyper-realistic depiction has become a script of likely future developments. The action takes place in a suburban hyper-department store called the Metro Centre. In its description, it is almost identical to the suburbs of the globalising world and its *retail village.*

> A terrace of small houses appeared, hiding in the shadow of a reservoir embankment, linked to any sense of community only by the used-car lots that surrounded it. Moving towards a national south, I passed a Chinese takeaway, a discount furniture warehouse, an attack-dog kennels and a grim housing estate like a partly rehabilitated prison camp. /.../ "But they feel different" Carradine's eyes seemed to glow. "That's why our customers come here. The Metro-Centre creates a new climate, Mr. Pearson. We succeeded where the Greenwich Dome failed. This isn't just a shopping mall. It's more like..." "Religious experience?" "Exactly! It's like going to church. And you can go every day and you get something to take home (Ballard 2007, 6; 40).

Yet Ballard's story does not end with descriptions of the contemporary spatial structure and cult of consumer goods. He shows how the mass media becomes a mass movement, which in turn becomes mass violence. The mall marshals and football players become members of the people's militia, and they in turn become storm troopers. Whoever is not with us is against us. 'Us' and 'them'.

> The suburbs dream of violence. Asleep in their drowsy villas sheltered by benevolent shopping malls they patiently long for the nightmares that will wake them into a more passionate world...I had seen the flag as I drove into the town, the cross of St. George on its white field, flying above housing estates and business parks. The red crusader's cross was everywhere, unfurling from flag staffs in front gardens, giving the anonymous town a festive air (Ballard 2007,3.8).

Practical realisation of the imagosphere

Putin's Russia

It is, of course, a coincidence that Ballard's mass-hypnotised mob resembles Russia's semi-state youth organisation *Nashi* in terms of the colours of their flag. Ballard's plot is precise in everything else. While, in the case of Estonia, we see a quietly settling *imagosphere*, then in Russia this has become a systematic and deliberate plan – a factory of *imagosphere*. Sergei Kovaljov (Kovaljov 2007) provides a convincing overview of the functioning and transformation of the *imagosphere* that interests us in Russia at the beginning of the 21st century. His main question is: why has Putin and his manner of governing achieved such widespread popularity, against the background of which he was re-elected?

Kovaljov points out the three most widespread fundamental reasons. First, Putin's first election was not a vote in favour of him but rather against his opponent. People voted against the disorder and "democracy" of the Yeltsin era. Secondly, the president's advisors carefully left the impression that this was a democratic president trusted by the people. Thirdly, Kovaljov also considers nostalgia for the Soviet past to be the reason for Putin's popularity.

Kovaljov examines this last reason thoroughly, revealing the nature of new and old myths and their establishment as a populist and all-encompassing mystery that I would describe as an orchestrated and built *imagosphere*.

These myths can be named as follows: **the myth of enemy, the myth of victory, and the myth of imperial might.**

Let us, first of all, consider the myth of the enemy. This is an age-old way of achieving internal unity and identity. The nucleus of the myth lies in contrasting us against others. If everyone wants to destroy us, then we forget our differences and injustices, and confront the enemy. Secret police services, known by various names, have been this uniting, and at the same time hidden and mysterious, force in Russia. Putin is their representative in terms of his career and education. Kovaljov writes:

> Thus, guided by nostalgia, they chose a KGB colonel as their leader. He, in turn, restored the myths that the Soviet secret police have propagated ever since the times of the *Cheka*: the country is besieged by enemies and has been infiltrated by a 'fifth column'. This role has currently been attributed to nongovernmental organisations, especially those that have dealings with journalism and human rights/.../ (Kovaljov 2007).

One of the most striking examples of the myth of the enemy has been Russia's campaign of hostility against Estonia, where "us" and "them" are differentiated by all possible means. One of the forces carrying out the campaign of hostility was the "nongovernmental" youth organisation *Nashi (Our Own Kind* in direct translation).

> The new generation that has grown up under the influence of Putin's mythology is altogether frightening. In my view, gangs of youths that rush wildly through subway stations chanting "ROS-SI-JA! ROS-SI-JA!" on Victory Day (9 May), when Russia celebrates the end of the Second World War, symbolise this. They do not realise that they behave the same way as fascists - on the contrary, they consider themselves the grandchildren of Hitler's conquerors. /.../ (Kovaljov 2007).

Next, let us consider the myth of victory. When the Bolsheviks seized power in Russia, the central idea of consolidation was the exceptionality of Russians as the chosen people - right here is where the workers' revolution won and this is where the new era was to begin - the worldwide revolution. Lenin wrote a long justification of this, how revolution could win in a separate, backward country that differed significantly from what its European comrades imagined. In order to consolidate Stalin's power, it was clear that political realities did not make it possible to keep up the myth of worldwide revolution any longer, and thus mass repressions began to find and destroy the internal enemy. The final phase of this, prior to the beginning of the Second World War, became a true theatre of the absurd, of which a great deal has been written. This continued after the war in occupied territories with the killing and deportation of "enemies of the people and saboteurs", in the spirit of class purity. Yet in the course of these repressions, the foundation was laid for a new myth of unity – "the new, historic union of peoples - the Soviet people".

This was marked by the new Russian constitution of 1936, developed conclusively after the war. Stalin began the fusion of the Communist Party and officials of the state bureaucracy into a ruling "nomenclature". This was completed in the era of Khruschev and Brezhnev. While the myth of the "Soviet people" was pointed toward the future (new cities, new land, new field crops

and so on) during Khruschev's thaw, we must agree with Kovaljov that, during the Brezhnev era, this myth was legitimised mainly by the past.

> The answer to the question, "Who are we?" was as follows: "We are a people who have had to endure inhuman suffering in the twentieth century, but nevertheless have managed to vigorously march on from victory to victory. We suffered unprecedented losses during the war, yet under the leadership of the Communist Party, we saved the world from the clutches of Nazism. And thereafter, we found the strength within ourselves to create a superstate, to be the first to put a man in space, and to achieve nuclear balance with the other superstate, the USA" (Kovaljov 2007).

The foundation of this myth was war and the commemoration of the victims that perished in it. Stalin's repressions were diminished or concealed from Soviet history. Collectivisation and famines, the Molotov-Ribbentrop pact and the violence involved in the formation of the Soviet Union and the socialist block of countries was also removed from this history.

The myth of the "Soviet people" collapsed with the disintegration of the Soviet Union. While the former socialist nation-states and republics of the union could draw upon their history and oppose communist ideology, "the citizens of Russia, the largest remnant of the superstate, were left up in the air, as it were. Their national identity was confused" (Kovaljov 2007). Putin modernised the national identity by shifting the idea of victory into the forefront. The sufferings of the Soviet people, communistic phraseology and tragic notes were removed. Thus a powerful myth of victory came about, accompanied by a simulacrum of communistic *imagosphere*: former Soviet symbols were restored: the Stalinist anthem, the red victory flag with the hammer and sickle. The helmet and greatcoat of the Soviet soldier became part of *Nashi* symbolism. This gave rise to the characteristic painful attitude towards the mentioning of the Tartu Peace Treaty between Estonia and Russia and the removal of the Bronze Soldier Monument in Tallinn.

The third myth is comparable to the myth of victory but is more like a vector pointed to the future - the myth of imperial might. The Chechnya wars, unexplained acts of terrorism, and political murders have been put to use in order to establish this myth. The murders of Zelimhan Jandarbiyev and Aleksandr Litvinenko clearly took place with the knowledge of Russia's special services. The actual perpetrators of other murders and acts of terror are not even very important from the point of view of our lecture. In the opinion of Kovaljov, the authorities did not even try, by way of investigation, to refute these suspicions that were spreading about them. The public expressions by Putin himself about 'flushing the privy toilet' and the 'circumcision' of foreign journalists only confirm the proclamation of the fetish of raw force in criminal slang.

> By 2004, the idea of 'absolute power' and 'secret services' had essentially amalgamated with the two-headed eagle of the monarchy and the Soviet anthem. /.../ Putin's team quickly carried out the most important task, namely taking over control of mass media, which in case of Russia is television. When this was accomplished, the entire country was flooded with constant, all-encompassing propaganda, which was much more skilful, effective and satisfactory to everyone than Soviet propaganda had ever been. The mass media constantly hurls ideas

> into the air connected with Putin as a charismatic ruler who leads the people to rebirth, and of Putinism as the guarantee of stability and order. Thus imperialistic values have been hammered into social thought (Kovaljov 2007).

Analysis of Putin's Russia allows us to see, in simplified form, how the *imagosphere* takes shape. First of all, suitable core myths that partially conceal the past and promise the future are created. Thereafter, they are clothed in popular or nostalgic "liturgy" and "iconostasis", and finally, means for their massive implementation are founded.

As a person who has seen a great deal, Kovaljov's conclusive view of this process is thoroughly pessimistic. He believes that the young people of Russia are under the influence of Putin's propaganda and that the ultimate objective of the political establishment presently in power is the complete uprooting of European mechanisms for the transfer of power and the strengthening of the Byzantine model of succession. He ends his overview with the following words:

> I am afraid that there are few among us who will live long enough to see the re-germination of freedom and democracy in Russia. Yet it is nevertheless worth bearing in mind that the 'mole of history' digs his tunnels outwardly without being noticed (Kovaljov 2007).

Two cases of imagosphere coming

In my previous lecture, I left off at the practical realisation of the *imagosphere* and examined how it is being built up in Putin's Russia. I relied on Sergei Kovaljov's treatment of three core myths – **the myth of enemy, the myth of victory, and the myth of imperial might**. They are analytically plausible and experientially convincing, yet the question arises of how myths are realised in practice. What are the energetics and mechanics of building an integral *imagosphere*? How is the *imagosphere* connected with architecture or space?

We can find a certain guiding thread in Manfredo Tafuri's introduction to the book *Theories and the History of Architecture*:

> That architectural criticism finds itself, today, in a rather difficult situation, is not a point that requires much underlining. To criticise, in fact, means to catch the historical scent of phenomena, put them through the sieve of strict evaluation, show their mystifications, values, contradictions and internal dialectics and explode their entire charge of meanings. But in the period we live in, mystifications and brilliant eversions, historical and anti-historical attitudes, bitter intellectualisations and mild mythologies mix themselves so inextricably in the production of art that the critic is bound to start an extremely problematic relationship with his accepted operative practice, particularly in considering the cultural tradition in which he moves. In fighting a cultural revolution there exists an intimate complicity between criticism and activity (Tafuri 1980).

These words describe the current media situation even more exactly than Tafuri could have suspected nearly 30 years ago. Their full meaning has surfaced only now when the different traditional parts of the media sphere that surround us have become dense and amalgamated into one unified field. This unified field prevents us from differentiating media channels any more: news video, feature films, documentaries, newspapers, television, the web, etc. All these different media, media structures and genres are compressed into the digital platform and surrounded by the frame of a screen, usually connected to our personal computer. This is a new and powerful environment where "mystifications and brilliant eversions, historical and anti-historical attitudes, bitter intellectualisations and mild mythologies" intermix into an inseparable whole.

I would like to consider two cases that permit the sufficiently detailed analysis of the attempt to build up an *imagosphere*. Both are associated with space and art: the story of the Bronze Soldier monument, and the Russian propaganda film *Night Watch (НОЧНОЙ ДОЗОР)*. I probably cannot manage to "explode their entire charge of meanings", yet if we manage to bring out even some of those hidden patterns, then that is at least a start, especially for the younger generation that has forgotten or altogether lacks the key words for understanding Soviet propaganda.

Bronze Soldier from the Beyond

In April of 1945 at the end of the Second World War, Soviet soldiers and officers were buried on the Tõnismäe Hill in Tallinn. Their dead bodies were brought together from many different places. The reasons and times of death have remained obscure. There were 12 bodies in total. The circumstances of their deaths are unclear and in this context they are not important either. It is quite likely that they did not perish in active combat (Kaasik 2006, 11).

In May of 1945, a competition was announced for a monument and surrounding space around it at the Tõnismäe Hill, which was to be called "Liberators' Square". Initial plans were to erect the monument on central Victory Square, the present day Liberty Square, from where the sculpture of Peter I had been removed in 1922 as a political act. The new plan for the monument was prepared according to drawings by architect Arnold Hoffard-Alas and the sculpture for the monument was made by Enn Roos in 1947. As Hoffard-Alas's student Tõnu Virve wrote, the conceptual basis of the monument is the portal to the realm of the dead (Virve 2007). Indeed, persons familiar with the history of architecture see in the proportions and pilasters of the limestone abutment a characteristic portal known as the *pylon* in front of Egyptian temples [1].

In 1964, a so-called eternal flame was added to the monument. A short gas flame rose from a small angular pit in the middle of a bronze five-pointed star as the base of the flame. The vegetation and the landscaping around the monument have changed several times throughout the course of its existence. Only the evergreen trees have retained their initial position.

The liberators' monument was an obligatory urban altar in all Soviet cities. The supposed meaning as stated in the conditions of the competition was: in its essence, the monument has to represent the growth of patriotic feeling in the Estonian people and their battle against German fascists. The monument must represent the friendship of different nations and the memory of


2.1


2.2


2.3

1. It is also known that pylons were ordinarily the stage-by-stage introduction to the sacred room of the temple. In Latin, *pylae* means a narrow mountain path, and the portal at the entrance to the Acropolis in Athens is named *propylaea*. The latter term means preceding the portal, and the ancient temple *prostyle* – a pediment with columns – evolved from this (*propylon*).

the brave sons of the homeland who gave their lives in battle against the enemy. (Kaasik 2006,15)

Regardless of the apparent atheism of soviet power, the square was a highly charged sacred space. This became particularly apparent after the eternal flame was added. The eternal flame is one of the oldest metaphors for remembrance of war in Indo-European culture – "inextinguishable honour" – *kleos aftiton* (Lotman 2007) and originally, a composition with five-pointed stars and the eternal flame was on the back of the pylon as a bronze relief. The ritual of the place itself was connected to compulsory political liturgy on 9 May and on 22 September (the official date of the end of WWII in the USSR, and the official anniversary of the capture of Tallinn respectively).

Let us first of all consider sacralised space against the background of Greek orthodox theology and the Byzantine imperial tradition. What does the nature of sacred space evolve into and what is needed to activate it? The book *Hierotopia* that was published in 2006 and considers the creation of sacred spaces in Byzantium and Russia, gives us a reference point.

As a number of scholars recently realised, the most significant aspect of relics and miraculous icons was the role they played in the creation of particular sacred spaces. In many cases relics and venerated icons were established as a core, a kind of pivot in the forming of concrete spatial environment. The milieu included permanently visible architectural forms and various pictures as well as changing liturgical clothes and vessels, lighting effects and fragrance, ritual gestures and prayers, which every time created a unique spatial complex. Sometimes the environment could form itself spontaneously, yet there are several examples when we are able to speak of deliberate concepts and elaborated projects, which should be considered among the most important historical documents (Lidov 2006,32).

The term "hierotopia" consists of two Greek words: *hieros* (sacred) and *topos* (place). The meaning of this concept could be formulated as follows: *Hierotopia* is the planning of sacred spaces as a certain special form of creative work, and also a field of historical research that deals with working out and analysing specific examples of such creations. (Lidov 2006,32)

Thus, the term *ta hiera* denotes the sacrificial act. Sacrifices were *hiera kala*, and they were offered on the *hieroi ... bomoi*; the priest who presided over the mystery of sacrifice was *hiereus*, the victim was *hiereion* and the verb of his action was *hiereuo*. Beneveniste derives other qualities of *hieros*, such as movement and liveliness, swiftness and vitality, from a comparative study in the examination of the word. Finally, circularity was associated with things of *hieros,* among which exemplary remains the image of the judges sitting "in the *hieros* circle". (Lidov 2006, 59)

The central importance of hierotopic projects was their dynamic nature. Material form was only one and not always the most important part of the spatial whole that was in constant motion. Performability, dramatic changes, and the absence of fixed clichés created a **vivid, spiritually intense and specifically dominant environment.** (Lidov 2006,39)

It is important to understand that the Tõnismäe complex as a "portal to the beyond" with its "guard", "avenger" or "mourner" in front of it had a clearly

iconic structure. Aleksei Lidov writes about this kind of structure in Byzantium:

> The "paradigm of the flat picture", still dominating in our minds, does not help to establish an adequate perception of the spatial imagery and of hierotopical projects. It seems that crucially significant in this respect is to recognise the spatial nature of iconic imagery as a whole: in Byzantine minds the icon was not merely an object and a flat picture on panel or wall, but a spatial vision emanating from the depiction into the environment in front of it and existing between picture and its beholder (Lidov 2006,40).

The most characteristic attribute of Byzantine hierotopia is also the participation of the experiencer in the spatial design. The experiencer functions within the image as if he or she was an integrated element of it – a pre-planned component. Spatial experience mixes from visual environment, light, aromas, movements and sounds to form a unitary whole. Furthermore – the experiencer, who has collective and personal memory, spiritual experience, and knowledge of the iconic process, participates in the creation of this spatial image. The collective nature of creating a new spatial image must be emphasised at this point. At the same time, this image exists in objective reality as a dynamic structure, changing its elements according to individual persepective in the procession – some aspects of spatial nature are accented and some remain hidden for a certain time. (Lidov 2006,41)

> /.../ medieval "concepteurs", as a rule, reproduced not planning, architectural forms or decorations, but the image-idea of the particularly venerated sacred space, recognised by contemporaries and included into the new context. We still do not have a proper language to operate with image-paradigms that challenge our fundamental methodological approach to the image as illustration and flat picture (Lidov 2006,43).

As a living being a hierotopical project could change in time: the original concept-matrix was subject to development and additions, the concept itself was sometimes transformed according to new ideologems. (Lidov 2006,44)

The existential identity and meaning value of the Tõnimäe Hill monument for many ordinary Russians was inevitably fused in the iconic space of this monument – the death of fathers and grandfathers, and Victory Day as the end of personal experiences and ordeals. Thus after the war Stalin united the personal existential energy and memories of Russians with the collective Soviet *imagosphere*, which had a clear political structure, a canonised political form (the red flag, gilded pentagram, the hammer and sickle emblem, profile of Lenin) and its corresponding iconic matrix. It goes without saying that the victims of Stalinist repressions were also counted as losses of the Great Patriotic War. This kind of personal existential attitude did not emerge in the inhabitants of territories that were forcibly occupied and incorporated into the USSR; rather the opposite is true – hostility developed toward both the sacralised space and its political form.

Another mandatory religious altar in Soviet cities was dedicated to the "unknown soldier". Pioneers and communist youth had to visit it. It sometimes also served as a victory monument. This kind of spatial structure can be inter-

preted as a "missing cemetery" – a traditional part of cultural and residential identity. In the vast territory of the Soviet Union, where the mixing of nationalities at large communist work sites and in utilising natural resources was state policy for fusing the "Soviet people" into one whole, it was impossible to visit the graves of your forefathers. A popular Soviet tune expressed this with the words: "my address isn't a house or a street - it is the Soviet Union". Thus the "unknown soldier" replaced the spatial identity of a cemetery, and Russian-speaking newlywed couples went there to lay flowers and take photographs. This was also an old Eastern Slavic pagan custom. The core of the myth (*dedy, dzjazdy* – forefathers, grandfathers) (Lotman 2007) in its original form, including drinking vodka and eating eggs, was a **symbol of resurrection** *(anastasis)*. The latter has also become a part of the customs of Finno-Ugric tribes in areas where orthodox Christianity is predominant. The Bronze Soldier fulfilled this function splendidly. Collective political liturgy, and the existential and cultural identity of the individual are reunited. That is why the sacralising fact of the burial was needed but not in the form of place-specific locations of the graves. They would have personified the space of the monument and hindered the general functioning of the collective political iconic space. The burial itself was only an initialising, sacralising act and the locations of the graves on the Tõnismäe Hill were of no importance. Some of them were found under pedestrian walkway of the bus-stop.

Thus the monument functions primarily as a spatial icon of the specific *imagosphere*. First of all, it is a gate to the other world – a portal. Secondly, it cuts out from universal time and space a specific *temenos* – meaning "our land" in direct translation from Greek. And this land is figuratively soaked with blood. Just before martial law was declared in Poland in 1981, Andrei Gromyko said at a Politburo meeting: we lost 600 000 men in Poland, there is no way we are going to give it up. "*Temenos* soaked in blood" is expressed as an extraordinarily simple and effective metaphor at the level of state geopolitics. If Jaruzelski had not declared martial law and forcibly silenced the Solidarity movement, a Soviet military invasion would have ensued. Thus Stalinist monuments were not merely objects of personal and emotional commemoration of the dead, but a specific sacred outpost system of borders. They could and had to be defended by threat of military violence. Several years before in a private conversation, the head of the Russian garrison in Tallinn warned the mayor of Tallinn not to touch the monument in precisely the same kind of context.

Supporters of the monument were against the reburial of the dead for these kinds of magical and political reasons. This kind of structure of meanings also explains the concern, incomprehensible to common sense, of a Russian Duma delegation over whether the monument was dismantled and cut into pieces for transportation or not. One member of the Duma said: "But the sculpture has welding marks on it, which means that the symbol of victory has been cut to pieces" (Poom 2007). Cutting the monument to pieces is, of course, a powerful magical symbol referring to the destruction of icons, which has nothing to do with technical instrumental logic in the logistical scheme of moving the statue.

Vladimir Paperny describes the magic of sculptures in his book *Architecture in the Age of Stalin*:

> /.../ in front of the new Mechanisation Pavilion was to stand a twenty-

five-meter-tall, reinforced-concrete statue of Stalin. When the statue was almost completely assembled, the directors of construction (almost all were from the NKVD) demanded that the main constructor of the exhibition S. Alekseev, crawl inside the hollow statue to verify that no saboteur had placed a bomb there. /.../ A small opening remained up above on Stalin´s back, and Alekseev was to be lowered through it. Alekseev was struck by an idea: to take a small model of the statue with him and place it within the big one. Representatives of the NKVD liked the idea: They lowered Alekseev inside holding the statue and a lantern. There was no bomb there. Alekseev deposited the model, they pulled him out, and the opening was sealed up. Both statues stood, with one inside the other, until 1954. This is also a purely mythological event. It is not necessary to keep a model of statue after the statue has been erected; but no one dared to destroy this model because, from the perspective of the culture, this could cause harm to the large statue and by association to the leader himself. Even preserving it would be too risky; it was like the egg where the evil sorcerer, Koshchei the Immortal, hid his own death in Russian fairy tales. /.../ Finally, it cannot be ruled out that the very idea of placing an identical object within the object itself comes from the traditional Russian *matrioshka* nesting dolls. Tradition here is relative, insofar as these were introduced to Russia from Japan at the end of the nineteenth century; but it is not by chance that they survived (Paperny 2002, 158,161).

The euphemistic designation of the monument itself, "bronze soldier", nominally contains two semantic fields: first Alexander Pushkin's character "*The Bronze Horseman*" – *mednyi vsadnik*, and second, *The Stone Guest*. Both are known for their return from the nether world or coming to life or awakening like *daidalon*. In both cases, injustice brings the avenger to life. An organisation of monument supporters with the ethnonym *Notchnoi Dozor* threatened that the bronze guest will visit every Estonian Member of Parliament responsible for the removal (Lotman 2007).

За ним несется Всадник Медный
На звонко-скачущем коне;
И во всю ночь безумец бедный.
Куда стопы ни обращал,
За ним повсюду Всадник Медный
С тяжелым топотом скакал.

Upon the pavement, fiercely tossed;
And by the moon, that palled lighter,
Having stretched his hand over roofs,
The Brazen Horseman rides him after –
On his steed of the ringing hoofs.
And all the night the madman, poor,
Where'er he might direct his steps,
Aft him the Bronze Horseman, for sure,
Keeps on the heavy-treading race./.../

Translated by Yevgeny Bonver

Yet in the case of an iconic spatial system, there is one more important distinction that activates its energetic field.

In both classical and Byzantine Hellenistic culture, it was believed that everything was in a process of constant change. Space and movement were directly experienced together – this was the lasting paradigm of thought and imagination in Greek culture. Choreography is based on paradigm and the presumption that there is a dynamic connection between the words *chora (cho´ros)* and *choro´s* that create (generate) *hieros* objects (sacred things). Choreography means "writing in space" or "writing (in space) with dance" /.../. (Lidov 2006,60)

Chora (choros) is commonly translated as space, to distinguish it from the place (which is *topos* in Greek). But there is a sense of movement contained in the Greek word *chora,* which is linked to the verb *choreo* having two senses: first it means to withdraw (give way), to make room for another, like in the *Homeric Hymns*:

> The earth gave way from beneath (*gaia d´enerthe choresen*)". The sense is of withdrawing, while inscribing the space in its withdrawal. *Choreo* means also to go forward, to be in motion or in the flux, like Heraclitus said when he referred that nothing in the world remains still, but rather everything moves (*panta chorei*). According to the context the word *choreo* indicates either a movement with the sense of going forward, or to retreat, withdraw or recede, in both cases having the effect to "make room for ...", generating a particular kind of space (Lidov 2006).

On the other hand, the ancient Greek word *choros* bears the idea of collective coordinated movement (like activity, battle, dance), or collectivity in movement (choir) as in *choros aston* (dance of the stars) or *choros meliton* (dance of honeybees). This movement is often specifically ordered in circular form. In earlier times, *choros* meant a dance floor, a term that evolved metonymically from the location (*choros*) where the choir danced (Lidov 2006).

Plato describes the creation of the universe in his dialogue *Timaios* as the transition from the rational and invisible world (the world of Existence) to the visible cosmos (the world of Genesis) where *chora* is the third substance (*triton genos*). *Chora* precedes creation; it is invisible because it is fundamentally amorphic. *Chora* is the cosmogonic space of genesis; it is the midwife of creation, a matrix or vessel of it. /.../ Yet it does not remain in those phenomenal bodies that come into contact with it. Nevertheless, *Timaios* refers to the appearance of *chora*, its visible manifestation, where the verb *phainesthai* means "to be manifested", "to show (oneself)" or "to become visible" (50b-c). *Chora* becomes visible episodically only in motion when bodies collide with it. Only visible bodies can leave visible traces. (Lidov 2006, 61)

Icons have their own specific space that exposes *chora* and not *topos*, says Nikephoros (the patriarch of Constantinople) when he uses the verb *ekchoreo* when speaking of the inscription of an icon (*graphe*). In the interpretation of Marie-Jose Mondzain, the iconic *chora* is an extension of space, where *choreo* simultaneously means both the encompassing of space as well as containing something, meaning that the state of being contained, and that within which content is contained, coincide. Mondzain interprets that the point of contact or its spatial limit is a *zone*, which in Greek refers to a mantle or the contact surface between the mother's womb and the child, which manifests the "Word without dimensions" into visible form (*aperigraptos Logos*) (Lidov 2006, 63).

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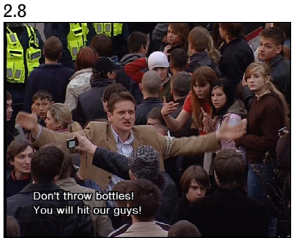

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According to Nikephoros, iconic drafting (*graphe*) is similarly a visible trace of *chora* in space that exposes itself completely only in a place that is imagined (*hennoesei*), yet needs to be played out in a liturgical performance when it becomes comprehensible.[24] *Chora's* iconic space, says Mondzain, is more unfathomable than simply sacred places and saints because it contains the entire universe. /.../ Yet it is also that which we call a "sacred place" and "sacred space". /.../ **Conversely, sacred space is the kind of space that is liturgically empowered, created in the present moment, and experienced in its true centre.** (Lidov 2006, 64)

Thus the gathering and movement of people belongs within the iconic structure of the monument. The icon acquires its true power in ritual movement. When the Russian troops left Estonia in 1994, it was as if the monument was left abandoned. Until then, the presence of the Russian garrison had protected it. The Estonian government organised an architectural competition to redesign the monument. The aim was to reduce the presence of Stalinist liturgy and to rephrase the nature of the monument into a memorial of the entire Second World War. The results of the competition were not implemented. Only the diagonal path from the winning entry leading to the National Library was built, visually reducing the triangular field of the monument. The memorial tablets bearing names and Soviet attributes had already previously been removed. The monument lost its intensity and it seemed destined to be forgotten as a historical artefact in a small urban park.

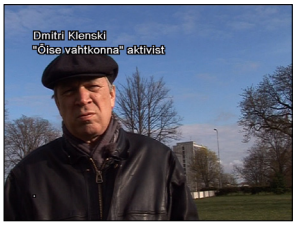
The building of a new *imagosphere* in Russia, however, achieved its resonance in Estonia as well, which is constantly within the sphere of influence of Russian television channels and for which the Estonian government has not succeeded in creating a balancing or neutralising Russian-language media channel. From the standpoint of this lecture, it is interesting to refer to the point of view that the news format of television channels allows political boundaries to become blurred and emphasises ethnic and cultural space of experience that is in constant communication with the "great homeland".

Meetings of war veterans at the Tõnismäe Hill began gathering steam again in 2003. This began to be referred to as the strengthening of Russian identity, one part of which was hostility towards the Estonian state. These gatherings had grown quite large by 2006 and had clearly become opposed to the independence of Estonia. The gatherings took place under the Soviet red flags and the imperial Russian flags.

Apparently in fear of the potential for a demonstration arising from the commemoration of victory in 2007, the Estonian government dismantled the monument in April and reburied or sent to Russia the remains of the 12 soldiers and officers found. The monument itself was taken to a military cemetery less than two kilometres away.

The defenders of the monument led by the Night Watch organised a demonstration in Tallinn's Old Town and at Tõnismäe, which boiled over into mass unrest and violence that lasted for two nights.

The Tõnismäe monument and the liturgy accompanying it built up a sacred iconic space with these kinds of results. While initially **it could be expected that its absence in the visible** *imagosphere* **would become even more important than its presence**, then actually this did not happen. The soil instru-



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mentally dug up, the removal of the portal as a focal point, and the prohibition of the accompanying liturgy destroyed the strong sacred space completely. This space only existed together with the monument.


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Heidegger writes:

> Here the earth itself and the subterranean come into relation with sheltering and concealing. The essential connection between death and concealment is starting to appear. For the Greeks, death is not a "biological" process, any more than birth is. Birth and death take their essence from the realm of disclosiveness and concealment. Even the earth is the in-between, namely between the concealment of the subterranean and the luminosity, the disclosiveness, of the supraterranean (the span of heaven, *οὐρανός)*. For the Romans, on the contrary, the earth, *tellus, terra*, is the dry, the land as distinct from the sea; this distinction differentiates that upon which construction, settlement, and installation are possible from those places where they are impossible. *Terra* becomes *territorium*, land of settlement as realm of command. In the Roman *terra* can be heard an imperial accent, completely foreign to the Greek *γαία* and *γή* (Heidegger 1998, 60).

Here we see a clear difference between the functioning of the Latin imago and the Greek icon. By dismantling the "portal" and removing the monument, the Estonian government operated here definitely within the framework of the imperial and rational Latin imago.


2.19

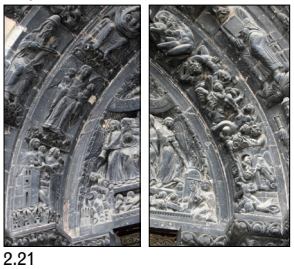
The monument still partly functions as an iconic space at the military cemetery but its communist and imperial semantic field is buried under the much greater spatial energy of the necropolis. Here it is a memorial in the direct sense of the word.


2.20

At this point, let us return to the violent unrest that took place along with the removal of the monument. We find the difference between how the imperial Roman *terra* and the orthodox *temenos* function by examining the depiction of the Last Judgement Day in two different cultural languages.

The concept of resurrection has in the orthodox tradition a somewhat more complicated, or more precisely speaking, a more nebulous structure of functioning. *Anastasis* (**ανάστασις,** from the verb **ανίστημι** - means to rise, to rise again, to stand up; the Latin root is *resurgo*, from which *resurrection* is derived) is its original term in the Greek language. It is further associated with words like:

-ανάσταση - *anastase* **– resurrection, rising**
-ανάστατος – *anastatos* **– disorder**
-αναστάτωμα – *anastatoma* **– destruction**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Compare this to the Estonian word *anastaja* – conqueror, over-taker by force.

While in the Latin tradition, Christ's resurrection (*anastasis*) and the final judgement (*deësis* – sitting on the throne, from which the frequent medieval main church portal theme evolves – the Last Judgement Day) are separated into two different processes, in the orthodox tradition it continues to denote both the resurrection of Christ and the final judgement itself. Yet this act is

presented in a vague manner (*hetoimasia* – preparing the throne) as preparation. Only an empty throne or enthronement is often depicted. What will start to happen is uncertain and violent events can be anticipated.


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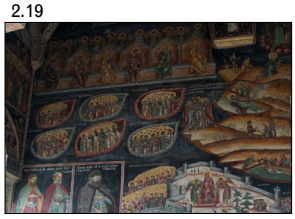
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The Gospel of Matthew 25, 31-46 explains the Latin tradition in simple terms:

> When the Son of Man comes in his glory, and all the angels with him, then he will sit on the throne of his glory. All the nations will be gathered before him, and he will separate people one from another as a shepherd separates the sheep from the goats, and he will put the sheep at his right hand and the goats at the left. Then the king will say to those at his right hand, "Come, you that are blessed by my Father, inherit the kingdom prepared for you from the foundation of the world; for I was hungry and you gave me food, I was thirsty and you gave me something to drink, I was a stranger and you welcomed me, I was naked and you gave me clothing, I was sick and you took care of me, I was in prison and you visited me." /.../ Then he will say to those at his left hand, "You that are accursed, depart from me into the eternal fire prepared for the devil and his angels; for I was hungry and you gave me no food, I was thirsty and you gave me nothing to drink, I was a stranger and you did not welcome me, naked and you did not give me clothing, sick and in prison and you did not visit me." Then they also will answer, "Lord, when was it that we saw you hungry or thirsty or a stranger or naked or sick or in prison, and did not take care of you?" Then he will answer them, "Truly I tell you, just as you did not do it to one of the least of these, you did not do it to me." And these will go away into eternal punishment, but the righteous into eternal life."

This dramatic yet clear course of events is a frequent sculptural theme of the tympanum of the main portal in cathedrals. Let us consider two such portals: the Cathedral of St. Trophimus in Arles, and the Abbey of St. Denis in Paris.

Christ sits on the throne of judgement on the tympanum of St. Trophimus, the evangelists are around him, a choir of angels and the Last Trumpeters are above him, and the apostles are under his feet. We see sinners doomed to the fires of hell at the left hand of Christ on the side frieze. They are in chains and are headed for the eternal fire. The Whore of Babylon and demons are recognisable behind the corner. Correspondingly on the right are the chosen ones in their everlasting life.

The tympanum of the main portal of Abbey of St. Denis is also built up similarly. We see a chosen girl with a glowing lamp at the right hand of Christ entering the gates of heaven. A banner is in Christ's hand bearing the explanation *VENITE BENEDICTI PATRIS MEI* – come, ye blessed (chosen) by my Father. And on his left hand, *DISCEDITE A ME MALEDICTI* – depart from my presence, ye damned. This is illustrated by a fallen girl with an extinguished lamp being dragged into Hell. (*Venite benedicti Patris mei, possidete paratum vobis regnum a constitutione mundi. Discedite a me maledicti in ignem æternum, qui paratus est diabolo, et angelis ejus*. Both sentences are from Matthew 25).

We find an altogether different kind of picture in the Horezu Abbey in Romania. The entire entrance wall below the column portal depicts the polarity of heaven and hell. We see above the church door a picture of the patron saint

and his female companion and above that picture an empty throne – waiting for the judgement. A book and a cloth bearing a bird allude to the arrival of Christ as Judge. The book and the cloth are attributes of *hetoimasia*. The cloth is presumably a judge's robe. A torch of fire or river of blood ordinarily begins from the throne and ends in the mouth of a monster. The entire part of the fresco on the left-hand side depicts horrors of hell. It is not quite clear whether the judgement has already taken place or whether it is yet to come, even though the end result is at hand. It leaves the impression of ultimately undetermined continuation of violence.

Likely or not, the deaths of Soviet state leaders come to mind. They were kept secret. The army or part of it was always placed in a higher state of combat readiness, as if expecting an unexpected attack caused by the leader's death. Thus the violence or threat of violence of the iconographic apparatus of the Bronze Soldier monument has been originally programmed into it on several different levels. Liturgical movement, both archetypally and politically religious, which is programmatic to the evolution of the events is not fully predetermined, but it is an inevitable part of the violent structure of this kind of iconic space.

Night Guests

The group Night Watch *(Nochnoi Dozor)* was the organised activator of the iconic space of the Bronze Soldier[2]. It is very probable that this name itself is taken from the Timur Bekmambetov film *НОЧНОЙ ДОЗОР – Night Watch*.[3] Let us consider what kind of iconography their self-identification is founded on.

Bekmambetov's film *НОЧНОЙ ДОЗОР* was completed in 2004 at the *Pervõi Kanal* film studio, which belonged to the Russian government. The film was based on the book of the same name by Sergei Lukjanenko. Both the film and the book proved to be very popular in Russia and abroad.

The action of the film takes place in contemporary Moscow, which is a battleground in the struggle between good and evil. The film is made in a certain style of "magical realism", where everything seems to be common and ordinary, yet events themselves are totally unreal. To a certain extent, it resembles the film language of Andrei Tarkovski's film *Stalker*, where everything is also ordinary and has acquired an unworldly meaning, or the atmosphere of Mihhail Bulgakov's book *Master and Margarita*.

The plot of the film is quite simple: it is the personal drama of Anton, the main character, in the struggle between good and evil. The Day and Night Watch have agreed on a temporary truce but it is ruined when the Great Prophet is born – the Other. He is Anton's unborn son Yegor, whom Anton is willing to sacrifice in order to win back his unfaithful wife. Things go wrong by the end of the film and his son joins the forces of evil. In the second part of the film, the entire process returns back to the beginning.

The plot and adventure are not so important from the point of view of this lecture. Rather, the way Good and Evil are presented and the built *imagosphere* that is depicted in the film is much more interesting. I presume that this is probably rather difficult to decipher for people who have not come across the Soviet sign system. Let us consider it more closely.

2 Now editing the texts ten years later we can find the main organizers of the unrest in active imperial policy of Russia again: Dimitri Linter visited Riga in 2014as an official assistent of Vladimir Medinsky - Russian minister of culture. A month before that he visited Crimea and participated in the conference with mental leaders of unrest in east of UkrainaÕ Sergei Glazev, Alexandes Dugin and Igor Strelkov. Dimitri Linter was presented as comminuist of Novorossia (http://rus.delfi.ee/archive/print.php?id=69994159)

3 НОЧНОЙ ДОЗОР *Noyshnoi Dozor*. Bekmambeto, Timur. OAO Pervõi Kanal 2004.

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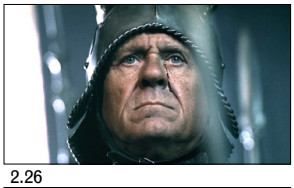
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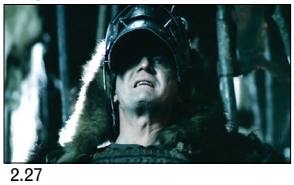
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Let us begin with the name itself. One of Rembrandt's best-known paintings *Night Watch* depicts a military association in 16th century Amsterdam. These military organisations, originally organised by city quarters in Amsterdam as territorial armed forces, soon became political parties. The municipal government election system made it possible to rise to high political positions only through these organisations. As their military function receded, these associations became more and more like clubs, corporations and parties. The painting *Night Watch* was painted for the headquarters (*dolen*) of precisely one such organisation (Field 2007,224). The painting is a characteristic example of the commercialisation – only those members of the Watch who bought a place for themselves were made recognisable in the painting.

The painting and the name of the film do not coincide by chance: a repro of this Rembrandt painting flashes in the film as a reflection hidden behind Anton's bed and thus it undoubtedly has a certain meaning. The Night Watch, then, is originally a paramilitary organisation. Its task in the film is to maintain order to restrain the licensed activity of evil. Vampires represent evil. The Night Watch has flashlights and automobile headlights with a special holy light for killing those vampires.

The Day and Night Watches are the personifications of good and evil. The entire first film reveals their clear mutual opposition.

The dichotomy of good and evil is expressed in everything visible. Firstly location. The forces of evil reside and operate in the *Kosmos Hotel*, which was already a gathering place for high-class prostitutes in the Soviet era. Luxurious banquets and receptions take place in the hotel. The female hero of the forces of evil performs there at a huge rock concert. The headquarters of the forces of good are in an official office building with a granite sign on the door that reads: ГОРСВЕТ. Above the name is the Russian coat-of-arms with the two-headed eagle, which connects its image with the state. *Gorsvet* is an abbreviation of the Russian-language expression *gorodskoi svet* – light of the city. It is just one letter away from the former term ГОРСОВЕТ. This means *gorodskoi sovet* – city council. This is the Soviet-era municipal government, which carried out the administration of the city in accordance with the general guidance of the city's Party committee. Thus the headquarters of the forces of good has multiple meanings and is simultaneously the municipal government, a public bureau, and a Soviet state structure. In addition, it is also a "closed type of joint stock company". The municipal administration office has its own "information centre" that watches tomorrow's news (via website Regnum.ru – one of the most reactionary news agencies, later bought by the Russian state) and prevents accidents. The office of the leader of the forces of good is recognisably similar to the office of a Soviet director. There is a set of telephones on a long T-shaped meeting table. Everything is a little bit worn but is prominently "Soviet era chic". At the same time, the chief of the forces of evil sits in the hotel playing video games and does business by satellite telephone.

The leader of the forces of good Geser (evidently an allusion to the name Caesar, *tsar*) is dressed in a white shirt and a suit. His antipode Zavulon (with a biblical theme, the Jewish patriarch or ruler Zabulon, who operated in the vicinity of Nazareth) wears an undershirt and a woollen cap (like petty criminals of the Soviet era working as dealers and illegal money changers - *fartshovshiki*) or the opposite – a designer suit of a high class businessman.

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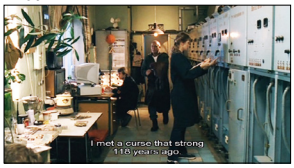

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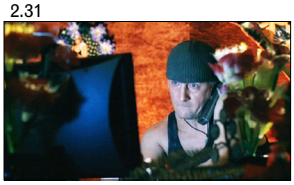
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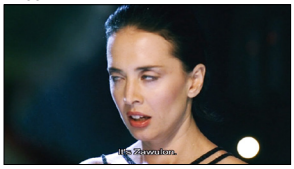
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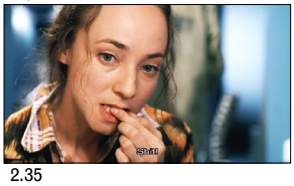
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We also find out from the end credits that Geser had been a deputy minister of the USSR (*zam-ministra pri CCCP*).

The dichotomy continues in automobiles, women and clothing. The women of the forces of good are homely, dressed in simple clothing or work clothes. Olga, for instance, has been an owl for 100 years and does not know how to dress in modern clothes. The women of evil, however, are unattainable sex idols in short skirts and high heels, *femme fatales* with satanic faces.

The forces of good go about in wadded jackets and overalls with the name of their firm *ГОРСВЕТ* on their backs. They are clearly the lower working class - *vatniki*. The evil guys wear designer clothes or expensive brand of Western sports clothes.

The automobiles used by the forces of good are especially nostalgic and patriotic. They are Soviet lorries made (presumably) from converted GAZ-53 vehicles with magical powers to jump and accelerate to the maximum. The lorries are painted yellow like the soviet gas emergency vehicles used to be. Even the number on the side of the lorry resembles the word GAZ and connects them in spirit with the Russian government's media and economic giant *ГАЗПРОМ* – *Gasprom*. The forces of evil drive only expensive Western European sports cars.

Thus two forces are presented, two classes that are in constant struggle. They are "simple working folk" who gather at night as voluntary militia units to do good – the *Nashi* – **our** people. And the others are **them** – businessmen, profiteers, owners, jet setters. Identity, which has its own specific attributes, form and ideology are combined with visible class hostility.

It is difficult not to see a specific political-technological *imagosphere* behind this adventure film, which allows today's positive hero to join and identify with the sufferings and mission of the Soviet people. Just as the rehabilitation of the Soviet anthem and the red flag at the state level does the same in Russia at the level of state policy.

Thus by the time of the events at Tõnismäe, the "awakened" Stalinist icon and liturgy, the poles of good and evil, the discontent of the Russian-speaking population, the personal existential memories of Russians, etc. had all accumulated and only a spark was needed to ignite the fuse and unfortunately blow up the charge.

The digital platform allows different elements of the *imagosphere* to amalgamate into a powerful synthetic whole. Quantity transforms into a new quality, convenience gives way to simplicity. The little cell of the *imagosphere* is a personal, mobile means of communication and media – a small instrument that makes telephone calls, takes photographs and videos, sends and receives e-mail, plays music and broadcasted audio and video files, and does many other little operations like parking your car. The screen accompanies us everywhere. It is a membrane or filter through which we communicate with the world, through which the world takes shape for us. A restaurant or pizza bar exists if the navigation system finds it. Streets and roads are passable if the satellite navigation memory knows them and traffic jams have been downloaded in the morning. Houses, roads and the city are covered with billboards, which form the exterior portion of this membrane.


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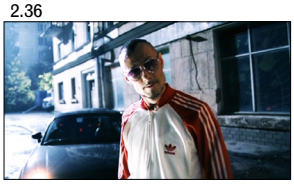
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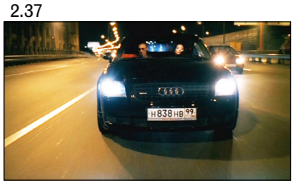
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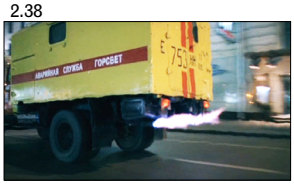
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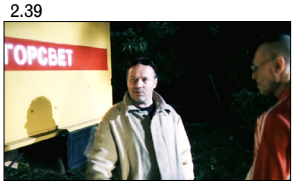

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The illustrations are screenshots from two films:

Bronze Night: the Russian Riot in Tallinn. Liiv, Urmas E. Kanal 2. Tallinn 2007 and НОЧНОЙ ДОЗОР (Notshnoi Dozor). Bekmambetov, Timur. OAO Pervõi Kanal 2004

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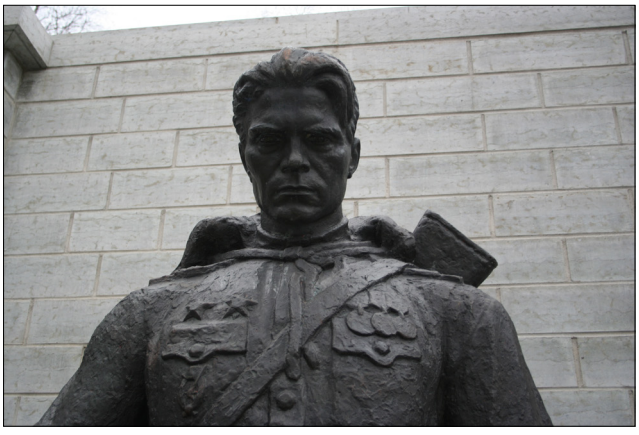
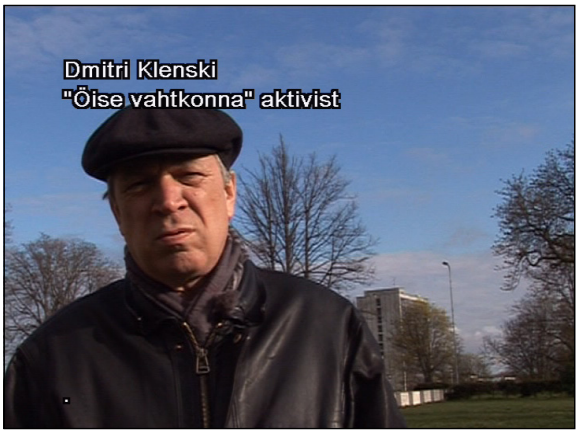
Virve, Tõnu. 2007. "Pronkssõduri müür on värav surnute riiki" (The Wall of the Bronze Soldier is a Portal to the Realm of the Dead). *Eesti Päevaleht,* May, 12, 2007.

2.1 The Bronze Soldier monument on the Tõnismäe Hill by architect Arnold Hoffard-Alas and sculptor Enn Roos. Built in 1947. Illustration from the book: Soolep, Jüri. 2011. *Mõte ja Ruum. 10 loengut arhitektuuri*st.
2.2. The Bronze Soldier monument after removal to the Military Cemetery.
2.3. Detail of the Bronze Soldier monument.

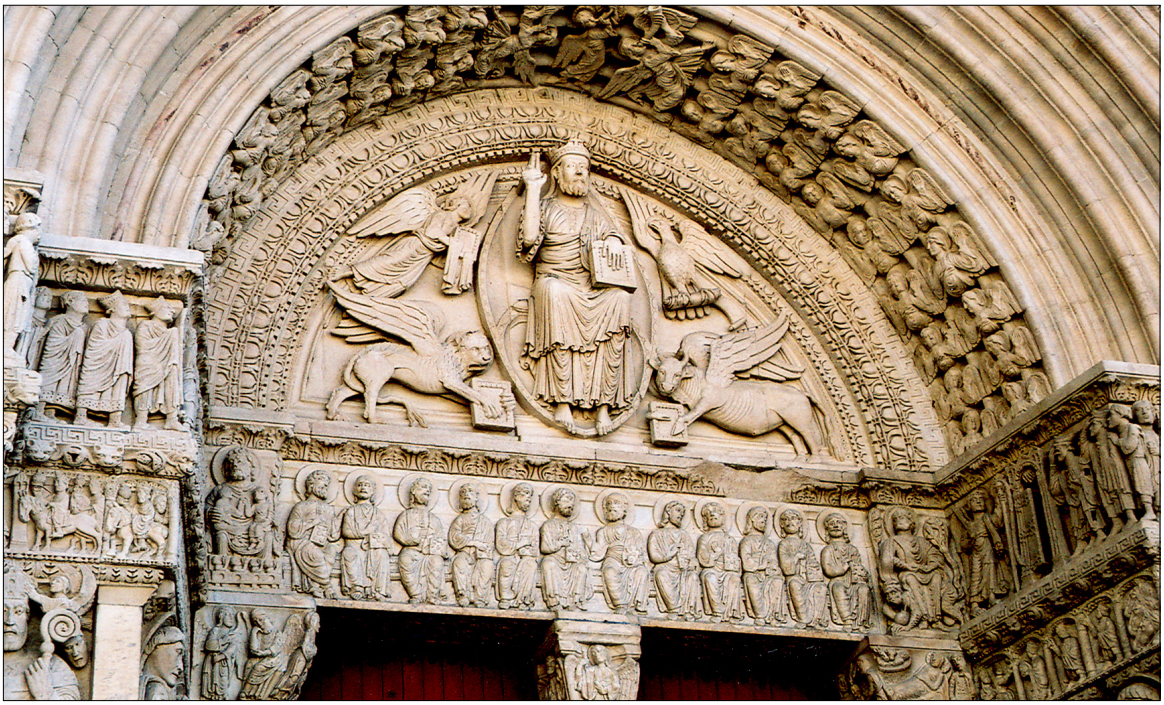


2.4-2.9 Gradual escalation of tensions around the Bronze Soldier monument on Tõnismäe Hill under communist and Russian flags (stills from the film *Bronze Night: the Russian Riot in Tallinn*. Liiv, Urmas E. Kanal 2. Tallinn 2007)



2.10-2.15 The riots after the removal of the Bronze Soldier monument (stills from the film *Bronze Night: the Russian Riot in Tallinn*. Liiv, Urmas E. Kanal 2. Tallinn 2007)

2.16 The sacred *temenos* without the spatial icon. The space has lost its existential and political power.
2.17 The removed monument in the Military Cemetery with diminished political meaning, covered by the existential power of *necropolis*. It has become the monument of commemoration.



2.20 and 2.21 Details of the central tympanum of St. Denis cloister church.

2.18 The Last Judgement motif on the central tympanum of the Chartre cathedral.
2.19 The Last Judgement motif on the central tympanum of St.Denis cloister church reconstructed by Abbot Suger in 1140 and 1144.

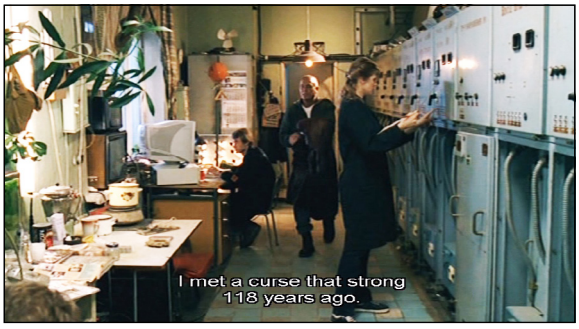
2.22 Horezu cloister church in Wallachia, Romania. The fresco depicts the Paradise side of the Last Judgement Day.

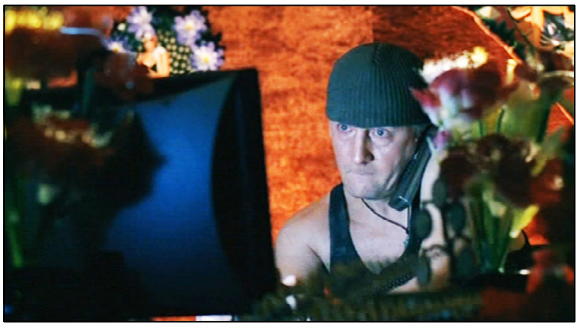
2.24 The left hand side of the Horezu fresco depicting Hell.

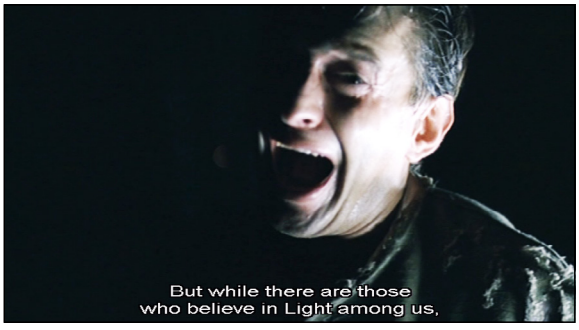
2.23 Horezu fresco central part depicting the Last Judgement Day in the form of *hetoimasia* - the preparation of throne. On the throne are the robe of judge, the book and dove. The process has not started yet but the Paradise and Hell with their essence have been formed already.

2.25 The DVD cover of T. Bekmambetov film *Night Watch.*

2.26 The leader of Night Watch - Geser.
2.27 The leader of Day Watch - Zavulon.







2.28-2.35 The dichtomy of Good and Evil. Stills from the film *Night Watch* by T. Bekmambetov

2.36-2.41 The dichtomy of Good and Evil in personages and vehicles. The Evil uses foreign cars, whereas Soviet lorries obtain super powers and resemble the Soviet gas emergency vehicles, creating the allusion with GASPROM company. Stills from the film *Night Watch* by T. Bekmambetov

Man and imagosphere. We have come to a point where real, unreal irreal and surreal have become one unseparable unity of Digital Universe.

Things of the Order – the Question of Typology

The lecture was written as a typology exercise for a master's course at the School of Architecture of Umeå University and presented at the European Symposium on Research in Architecture and Urban Design EURAU12.

Abstract

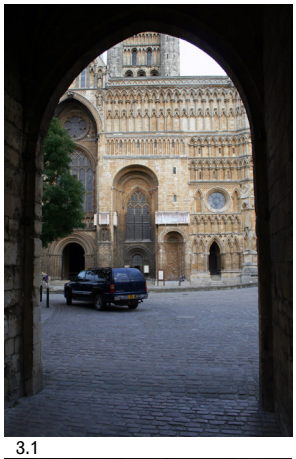
There are many ways to find an order in the phenomena of our life-world. Foucault, referring to Borges, quotes one typology of animals.

This extract from the Chinese Encyclopaedia brings out the arbitrariness of constructing typologies. We usually rely on typologies as trustworthy and generic ways of organizing knowledge. Very rarely are the methods and rules of composing a typology questioned. It would be interesting to look at the methods and settings of constructing typologies in architecture with the hope that it will reveal something new for education.

Architectural typology is traditionally limited to the function, form or structure of buildings. We look at buildings with a similar function such as hospitals and describe and evaluate them within their own type. We will not usually start to compare and contrast Lincoln cathedral with a bicycle shed, at least not in everyday life. They seem to be so distant from each other. Nicolaus Pevsner never the less defined architecture within the obvious cultural habit of his time and it is still largely valid. Even so, if the bicycle shed was really designed by an architect and was esteemed in that cultural condition, the definition of architecture could not have been quite same.

In their essence all formal, functional, compositional, structural or historical propositions about architectural phenomena exhibit the constitution of some kind of typology. The rules of creating or perceiving typology thus become generic – they can be thought to shape the life-world of the architecture described by the observer. There are several expressions in the English language to denote the order of things: taxonomy, categorization, classification, assortment, clustering, listing, naming, registering, ranking, recording, representing etc. All these deal with some kind of rules and create accordingly the things of the order.

Building an architectural typology according to the rules involves a double process: the rules are to be set and described (sometimes only intuitively) as well as the objects being fully analysed within these rules. Then the conceptualization of things constituting the phenomena are compared with



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the ideal set of rules established earlier. The problem here is that any analysis is in itself a comparison or categorization of the object in question. This reminds us of a "hermeneutic circle". The meaning of the whole is built of the collection of elements and elements do not have their meaning outside the context of the whole. Edmund Husserl used the faculty of understanding called "categorical abstraction". Here eidetic intuition and categorical intuition produce the raw material for possibility, impossibility, necessity and contingency among concepts and among formal categories. Thus gradually, in the phenomenological focus of the mind, typologies can be built up, refined and defined.

Today we face a new social condition that I would like to call imagospheric. Through pan-digitalisation the representational system of societies is changing rapidly. The visualisation and screening of the representational system is accompanied by qualities like hybridisation, arbitrary juxtaposition, simultaneity and multitasking. An average and ordinary webpage as a framework of gaze would could easily contain the typology described by Borges in the Chinese Encyclopaedia.

For the Umeå School of Architecture, Laboratory of Sustainable Architectural Production (LSAP) "typologies" project we will examine whether current architectural practice is influenced by the new social representational systems within the build-up of typologisation itself. We will therefore briefly try to establish a formal way of looking at the scope of architectural knowledge; investigate the concept of the paradigm by Thomas Kuhn, and concepts of discourse and statement by Michel Foucault. We will also make use of a typology of architectural texts by Attoe Wayne; investigate the condition of pan-digitalisation and discover whether all these will offer us some more possibilities within architectural education.

1. Exposition: things of the order – typology as knowledge
2. The critical imagination of Attoe Wayne
3. The difficulty in establishing the scope of architectural knowl edge as typology
4. The paradigm concept by Thomas Kuhn
5. Discourse and statement (énoncé) by Michel Foucault
6. Michel Foucault on classifying
7. Imagination and the imagospheric world
8. The typology of the screen
9. Disposition: the order of things – typology as a digital? setting

1. Exposition: things of the order – typology as knowledge

This essay is about typology in architecture. It started with me being lost in the library of Umeå University. I was looking for a particular quote by Michel Foucault to start this essay. *The Order of Things* was out on loan and I walked to the collection to look for other books by Foucault. To my surprise there were none on that particular bookshelf. Commonly the library classification system groups books by the surname of the author within larger thematic fields and the order of the alphabetic rule makes it easy to find them. Obviously that was not the case with this book. I started to look for the labels on the shelves and they did have a marking system consisting of several letters that was sort of arranged alphabetically but not too consistently so. The things of the order I took for granted, were misplaced.


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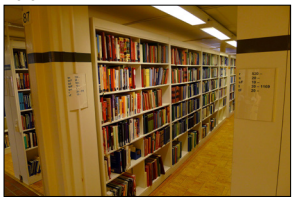
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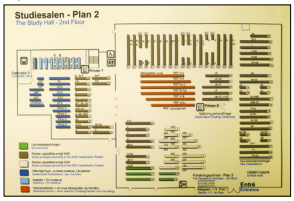

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That reminded me of another library, visited by Brother William of Baskerville and Adso (Adson). This library was imagined and described by Umberto Eco in his book *The Name of the Rose*. The system of spaces for the books as well as the labelling system of the rooms was deliberately made confused and complex. The knowledge in the books and their location was heavily guarded by the librarians and some books were hidden so that they could never be found. Eco's library was a labyrinth. The illustrations both in his book and on the cover of the first Italian edition in 1980, depict the now demolished four-cornered labyrinth from the floor of Reims cathedral. Eco said through the voice of Brother William:

> Remember, too, how desperate we were last night when we could no longer find our way. The maximum of confusion achieved with the maximum of order: it seems a sublime calculation. The builders of the library were great masters (Eco 1983, 217).

The typology of space and labels in Eco's library disguised and hid the knowledge.

One would expect to find in the library the contrary principle: the minimum of confusion with the minimum of order. Or at least one could ask for the minimum of confusion with a simple order. The rule in the Umeå library was to label the books on the shelves according to the acquisition date of the book. So the books could actually be quite easily found with the help of the digital catalogue but one could not browse them as objects on the shelf within the same proximity of the thematic neighbourhood or even the same author. The things of the order and their space were separated into two different worlds. The typology was removed from the analogous world of objects into the cryptographic parallel universe of digits. No objects were available without decrypting their code. If lighting wiped clean the hard-discs of the library, the order would have disappeared for quite some time.

This simple introduction brought me directly to the essence of a typology of any kind – it is not just a system, an order or a rule, but a highly sophisticated instrumental and epistemological tool for creating and storing knowledge. We might also suspect that this tool is shaping our knowledge and on the contrary – what we can know resembles a vast typology.

There are many ways to find an order in the phenomena of our life-world. The quote by Foucault that I found in *The Order of Things*, having also learned the classification system of the Umeå library, makes it very clear. Foucault referred to Borges who described one typology of animals:

> This passage quotes a 'certain Chinese Encyclopaedia' in which it is written that 'animals are divided into: (a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) *et cetera*, (m) having just broken water pitcher, (n) that from a long way off look like flies'. In the wonderment of this taxonomy, the thing we apprehend in one great leap, the thing that, by means of the fable, is demonstrated as the exotic charm of another system of thought, is the limitation of our own, the stark impossibility of thinking *that* (Foucault 206, xvi).

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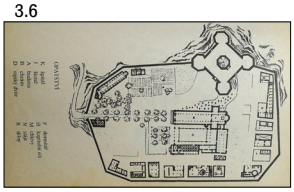
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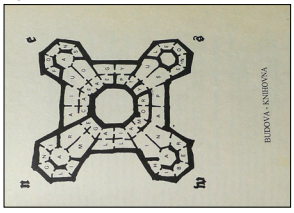

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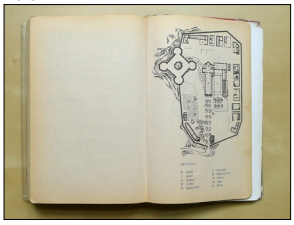

3.9

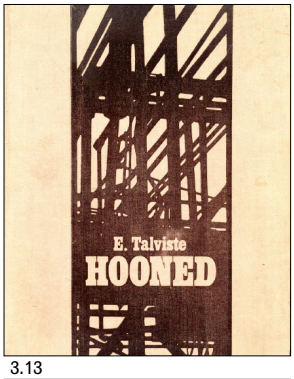
This extract from the Chinese Encyclopaedia brings out the arbitrariness of constructing typologies. We usually rely on typologies as a trustworthy and generic way of organizing knowledge but the typologies can be deceptive, as described by Eco, whether deliberately or even unconsciously deceptive.

In the case of Eco the book itself involves several typologies. Firstly, there is the enriching and decrypting game to involve distant characters like the Hound of Baskerville, Sherlock Holmes and Doctor Watson. Secondly, the book is about another book or manuscript that deals with old documents and literary sources as a part of the plot. Thirdly the book exhibits a common similarity to the literature called the historical detective story.

There are several expressions in the English language to denote the ordering of things: taxonomy, categorization, classification, assortment, clustering, listing, naming, registering, ranking, recording, representing etc. Each of them probably has a specific rule of order. Some are extremely exact as classifications, some rather blurry as a quite open typology. In a library we look for a very exact classification system for each and every object. When we talk about architectural typology, we deal with a rather vague clustering of certain built, drawn or otherwise presented objects. These typologies are often empirical and intuitive.

The digital technologies of today have transformed even the vague and blurry classifying techniques in the logs of spy computers into an overwhelming parallel universe to the analogous world. This parallel digital world is searchable and quantifiable and thus presumably out of it an infinite number of typologies with various exactness can be created. It might be the case that digital technology will change the whole meaning of typology in the future when everything can be approached as digital.

We are mostly going to look into the order of elements in architectural typologies. Like any knowledge, the field of architectural knowledge seems to be a huge typology of its own right. Knowledge as typology can intuitively be a strong belief but it has one great problem: the notion of knowledge itself cannot be too comprehensively defined and depends on the philosophical school or methodological route that is followed. As a simplification we can connect architectural knowledge, at least partly, to the education of architects. Then the discussion becomes more exact. The formal qualities in education exhibit several levels of the order and discipline of producing and transferring knowledge. Already on the formal level, education is a rather strict typology with its curriculum divided into disciplines, subject matters, semesters, lectures, exams, tests and today also text described learning outcomes. All of these elements form well-established layers of typologies of their own kind.



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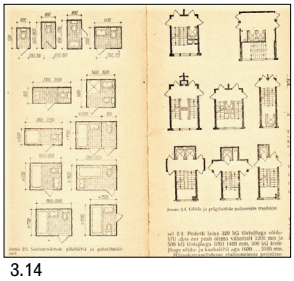
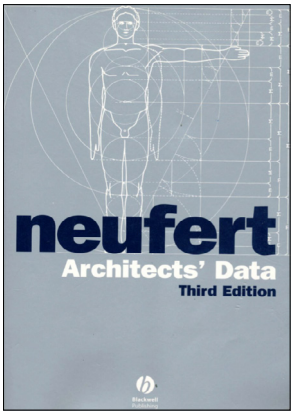

3.14

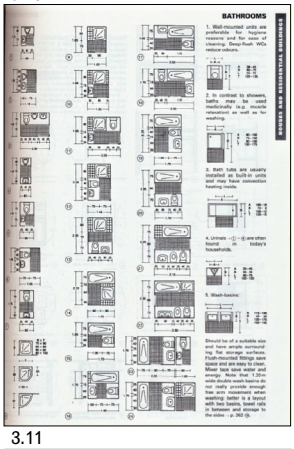
Here we have narrowed the discussion to architectural education and architectural knowledge. Curiously architectural education itself includes a discipline called *architectural typology*. I first came across the expression and its meaning in my architectural studies when we attended classes called *Parts of Buildings* and *Typology*. They were grouped together and in the first part of the lectures the details and structures of the buildings were studied and then a certain typology of buildings was discussed. This was mostly based on the function of the buildings and its parts. The types of buildings were loosely categorized as private houses, apartment buildings, hospitals, restaurants, canteens, sports halls etc. The famous book: *Architects' Data* by Ernst Neu-

fert was used as a source. Neufert first published his book in 1936 and new editions are still in use and reproduced again and again.
Neufert´s Architects' Data can be divided into two parts: the first part deals with skills and data (here drafting, measuring, structures, construction and parts of buildings are described) and the second part deals with architectural objects, grouped under types according to their function (for instance houses and residential buildings, airports, fire stations, places of worship etc.). The book operates in much the same way as my education in the 1980s. Although much of the data is still definitely valid in the world out there, the clear typologies of function tend to amalgamate. Many building complexes are much more hybrid, of diverse form and operate in multifunctional ways. A massive mall could easily include many different functions from hotels to restaurants and spas. Railway stations and airports have turned into cities in their own right. In the case of airports, segregation and security make the things even more complex, involving and including new typologies not connected to buildings before.



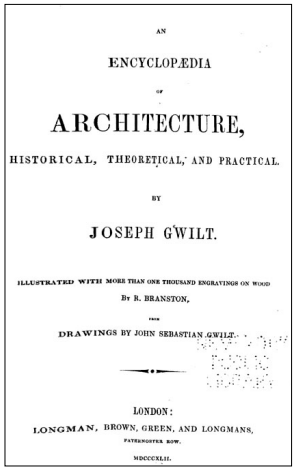
3.10

Neufert's book on architectural knowledge and skills had some predecessors of a similar kind. The Tallinn Technical School, which was opened in 1920 and was organised on the basis of German technical schools, had a lecture series called *Building Encyclopedia*, so it must have been quite common in architecture schools to learn from historical precedents ordered in an encyclopaedic way. Of literary sources one can mention *An Encyclopaedia of Architecture, Historical, Theoretical and Practical* by Joseph Gwilt, published in 1842. It also shares valuable information about the publications that are related to it:



3.11

> An attempt to produce a *Complete Body of Architecture* the author believes to be entirely original. In his celebrated work, *L'Art de Batir*, Rondelet has embodied all that relates to the construction of buildings. Durand, too, (*Leçons et Précis d'Architecture*,) has published some admirable rules on composition and on the graphic portion of the art. Lebrun (*Théorie d'Architecture*) has treated on the philosophy of the equilibrium, if it may be so called, of the orders. The *Encyclopédie Méthodique* contains, under various heads, some invaluable detached essays, many of which however, suffer from the want of the illustrative plates which were originally projected as an appendage to them. All these with others in the French language, might, indeed, be formed into a valuable text-book for the architect; but no such attempt has hitherto been made. Neither in Germany nor in Italy has any complete work of the kind appeared. In the English, as in other languages, there are doubtless several valuable treatises on different branches of the art, though not to the same extent as in French. In 1756 Ware (London, folio) published what he called *A Complete Body of Architecture*. This, though in many respects a useful work, is far behind the wants of the present day. It is confined exclusively to Roman and Italian architecture; but it does not embrace the history even of these branches, nor does it contain a word on the sciences connected with construction (Gwilt 1842, v-vi).


AN
ENCYCLOPÆDIA
OF
ARCHITECTURE,
HISTORICAL, THEORETICAL, AND PRACTICAL.
BY
JOSEPH GWILT.
ILLUSTRATED WITH MORE THAN ONE THOUSAND ENGRAVINGS ON WOOD
By R. BRANSTON,
FROM
DRAWINGS BY JOHN SEBASTIAN GWILT.
LONDON:
LONGMAN, BROWN, GREEN, AND LONGMANS,
PATERNOSTER ROW.
MDCCCXLII.
3.12

As the name of the book implied, the compendium is divided into 3 main parts: historical, theoretical and practical. The historical part is a rather detailed study of the history of architecture in 226 (of a total of 1089 pages including tables for algebra, etc.) dense pages. Gwilt makes use of biblical, Homeric and other literary sources. It also includes histories of architectures such as

Druid, Mexican, Chinese and Jewish that were rather exotic for the period. The theoretical part has nothing to do with "theory" as we use it today, it is a complex overview of mathematical and geometrical knowledge, including mechanics and statics. The last section of the theoretical part deals with materials and construction. In conclusion it looked like a condensed curriculum of modernist architectural education that would become established in the next century.

Interesting for the theme of this essay is that the various subject matters included in architectural knowledge are all categorized by different orders. These orders can be deduced from the contents page. The introduction for the origin of buildings used a typology of earlier mankind by the way of life: hunters (fishermen), shepherds and "those occupied in agriculture". But later the analysis rested on building materials: timber and stone, stone being taken by Gwilt to be more advanced due to the more sophisticated technology used. The second larger division of historic material is called "various countries". Here the order of division is mainly a symbiosis of nation states (Italian, French, German, Spain etc.) but diversions happen in case of "Pelasgic and Cyclopean"(Πελασγός, *Pelasgós* – a pre-classical ancient Greek writer from the Aegean Sea). Here the division was culture and technology based. The same confusion can be noticed with "Druidical and Celtic" and a special division was dedicated to "Pointed" architecture, which presumably is a stylistic identity. The English history of architecture was divided according to historical epochs and then to kings and queens. So the rules of composing a typology used by Gwilt are loose and inconsistent.

In the section on the theory of architecture, the order of typology was based on construction sciences (Arithmetic and Algebra, Descriptive Geometry) and on building parts (such as arches, walls: these are discussed according to the stability and performance.). Here too, basic building materials were counted and described. The typology was based on materials and the use of materials. This section was also unexpectedly concluded with "Medium or Expression" where drawings and illustrative techniques like perspective and shadows were discussed.

The third section was called the practice of architecture. There were three chapters: typology based on principal parts of buildings (classical orders and formal detailing but also functional parts of buildings like windows, doors, ceilings etc.); typology based on a "Combination of Parts", which we would today call design, and the last section was called "Application or Combination", which is today the most common typology of building types (bridges, churches, museums, prisons etc.).

We see a wide variety of typological principles, sometimes mixed and sometimes strange for our current understanding. The massive compendium collected by Gwilt developed the line of books by Vitruvius and Alberti, but its purpose is already fully practical. As in England architects' education was mostly divided between gentleman-architects (largely self-taught) and the pupillage system, the compendium must have been of great demand. The Architectural Association School of Architecture was opened only in 1847 to provide an alternative to the pupillage system. That was one of the first schools of architecture in the UK, though the Glasgow School of Art was founded as a design school in 1845.

Gwilt's compendium also reminds us to focus on architectural history. On closer observation it becomes clear that architectural history is nothing but a special typology with its own rules of order. We might even say that architectural history describes architectural knowledge within the typology of time, dividing time into formal or essential periods. Thus it pre-orders and pre-interprets the past of architecture for the future.

Architectural history as a discipline came into being after the establishment of art history at the end of 17th century with Johann Bernhard Fischer von Erlach. Before him in 1550 Giorgio Vasari had published a book *Lives of the Most Excellent Italian Painters, Sculptors, and Architects, from Cimabue to Our Times* (*Le Vite de' più eccellenti pittori, scultori, e architettori da Cimabue insino a' tempi nostril*). Vasari made use of the term *renaissance* (*rinascita*) and used the word *style* (*stile*) only as a personal identification of an artist. To denote the closeness of artists and followers he used the word *maniera,* out of which later developed the concept of mannerism (Vasari 1998). He also called Byzantine art *Greek* and Gothic as *German*. In inventing an encyclopaedia of biographies Vasari had to make use of some rules of typology, comparing the artists, sculptors and architects. But Vasari also identified periods as certain typologies with innate rules:

> Nevertheless, as I have spoken sufficiently in the individual lives about the methods of art, its styles, and the reasons for good, better and pre-eminent workmanship, I shall now discuss these matters in general terms, more particularly, the quality of the times rather than the individuals whom I have divided and separated into three groups – or periods, if you will – beginning from the rebirth of these arts and continuing down to the century in which we live, avoiding the minute details and clarifying the obvious differences which can be recognized in each of them (Vasari 1998, 48).

Johann Joachim Winckelmann developed Vasari's method into a theory of art history that has been used for nearly 250 years since 1764 when he published *The History of Ancient Art among the Greeks* (*Geschichte der Kunst des Alterthums*). Here whole epochs are identified within their cultural structures and periods of organic growth, maturity and decline shown as "quality of the times" by Vasari.

Johann Bernhard Fischer von Erlach published his book on architectural history even before Winckelmann. His book *An Outline of Historical Architecture* (*Entwurff Einer Historischen Architectur: in Abbildung unterschiedener berühmten Gebäude des Alterthums und fremder Völcker*) was published in 1721. It consisted of 86 engravings that were based on different writings, coins, archaeological finds and ruins. These were representations made by him as the buildings of different countries and epochs looked in his imagination. He himself explained that the work was undertaken as the Emperor is occupied by wars and in these times the architects have few work (Watkin 1989, 20).

In France higher education was institutionalized quite early in the form of royal academies. The Royal Academy of Architecture was opened in 1671 by the King's minister Jean-Baptiste Colbert. Jean-François Félibien, secretary to the academy, published his history of Medieval architecture (*Recueil historique de la vie et des ouvrages des plus célèbres architects*), which was

not built on a historical or descriptive method. The typology used there was based on structural logic.

The operational method was further developed and established in history of architecture by Jean-Nicholas-Louis Durand who was professor of architecture at the Ecole Polytechnique from 1795. The school was founded a year before to advance science and technology after the revolution. He was an architect and student of Etienne-Louis Boullee. In 1823 he published an encyclopaedia with a similar structure to Gwilt's (*Precis des Lecons D'Architecture donnees a L'Ecole Royale Polytechnique*), but in 1821 he published a collection of architectural drawings (*Partie Graphique des Cours D'Architecture Faits a L'Ecole Royale Polytechnique*). These were drawings of buildings, all to the same scale, creating a formal typology of classicist buildings. The drawings included the modular system, the constructive system and volumetric layout, so it was an analysis and interpretation of historical material. For Durand, architecture and its history became a task to solve practical problems of design and he demonstrated this using the example of historical material.

On the basis of Durand we can see how architectural history can be looked upon as a special operational model of architectural knowledge which establishes a typology of buildings. The epistemology and method create the order according to which the typology is set. While the order of Gwilt's compendium is "natural" as it comes out of his classification of historical architecture, the typologies of Erlach and Felibien are already specifically tailored to imagined educational goals. We can also note here that the usual text-based and illustrated history of architecture can quite easily be changed into just pictorial tables of images, nevertheless exhibiting strong formative principles.

This diversion to architectural history brings the question of architectural typologies to another level: What about *architectural criticism* and the area of knowledge called *architectural theory*. In a naïve way we can say that architectural history is a form of architectural criticism, applied to historical architecture. Hanno-Walter Kruft has written a thorough history of architectural theory and encountered a serious problem in defining the typology he was writing about - the theory within architectural phenomena:

> Bearing all this in mind, we may now be in position to offer a practical definition of our subject as follows: architectural theory comprises any written system of architecture, whether comprehensive or partial, that is based on aesthetic categories. This definition still holds even if the aesthetic content is reduced to the functional (Kruft 1994, 15).

This brief exposition has brought out several themes that need to be discussed in relation to typology in architecture. We need to look at how we can describe architectural knowledge. Then we need to know how typologies are constituted in the sphere of architectural knowledge and thus also in architectural education. In other words, we need to look at how continuity and separation are constituted and described in architectural phenomena. We also need to look at architectural texts, critical and historical, at least schematically, as they form a special kind of architectural typology. In conclusion we also try to look at the current situation in social representation that we have called imagospheric.

2. The critical imagination of Attoe Wayne

The driving force for Wayne in his study of architectural criticism in the late 1970s was twofold: firstly, it appeared to him that not much had been said and written on the theme and secondly, the discipline itself was not just a narrow and exclusive "province of *cognoscenti*" but a widely practised working method in the design studios of architecture schools.

> The following survey of aspects of criticism related to the built environment was undertaken with the primary objective of making architecture criticism more visible and purposeful-looking by discovering a specific cause on which it might be focused. /.../ What did surface was an almost sinful appreciation of all forms of response to the built environment and a willingness to say that if everything is criticism then the most one should expect of a critic is that the media he employs be suited to the ends pursued /.../ The design is a *fait accompli* and highly vulnerable. The critic has a full arsenal of critical equipment (later I shall call these 'methods' and 'devices') with which to operate upon the building or design proposal for a building (Wayne 1978, xi,xii).

In his extensive study Wayne discusses three methods of criticism (normative, interpretive and descriptive) divided into ten categories. He also describes the rhetoric of criticism and the settings of criticism. The rhetoric involves eleven different devices and settings five major divisions with even more devices. This typology of architectural criticism allows the reader to focus on different styles and goals of critical texts. It also rather vividly exposes the build-up of critical texts and other interpretive artefacts such as photographs, etc.

We will briefly look at the methods of criticism as they help to stratify architectural texts. As Wayne admits, different methods, rhetoric and settings are mixed in architectural texts so that they expose the interwoven whole. Nevertheless the study of methods in criticism allows us to navigate among the principles of building architectural texts as typologies themselves.

The first broad method is called normative criticism and it includes doctrinal, systematic, typal and measured sub-divisions. The method of normative criticism is based on a belief that outside of the building or urban setting is a model, pattern, standard or principle that can be made useful in evaluating the architectural outcome. There is even special expression for it: "tested against" or "assessed against".

The norm outside architecture itself can be divided into several different directions. Doctrinal criticism is usually based on a generalised doctrine that very often is reduced to a slogan or catchphrase ("less is more", "form follows function"). It is rarely used as the sole basis of criticism as when the doctrine is questioned or refuted, the whole argument falls apart.

Systematic criticism overcomes this problem by building a whole system of doctrines, environmental evaluations or even philosophical judgments. It needs a lot of work and time, therefore criticism in newspapers and journals rarely takes that position. Still the reference point is outside of architectural phenomena.

For short term or periodical criticism the typal method is most suited. It is usually based on structural, functional and formal types that have been generalised beforehand and limits the comparison of a building or urban setting to one or several of these parameters. This is also the method that is usually taken into consideration in teaching *architectural typology* in architecture schools. It brings clarity with a straightforward approach.

When structural and functional criteria are seemingly easy to use, the formal method allows more diversions. Form could be generalised from several buildings, but it can also be taken for granted in the way an iconic building looks (like Parthenon or Pantheon). Typal criticism can also include semiotics and pattern languages. Then architectural phenomena are described as a certain system of signs and the rules of understanding and evaluating are borrowed from semiotics. One special example of this direction is the building performance information that is used to base the criticism upon.

The last sub-division of normative criticism is measured criticism. This type of criticism makes use of norms and standards that can be reduced to numerical measurements. They are usually monitored in the technical, functional and behavioural performance of a building. They look scientific, very often they include sophisticated instruments and mechanisms. This last sub-division has two main problems: when meanings are attached to the data the method is transformed into another direction and an all-pervasive measurement strategy is very costly to carry through as a basis for criticism.

The second broad method is called interpretive criticism. When at the first glance normative criticism involving the norm, the object tested against the norm and the observer (“tester”) appears relatively neutral, then interpretive criticism is highly personal.

> The critic acting as an interpreter for the viewer does not claim to serve a doctrine, system or type, nor does he claim to make objective, measured evaluations. Instead the interpretive critic seeks to mould others' vision to make them see as he does. To do this the critic either provides a new perspective on the object, a new way of seeing it (usually by changing the metaphor through which we see the building); or through his artistry he evokes in the viewer feelings similar to those he experienced when confronting the building or urban setting; or he constructs a virtually independent work of his own using the building as a vehicle (Wayne 1978, 49).

The sub-divisions of this broad method are advocatory, evocative and impressionistic criticism.
In advocatory criticism the author is engaged in creating appreciation, because judgment has already been passed. In advocatory direction one of the most powerful devices is the change of the metaphor. For instance the building is changed into a “shelter” and then into a “setting”. The street becomes a “theatre” and etc.

In advocatory criticism the intellectual understanding and meaning is affected. In evocative criticism emotional reactions are aroused and evoked:

> The evocative critic knows what he felt while confronting the building or urban setting and uses whatever means are needed to arouse sim-

> ilar feelings in the reader/viewer. The evocative critique is not right or wrong, but a surrogate experience (Wayne 1978, 61).

Evocative criticism uses artistic photography, sometimes it appears as a photo. The seemingly objective photo is intensified so that some integral parts disappear, some stand out. For instance fog, wind, snow, rain, cold – are all attributes of evocative criticism and they are widely used.

Within impressionistic criticism the critic is distanced from the work of art or building, the object is just a foundation or catalyst of the critic's own work. That is a creative and sometimes totally stand-alone result. Sometimes this criticism manipulates both representations of buildings or urban settings or the texts describing them.

The third broad method of criticism is called descriptive criticism.

> More than the other forms of criticism, descriptive criticism seeks to be factual. It notes facts about the building or urban setting which are pertinent to one's encounter with it. The assumption is that if we know what actually happened or what is actually the case, then we can begin to understand the building (Wayne 1978, 85).

Descriptive criticism is divided into depictive, biographical and contextual sub-divisions. It can be very dull and lengthy but sometimes it opens up new points of view that have been missed by the ordinary observer. Depictive criticism also includes two aspects: static and dynamic. The static aspect deals with depicting the object and tries to maintain a neutral position. The same is true of the dynamic aspect, where the emphasis is on the process of building, usage of building or financing the building. Like other forms of criticism, the depictive is never found alone but sometimes is included at great length.

Biographic criticism as the name says, deals with the author. It tries to unravel the qualities and reasons of architecture in the private and social lives of architects and patrons. It is very often just informative. This type of criticism tends to be rare and is mostly related to monographs and longer studies where all directions of architectural creation are being looked at. It very rarely deals with a single object.

Biographic criticism is also coupled with contextual criticism. Here the critic goes deeper and wider into the social, political and economic context with the hope of understanding the conditions that very often shape the design decisions. Within contextual criticism the object becomes related to the life-world und thus is open to observers in many ways. This type of criticism is also found in architectural history where *a posteriori* the complexity of architecture can be shown. Contextual criticism has two major problems: very often it is a very big task to go deeply enough into the different layers of context and very often the source material is not available – many political and financial documents are inaccessible even for researchers. Sometimes architects and their offices are not interested in allowing critics into their "workshops". Within the rhetoric of architectural criticism Wayne describes eleven devices that are used in composing critical texts: metaphor, satire, personification, dualism, temporal dualism ("before and after"), juxtaposition, exaggeration, dilution, and invention of terminology. Within the settings of criticism Wayne describes both the situation where the act happens and the position critic takes. He calls the latter "voice".

> The situation in which criticism usually takes place may be roughly identified in this way: self, authority, expert, peer and layman./.../ The authority setting, for example, has the office principal or the teacher expounding about and passing judgement on the initiate's work. By contrast the expert is seen as having no specific power over those he criticises; his impact depends upon impressing others with special knowledge and insights. /.../ The peer setting instead finds equals assessing each other presumably on the basis of shared knowledge and with no specific power over each other. The layman has no credentials and no authorized power, but because of this direct involvement with the built environment he can have an impact. He acts without benefit of information and expertise, but he acts (Wayne 1978, 129).

3.1

3.2

Having started from the exposition of the history of *architectural typology* as an educational discipline, have we arrived at a formal as well as a meaningful typology of architectural texts? Following the advice of Kruft we can assume that at least partially this typology can be applied to *architectural history* and *architectural theory* at least so far as the latter is presented in the form of a text. Architectural history fits rather well into the Wayne's typology becoming a large and special kind of architectural criticism. Architectural theory at first glance becomes too bleak and one-dimensional being characterised only through exposed typology. Here I base my ideas on previous experience of educational frameworks and propose to return to the question later.

3. The difficulty of establishing the scope of architectural knowledge as typology

So far we have looked at architectural knowledge in the form of texts of criticism, history and theory of architecture. We also admitted the possibility that architectural education, at least on its formal level, resembles a vast typology. A reasonable question to ask would be: is there any architectural knowledge in typologised form outside of architectural texts? We can choose a simplified, practice- and law-based solution for this rather complicated epistemological question of architectural knowledge. Currently in the European legal system (which presumably also mirrors to some extent the cultural situation) there is a certain consensus as to how the architects' profession and partly the knowledge used within it, could be described. That is the *Professional Qualifications Directive*[1] (*PQD*) of the European Parliament and Council.

The domain of architectural education (training) is quite concisely and exactly described in the *PQD*. It refers to training at university level and consists of two components: practice and theory, which have to be balanced in the curriculum. From the viewpoint of definitions it is extremely interesting to see the exposition of *architecture* itself.

> Article 48. 1. For the purposes of this Directive, the professional activities of an architect are the activities regularly carried out under the professional title of 'architect' (PQD 2005, 255/45).

It does not refer directly to architecture but surely comes from it as the previous directive lays that out more explicitly:

> Article 1. 1. This Directive shall apply to activities in the field of architecture. 2. For the purposes of this Directive, activities in the

1. The full name of the directive is: *DIRECTIVE 2005|36|EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 September 2005 on the recognition of professional qualifications*. Further PQD

> field of architecture shall be those activities usually pursued under the professional title of architect (Council Directive 1985).

In the first case it has become a total tautology and in the second case a meaningful tautology. In the first case it defines architect through title wording and in the second case the "field of architecture" is defined through the architect's activity. In both cases the system works with a special group of people whose experience and political setting define what an architect and 'architect' actually do. Rather an elegant way to avoid a lengthy exposition of what the architecture that architects deal with really **is**.

Further on in the directive the definition of architect and the person under the title 'architect' are defined though a list of criteria. These criteria form a typology of a special kind – the educational typology of an architect. So in the final stage architecture is defined though knowledge, skills and abilities. These three are the major division within 11 types of knowledge, known in lay language as "11 points". They are grouped as *knowledge of* or *adequate knowledge of*; *skill* (paraphrased *as ability to create*) and *understanding of*. So all of them are personalised apprehensions of some kind of knowledge.

In seven of the listed domains out of the eleven that describe the scope of knowledge involved in architectural education, some kind of *design* is connected to it:

> (a) **ability to** create architectural designs that satisfy both aesthetic and technical requirements;/.../ (c) **knowledge of** the fine arts as an influence on the quality of architectural design; (d) **adequate knowledge** of urban design, planning and the skills involved in the planning process; /... / (g) **understanding of** methods of investigation an preparation of the brief for a design project; (h) **understanding of** the structural design, constructional and engineering problems associated with building design; (j) the necessary **design skills** to meet building users' requirements within the constraints imposed by cost factors and building regulations; (k) **adequate knowledge** of the industries, organizations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning (*PQD* L 255, 47,48).

The rest describe the knowledge and understanding that is related to and vital to architectural education, but is not formally related to design. Here knowledge concerning history and theory, fine arts, methods of investigation, society, physical problems and industry is mentioned. But on a closer look we see only three areas of knowledge that are named as specific to architecture: *architectural designs*, *theories of architecture* and the *profession of architecture*. As the profession is defined through tautology, we actually have only a specific type of design and theories that can be called strictly architectural. All the other domains of knowledge and skills are shared with other professions or disciplines.

Knowledge, skill and ability are strictly person-orientated and can be effectively used only **by and through** a design personality – an architect. On the other hand society regulates and controls the outcomes of the knowledge, skills and ability, setting out the standards by naming and defining them. In this case the society that has moderated the definitions is the European Union.

But there are also some studies that allow us to see how the expressions of *architectural design* and *architectural knowledge* are used in English language within the sphere of architectural education. We find definitions of *architecture*, *architectural knowledge* and *architectural design* in the key texts for *Criteria for Validation* such as the *Strategic Study* and *Burton Report* that I have looked at carefully in previous studies (Soolep 2001).

In the *Strategic Study,* design is the major contribution of an architect to the construction industry and to society as a whole. Within the construction industry architects have two great assets: they are still in the best position to speak for the user. ... they know how to design, i.e. their training has been devised to help clients turn aspirations into reality. ... The distinctive skill of architects lies in their ability to provide design solutions which satisfy the needs of both clients and users. Delivering both the functional and aesthetic benefits of design, architects have a critical central role in the building process, as the leaders of the design team (Strategic Study 1993, 5,6).

In *The Burton Report* design is also seen as a skill:

> Design is a complex and developing skill, difficult to learn, involving dynamic working relationships with many other participants in the building process - many of whom also fulfil a critical design role. It is no more nor less than integrating all the elements in an harmonious working whole. ... We are convinced that in all these domains (as: "design team", "design management", "changing requirements of clients, users and society") the architect's most effective contribution is made possible by the central design skills, especially through the myriad connections of the design process (Steering Group 1992, 9,10).

So *design* is a process where complex and developing skill is used to connect "myriad" entities into a "harmonious working whole". The definition has not changed very much over the years.[2] We see further that the process of design is believed to be the unique and most effective contribution of an architect. The effectiveness is based on the "central skill of design". We can also understand here that the process of design is dynamic and that it requires time – it unfolds as a specific duration.

In the texts of the *Strategic Study* and *The Burton Report*, architectural knowledge is also defined. In *PQD* we see how architectural phenomena are connected to many types of knowledge, skills and abilities brought under the umbrella of architecture by the process of design. In the *Strategic Study* architectural knowledge is seen as special - a perfect case of the special nature of professional knowledge. Architectural knowledge is characterised by being related to the design of the buildings and their use. It connects and transcends many other bodies of knowledge in a holistic, systematic and yet practical way. It involves determining the future as well as honouring and protecting the past (Strategic Study 1993, 25).

Here the subject area and methods of design results are clarified. Not only is some specific knowledge beyond the design phenomena indicated, but *architectural knowledge* itself is seen as a result or "an holistic" body that relates "many other bodies of knowledge". So architectural knowledge operates as a framework or a special kind of context over and above other types of knowledge. It is noteworthy that nothing is said about the object of that specific

2. The definition has not changed much in 20 years. In 1972 John Harvey defines an architect: "The essential faculty of an architect is then that of design. Whatever he may lack, he must have the capacity to plan, to devise, to invent. Obviously he must also have at least such knowledge of the technical process of building as will enable him to design reasonably, taking advantage of the properties of materials, using them with economy, and producing structures that are durable ..." (Harvey 1972:18) In fact we may be quite confident, as with a somewhat loose interpretation we might say that the definition has not changed much in nearly 2000 years: "The architect should be equipped with knowledge of many branches of study and varied kinds of learning, for it is by his judgement that all work done by the other arts is put to test.... Consequently, since this study is so vast in extent, embellished and enriched as it is with many different kinds of learning, I think that men have no right to profess themselves architects hastily, without having climbed from boyhood the steps of these studies and thus, nursed by the knowledge of many arts and sciences, having reached the heigts of the holy ground of architecture.... Arrangement (diaqesix) includes the putting of things in their proper places and the elegance of effect which is due to adjustments appropriate to the character of the work. Its forms of expression (ideai) are these: groundplan, elevation, and perspective. ... All three come of reflexion and invention. Reflexion is careful and laborous thought, and watchful attention directed to the agreeable effect of one's plan. Invention on the other hand, is the solving of intricate problems and the discovery of new principles by means of brillancy and versatility (Vitruvius 1960:5,10,13-14).

knowledge, so it operates chiefly as a goal or principle. Also, the way it is acquired is mentioned:

> There is no doubt in my mind, despite the invaluable and continuing contributions to the architectural programme of the universities, and despite architecture's intimate and necessary relationship with the world of commerce, that there is no better institutional framework in transmitting and developing architectural knowledge than through that complex form of voluntary collaboration we call the architectural profession (Strategic Study. Phase II 1993, 25).

Architectural knowledge can thus be described as specific meta-knowledge or method, including educational processes, even as a methodology of its own kind. The acquiring of knowledge, being aware of knowledge and applying knowledge, are the fundamental activities in education. In the normative documents and key texts, *architectural knowledge* is seen as operating in the process of design as a meta-knowledge, unifying or floating above all other types of knowledge.

> Architectural education can be seen fundamental in two aspects:
> - In the course of unfolding design activities, architectural knowledge overwhelms all other types of knowledge from the perspective of the architectural profession; and:
> - In the course of unfolding design activities, architectural knowledge is "lived-into", being central to the identification of the architectural profession and its sphere of activity.

When knowledge is brought into the collaborative studio work of the profession it also loses its epistemological entity and becomes an ontology of its own kind:

> The collective origin in design as well as in architectural phenomena allowed us to believe that a unity could be found in the uniqueness of self-awareness of every design personality. This unity could be reached with the transcendental purification of one's consciousness and could be seen as the final goal for a design personality in the architectural profession. This opened for the consciousness a new understanding – the understanding that "world is architecture". Architectural knowledge stops being a method or epistemological meta-knowledge and transforms into an ontology of its own kind – the courage "to let go" and "to be" – an architect (Soolep 2001, 151).

For the purposes of this essay, architectural education with the "11 points" of the directive can be seen as a typology of knowledge, whereas architectural knowledge itself fades further from a simple epistemological layout of specific knowledge. Nevertheless we have seen how different typologies have been built up for architectural texts and architectural education.

4. The paradigm concept by Thomas Kuhn

Having reached an impasse with architectural knowledge in its broadest sense we turn now to investigate some general rules of creating typologies. Here we can look at two phenomena: how the different elements of a typology can maintain their coherence and continuity as similar or comparable (how

they form the *genus*) as well as how the borders or ruptures divide these elements as separate entities within the typology. That is, to investigate the formative principle of each *species* with their particular identities as the conceivable elements of the typology.

The scientific community and its empirical work, the types of knowledge and methods used, have been described by the concept of *paradigm*[3], developed by Thomas Kuhn. He was a natural scientist who delved into the history and methodology of science as a formative process. His structure of paradigms and scientific revolutions was soon overtaken by social scientists, making use of the same paradigm system in the social sciences too. Today one might even suspect that it is more of a social construct and tool than a description of scientific revolutions.

First we will look at the definitions of the paradigm, then the concepts of normal science, the discipline and then lastly at the system of education that consolidates the whole area of scientific domain.

After looking at differences between natural and social sciences Kuhn wrote:

> Attempting to discover source of that difference led me to recognize the role of scientific research of what I have since called "paradigms". These I take to be universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners (Kuhn 1962, x).

This is also called the state of *normal science*. When new paradigms emerge they have to attract an enduring group of adherents away from competing modes of scientific activity. Simultaneously, the paradigms have to leave all sorts of problems to be redefined and discovered by groups of scientific practitioners. That is the contribution they can make to science.

> Achievements that share these two characteristics I shall henceforth refer as 'paradigms', a term that relates closely to 'normal science'. By choosing it, I mean to suggest that some accepted examples of actual scientific practice – examples which include law, theory, application, and instrumentation together – provide models from which spring particular coherent traditions of scientific research (Kuhn 1962, 10).

The community of scientists whose research is based on shared paradigms is usually committed to the same rules and standards for scientific practice. It also explains how some scientific communities with their school of thought disappear:

> When, in the development of natural science, an individual or group first produces a synthesis able to attract most of the next generation's practitioners, the old schools gradually disappear. In part their disappearance is caused by their members' conversion to the new paradigm. But there are always some men who cling to one or another of the old views, and they are simply read out of the profession, which thereafter ignores their work (Kuhn 1962, 19). The success of a paradigm - /.../ - is at the start largely a promise of success discoverable in selected and still incomplete examples. Normal science consists in the actualization of that promise, an actualization achieved by ex-

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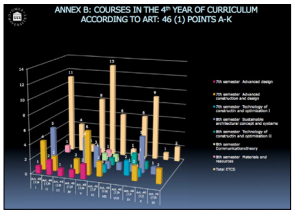
3."Paradigm" - late 15c., from L.L. *paradigma* "pattern, example," especially in grammar, from Gk. *paradeigma* "pattern, model," from *paradeiknynai* "exhibit, represent," lit. "show side by side," from *para-* "beside" + *deiknynai* "to show" (cognate with L. *dicere* "to show;" see *diction*). Related: *Paradigmatic*. (http://www.etymonline.com)



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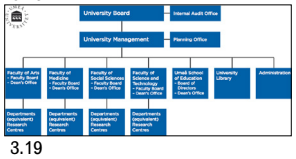

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> tending the knowledge of those facts and the paradigm displays as particularly revealing, by increasing the extent of the match between those facts and the paradigm's predictions, and by further articulation of the paradigm itself (Kuhn 1962, 24).

Sometimes scientific development witnesses a crisis. This usually happens when paradigms have been used up and normal science cannot move any further. Several unexplained phenomena emerge and no explanations are produced within the existing paradigms, nor within the new hypothesis and theories. Kuhn described that as a blurring stage in which the rules of normal science are loosened and a period of "pronounced professional insecurity" begins. It is also described as an awareness of different anomalies. All this penetrates deeper into the field of that particular science. The deeper the crisis, the more large-scale paradigm destruction is needed. Kuhn also calls that period – retooling.

> Both during pre-paradigm periods and during the crises that lead to large scale changes of paradigm, scientists usually develop many speculative and unarticulated theories that can themselves point the way to discovery. Often, however, that discovery is not quite the one anticipated by the speculative and tentative hypothesis (Kuhn 1962, 61).

For the purpose of this essay it is interesting to look at how the paradigm of normal science is constructed. We can imagine that a paradigm is the one element of a typology with its identity and essence. When a paradigm becomes established it has some credibility but also closely situated problems of different magnitudes to be investigated and redefined. This is the period of establishing the normal science. Bruno Latour described the ordinary development of scientific work like this:

> A laboratory is constantly performing operations on statements; adding modalities, citing, enhancing, diminishing, borrowing, and proposing new combinations. Each of these operations can result in a statement, which is either different or merely qualified. Each statement, in turn, provides the focus for similar operations in other laboratories. Thus, members of our laboratory regularly noticed how their own assertions were rejected, borrowed, quoted, ignored, confirmed, or dissolved by others (Latour 1981, 87).
> These three classes of problems[4] – determination of significant fact, matching of facts with theory, and articulation of theory exhaust, I think, the literature of normal science, both empirical and theoretical (Kuhn 1962, 33).

> Finally the statements[5], theory and articulation form a unified, meaningful and, within the paradigm, also predictable state of affairs. Normal science then can develop steadily for quite some time.

Within the steady development of normal science comes the next stage: reproducing the school of thought within the paradigm – education. The paradigms of the scientific community start to reveal themselves in textbooks, lectures and laboratory exercises. They become accepted by everyone involved. In the normal phase of science practitioners of research operate with models acquired through subsequent exposure to the literature (Kuhn 1962,

4. There are, I think, only three normal foci for factual scientific investigation, and they are neither always nor permanently distinct. First is that class of facts that the paradigm has shown to be particularly revealing of the nature of things. By employing them in solving problems, the paradigm has made them worth determining both with more precision and in a larger variety of situations. /.../ A second usual but smaller class of factual determination is directed to those facts that, though often without much intrinsic interest, can be compared directly with predictions from the paradigm theory. /.../ A third class of experiments and observations exhausts, I think, the fact-gathering activities of normal science. It consists of empirical work undertaken to articulate the paradigm theory, resolving some of its residual ambiguities and permitting the solution of problems to which it had previously only drawn attention (Kuhn 1962:27).

5. Or, by contrast, in situations where a statement is quickly borrowed, used and reused, there quickly comes a stage where it is no longer contested. Amidst the general Brownian agitation, a fact has then been constituted. This is a comparatively rare event, but when it occurs, a statement becomes incorporated in the stock of taken-for granted features which have silently disappeared from the conscious concerns of daily scientific activity. The fact becomes incorporated in graduate textbooks or perhaps forms the material basis for an item of equipment (Latour 1981:87).

46). In this process the paradigm is overwhelming and the models have been already fully established. To be educated in that science also means to know its models and methods. In this stage the set of rules are no longer fully followed or exhibited. The basic models and methods are as if taken for granted.

> But science students accept theories on the authority of the teacher and text, not because of evidence. /.../ the applications given in texts are not there as evidence but because learning them is part of learning the paradigm at the base of current practice (Kuhn 1962, 80). Textbooks thus begin by truncating the scientist's sense of his discipline's history and then proceed to supply a substitute for what they have eliminated. Characteristically, textbooks of science contain just a bit of history, either in an introductory chapter or, more often, in scattered references to the great heroes of an earlier age. From such references both students and professionals come to feel like participants in a long-standing historical tradition. Yet the textbook-derived tradition in which scientists come to sense their participation is one that, in fact, never existed (Kuhn 1962,137).

This is a particularly interesting remark by Kuhn if we take a paradigm to be an element of an imagined typology. It clearly shows the formation of identity and a certain constructive or selective force in doing so. The corpus of study - textbooks, lectures and laboratory practice - tends to leave some parts of history or competing current thoughts aside. This strengthens the unity within the paradigm and it becomes not only an exposition but also an epistemological setting for the paradigm continuation.

> Through the theories they embody, paradigms prove to be constitutive of the research activity. They are also, however, constitutive of science in other respects, and that is now the point. In particular our most recent examples show that paradigms provide scientists not only with a map but also with some of the directions essential for map-making. In learning a paradigm the scientist acquires theory, methods, and standards together, usually in an inextricable mixture (Kuhn 1962, 108).

At nearly the same time Michel Foucault published his book *Madness and Civilization* where he also dealt with "inextricability" from a contrary point of view. Whereas Kuhn was looking at how a paradigm was forming, contracting and reproducing, Foucault was describing how phenomena could be separated and dissected:

> Then and then only, can we determine the realm in which the man of madness and the man of reason, moving apart, are not yet disjunct; and in an incipient and very crude language, antedating that of science, begin the dialogue of their breach, testifying in a fugitive way that they still speak to each other. Here madness and non-madness, reason and non-reason are inextricably involved: inseparable at the moment when they do not yet exist, and existing for each other, in relation to each other, in the exchange which separates them (Foucault 2007, xii).

Kuhn also exhibited this distinct feeling of bordering and separating paradigms, although it was not the main interest of his research. He argued that some scientific paradigms are *incommensurable*. In simplified words the be-

lievers of competing paradigms carry out their research activity in "different worlds". It is very difficult to understand one paradigm through the conceptual framework and terminology of another opposing or competing paradigm. This is especially true with paradigms that are temporally far apart. This explanation has also been used to criticize Kuhn from the position of relativity and proceed with the argument that in this case there can be no communication between different paradigms. Kuhn argued that, on the contrary, because there is transfer between incommensurable systems, the rupture in paradigm change has to be momentary or not happen at all. It cannot be done step-by-step with the help of logic and neutral experience. The history of science becomes a discipline that takes into account and documents the "successive increments and the obstacles that have inhibited their accumulation" (Kuhn 1962, 2). The contrary is left aside. So the build-up and sustaining of a paradigm also means suppressing those elements of history, facts and methods that seem incommensurable from the current point of view in that particular paradigm.

> Historians want to write histories of biology in the eighteenth century; but they do not realize that biology did not exist then, and that the pattern of knowledge that has been familiar to us for a hundred and fifty years is not valid for a previous period. And that, if biology was unknown, there was a very simple reason for it: that life itself did not exist. All that existed was living beings, which were viewed through a grid of knowledge constituted by natural history (Foucault 2006, 139).

5. Discourse and statement (*énoncé*) by Michel Foucault

In the rich legacy of Foucault too we can find ideas important for the question of typology. We will briefly make use of three: the concept of discourse and statement, the question of rupture as limiting device and the exposition of classification in the book *The Order of Things*.

The concept of *discourse* is remotely similar to the *paradigm* of Kuhn. But only remotely, as Foucault develops it through detailed cultural, linguistic, philosophical and political analysis into a complex device that we cannot fully describe and utilise in this essay. We start with the unifying quality of discourse. Foucault asked:

> By what criteria is one to isolate the unities with which one is dealing; what is *a* science? What is an *oeuvre*? What is *a* theory? What is *a* concept? What is *a* text? How is one to diversify the levels at which one may place oneself, each of which possesses its own divisions and form of analysis? What is the legitimate level of formalization? What is that of interpretation? Of structural analysis? Of attributions of causality? In short, the history of thought, of knowledge, of philosophy, of literature seems to be seeking, and discovering, more and more discontinuities, whereas history itself appears to be abandoning the irruption of events in favour of stable structures (Foucault 2004, 6).

The first approach to discourse is that it is collection of statements. These are organised in an ordered way. A statement (*énoncé* in French) is the basic unit of meaningful entity, a piece of knowledge. It is not just an event, proposition or other building block of previous philosophies. It is a synthetic meaningful entity forming certain complexes of thoughts, which have their identity

in forming the particular discourse. These inherit the synthetic character of *énoncé* and form "discursive regularities", "discursive formations" and "discursive practices". In his inaugural lecture *The Order of Discourse* the word *discourse* also has several nuances: it means speech (general discussion in some language and particular oral speech) but it also means discourse as meaningful collection of ideas. In this text he makes clear how discourse is a political entity of power:

> /.../ that in every society the production of discourse is at once controlled, selected, organised and redistributed by a certain number of procedures whose role is to ward off its powers and dangers, to gain mastery over its chance events, to evade its ponderous, formidable materiality (Foucault 1981, 52)

The leading discourse is not just a means of power, but it is the power which is gained. Discourses are controlled. The first, clearest and most primitive method of control is restriction. It can be enforced by law or censorship, but it is also protected by the innate customs and taboos of society. The second method of control is not exactly restriction but division and denial; the madman is denied and not listened to. The third method of control is establishing the truth-value of the discourse.

Controlling the discourse has a clear parallel to the education and practice of the architect in the EU:

> There is a rarefaction, this time, of the speaking subjects; none shall enter the order of discourse if he does not satisfy certain requirements or if he is not, from the outset, qualified to do so. To be more precise: not all the regions of discourse are equally open and penetrable; some of them are largely forbidden /.../. A somewhat different way of functioning is that of the 'societies of discourse', which function to preserve or produce discourses, but in order to make them circulate in a closed space, distributing them only according to strict rules, and without the holders being dispossessed by the distribution (Foucault 1981, 62-63).

Looking at closed discourses (political, architectural, medical) with their own power and peer-reviewed establishment of that power we, as in the case of Kuhn, slide back to the establishment of education. Talking about rhapsodists who possessed the knowledge of poems and recitation, Foucault describes the education:

> But though the object of this knowledge was after all a ritual recitation. The knowledge was protected, defended and preserved within a definite group by the often very complex exercises of memory which it implied. To pass an apprenticeship in it allowed one to enter both a group and a secret which the act of recitation showed but did not divulge; the roles of speaker and listener were not interchangeable. There are hardly any such 'societies of discourse' now with their ambiguous play of the secret and its divulgation. But this should not deceive us: even in the order of 'true' discourse, even in the order of discourse that is published and free from all ritual, there are still forms of appropriation of secrets, and non-interchangeable roles (Foucault 1981, 63)

Education in a doctrine that unites the society of discourse has several opportunities:

- recognition of the same truths,
- acceptance of certain rules of conformity,
- questioning the statements of a speaking subject,
- using procedures of exclusion and mechanisms of rejection.

Here the educational system is strongly connected to language. Doctrine binds an individual to certain types of statements and with that also precludes other statements. These permitted statements differentiate the speaking individual from the others and unite the doctrinal membership. Here a double binding can be seen. Firstly the subject of education is connected to the discourse and then the discourse itself is connected to the group of subjects – speaking individuals. Education can also be seen as the instrument through which an individual is allowed to approach the discourses of the society. Any system of education is a political way of maintaining or modifying the appropriation of discourses, along with the knowledges and powers which they carry (Foucault 1981, 64).

Here Foucault also connects the discourses of Western culture strictly to the language spoken and words used:

> Ever since the sophists' tricks and influence was excluded and since their paradoxes have been more or less safely muzzled, it seems that Western thought has taken care to ensure that discourse should occupy the smallest possible space between thought and speech. Western thought seems to have made sure that the act of discoursing should appear to be more than a certain bridging (apport) between thinking and speaking – a thought dressed in its signs and made visible by means of words, or conversely the very structures of language put into action and producing a meaning-effect (Foucault 1981, 65).

This belief that Western discourses are language-operated and tightly connected to words as *énoncé* will be taken into consideration in the next part of this essay, because it seems that since 1970 several structures of society in Europe have enormously changed. The visualisation of the discourses, to my mind, have transformed or are still transforming the building of meaning today.

Here Foucault also provisionally marks the principles of elucidating the discourses that were more precisely worked through in *The Archaeology of Knowledge*. These principles are:

- the principle of reversal,
- the principle of discontinuity,
- the principle of specificity,
- the principle of exteriority.

The principle of reversal takes the most obvious core of the discourse (author, discipline, truth) and sees in them the opposite – the possibility of cutting-up and rarefication of the discourse. The principle of discontinuity believes in the possibility that there might be within the discourse a quiet area of repressed and coherent content that needs to be made visible. The discourses

need to be seen as discontinuous practices. The principle of specificity precludes trying to break the discourse into lesser pre-existing significations. The discourse is violence against things, it is something implied to them. The principle of exteriority also directs research away from the nucleus of the discourse. It suggests a move towards external conditions of possibility and tries to fix the limits of the discourse.

There are also some notions that serve as a regulatory principle: the event, the series, the regularity and the condition of possibility (Foucault 1981, 67). Events oppose creation, series oppose unity, regularity opposes originality and the condition of possibility opposes signification. These last four: signification, originality, unity and creation are the traditional dominators of thought and Foucault wanted to evade them for a new discursive analysis. In *The Archaeology of Knowledge* Foucault first demolished the obvious unities that are traditionally accepted without critical analysis. Take for instance the unities of a book and the creation of an author (*oeuvre*). There the unities are most obvious. Nevertheless a book is not a sustainable unity in itself. It as a parallelepiped thing which is variable and relative. As soon as one questions that unity, it loses its identity and self- evidence and "indicates itself, constructs itself, only on the basis of a complex field of discourse" (Foucault 2004, 26)

6. Michel Foucault on classifying

Foucault is discussing the epistemological problem of classification when he deals with the emergence of life sciences in the seventeenth and especially the eighteenth centuries. Then in the path of theology, mechanics and history made their appearance as the first sciences dealing with life. It is the fifth chapter in *The Order of Things* and is called *Classifying*.

Foucault considers it normal that after the empirical revolution and the prestige of the physical sciences one would seek to use experiments, observations and calculation to discover the laws that might govern the world of living beings. Firstly the interest was influenced by the mechanistic approach of Descartes. Carl Linneaus believed that the taxonomy of living beings could be achieved. The Comte de Buffon (Georges-Louis Leclerc), a French naturalist and transformer of the Parisian Jardin du Roi into a botanical research centre and museum, held a contrary point of view. For him nature was too rich and various to be fitted into a rigid framework.

According to Foucault, the first life sciences made their appearance in the form of natural history. The change appeared with Jan Jonston, who published in 1657 a natural history of quadrupeds (*Historiae naturalis de quadrupedibus libri, cum aeneis figuris*).

> Until the time of Aldrovandi, History was the inextricable and completely unitary fabric of all that was visible of things and of the signs that had been discovered or lodged in them: to write a history of plant or an animal was as much matter of describing its elements or organs as of describing the resemblances that could be found in it, the virtues that it was thought to possess, the legends and stories with which it had been involved, its place in heraldry, /.../The essential difference lies in what is missing in Jonston. /.../The words that had been interwoven in the very being of the beast have been unrav-

> elled and removed: and the living being, in its anatomy, its form, its habits, its birth and death, appeared as though stripped naked. Natural history finds its locus in the gap that now opened up between things and words – a silent gap, pure of all verbal sedimentation, and yet articulated accordingly to the elements of representation, /.../ (Foucault 1981, 140-141).

The newly purified language applied names directly to things and according to Foucault the Classical Age transforms the meaning of history – it becomes "a meticulous examination of things themselves". Names of things are juxtaposed with herbariums, collections of various kind, botanical gardens, zoological collections etc. Seeing and describing became the means of a new approach to living nature itself. Establishing archives, catalogues, indexes and inventories introduced the new naming language imprinted on things themselves.

> The descriptive order proposed for natural history by Linneaus, long after Jonston, is very characteristic. According to this order, every chapter dealing with a given animal should follow the following plan: name, theory, kind, species, attributes, use, and to conclude, Litteraria. All the language deposited upon things by time is pushed back into the very last category, like a sort of supplement /.../(Foucault 1981, 142).


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Naming and exhibiting the pieces of life in collected formations also brought forward seeing as the most reliable sense. It is given a privileged position among the others sense as the means of establishing proof and as the means to analyse and explain. In order to focus the vision sometimes even the colours were reduced and the object was transformed into black and white. Here Foucault also refers to the screen typology. He explains the possibility of natural history as "the appearance of its screened objects: lines, surfaces, forms, reliefs (Foucault 1981, 145).

The privileged position of seeing was further enhanced with the invention of the microscope. Looking through lenses opened up new areas of discovery by looking. The power of lenses was seen as extension of a visible not an instrumental relation. The objects of natural history are now presented in "themselves", emptied of resemblances, cleansed of colour and supported by formalised language. They are ready to be systematised.

There were according to Foucault four variables for the objects of natural history out of which the whole natural domain was built of. They are:

- the form of the elements,
- the quantity of those elements,
- the manner in which they are distributed in space in relation to each other,
- the relative magnitude of each element (Foucault 1981, 146).

Thus each visible element of plant or animal life was describable and this formed for botanists the structure of that particular object. Number and magnitude formed the quantifiable chain and form and arrangement the descriptive chain that relied on geometry or formal language of the "utmost clarity". The mechanism of operating was still language but well-constructed lan-

guage which unified the operations that everyday language kept separate: precise designation of natural elements and exact situation of these entities in the system of identities and differences.

> The process of naming will be based, not upon what one sees, but upon elements that have already been introduced into discourse by structure. It is a matter of constructing a secondary language based upon that primary, but certain and universal, language. But a major difficulty appears immediately. In order to establish the identities and differences existing between all natural entities, it would be necessary to take into account every feature that might have been listed in given description (Foucault 1981, 151).

In diverting that endless task, two techniques were used. The first was named by Foucault *Method* and the second *System*. The first is to make total comparisons, but only within "empirically constituted groups in which the number of resemblances is so high that the enumeration of the differences" can be accomplished. Then step by step the identities and differences will be established. The second opportunity is to select a finite and relatively limited group of characteristics, "whose variations and constants may be studied in any individual entity" that is under investigation. The adjustment of variables can also be used for special targets. For instance, if the character is composed of a large structure, having a large number of variables, then the individual differences will emerge at once. When the structure is limited and the variables few, then the differences will be rare and the individuals will be grouped in compact masses (Foucault 1981, 153).

Despite the differences between system and method, Foucault insisted that they rest upon the same epistemological base: namely that the knowledge of empirical individuals can be acquired only from the "continuous, ordered and universal tabulation of all possible differences" (Foucault 1981, 157). Thus the grid of typology was laid over the entire vegetable and animal kingdom. The structure of species and genera was established with every entity being named. The names became scientific and they usually consisted of two Latin words, one for genus and the other for species.

7. Imagination and the imagospheric world

Looking at typologies of architectural history, architectural texts and architects' data as well as possibilities of the build-up of generic elements of typology in philosophy, one cannot escape the feeling that they seem to be old-fashioned for conveying the current age.

Firstly, this can be felt in architecture. The buildings and planning practice do not fit into the clarified system of Neufert. Architecture escapes into the science of "emergent" phenomena and tries to tame it with "parametrical" rationality. The difference between architecture, fashion, design, landscaping, engineering, production and selling is disappearing. Many fields amalgamate producing hybrids like "landscape urbanism" and "urban landscapes".

Secondly, the whole representational system of media and communications in the current world has changed. Technology has transformed from quantitative changes into the new quality. Through the pan-digitalisation of every sphere of human life we are falling rapidly into on-line parallelism. In 2008

around 10 zettabytes of information was calculated within a year. That amount of information equals 50 billion books, each of 200 pages (Cortada 2012).

The visualisation and screening of pan-digitalised representational systems has reached a new level. Within the visual sphere, qualities like hybridisation, arbitrary juxtaposition, simultaneity and multitasking create totally new discourses. An average and ordinary webpage as a framework of gaze could easily contain the extract from the Chinese Encyclopaedia quoted by Borges and then referred to by Foucault.

This pan-digitalisation has infected the realm of physicality, the raw thingness around us. The remote sensing, digital markers and switches, large scale screens, LED lighting and so on, become a membrane between the existential materiality and human visual and haptic sensing. Architecture becomes more and more screen-like. In the lack of better term I would like to call this new condition: imagospheric.

Marshall McLuhan deduced the changes brought about by the printing press, which he referred to as Gutenberg's galaxy, when he considered the birth of the new era in the book he wrote in 1962.

This sense is the sense of seeing, in which the verbal context of language, or that based on hearing, is alienated from its original form – the living word. This is taking place mostly in Western Europe and North America. The first alienation takes place through the adoption of written letters as replacements for phonetics. This impoverishes and destroys the variety and multi-valency of language.

The printing press was the ultimate catalyst of the visual quality of communication:

> The invention of typography confirmed and expanded the new visual stress of applied knowledge, providing the first uniformly repeatable *commodity*, the first assembly-line, and the first mass-production (McLuhan 1995, 124)

Thus Gutenberg's galaxy created an entirely new situation – the synthetic mode of cognition that had evolved primarily in the context of language and in the natural landscape in traditional cultures was replaced initially by a literate, and thereafter, a literary form of cognition.

The visual and its connection to social was also foreseen by Baudrillard in the 1980s when he discussed the power of the imago.

First of all, there is an escalating destructive power of imago, which draws its energy from the relationship of meaning between the representation and the original:

> Thus the destructive power of the representation, the power that destroys reality, the power that destroys its own original has always been at stake, just as the icons of Byzantium could destroy divine identity. This destructive power is countered by the dialectic power of the representation, the power of Reality to convey the visible and comprehensive. All Western religions and beliefs are engrossed in this bet of

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> depiction: could the sign refer to the depths of meaning, could the sign *replace* meaning, and could something – God, of course – be the security deposit for this exchange? Yet what if God himself could also be simulated, that is reduced to signs that bear witness to him? Then the entire system would lose its footing and it would, itself, also be nothing more than a gigantic simulacrum – not unreal, but a simulacrum. This means that it would never be possible to exchange it for reality. It would change itself only into itself in an endless chain, which has no fixed points or boundaries anywhere (Baudrillard 1999, 14).

Baudrillard's typology for the learning cognition of representations describes quite well the ever-growing proportion and universality of the imago. If depiction attempts to swallow up the simulation into itself, interpreting it as a false depiction, then the simulation surrounds the entire building of depiction as if it were a simulacrum itself.

Baudrillard briefly characterises the result of this kind of partition as follows:

> In the first instance, the depiction is a *good* semblance – the depiction belongs to the sphere of sanctity. In the second instance, it is a bad semblance – from the sphere of evil. In the third instance, it pretends to be a semblance – it belongs to the sphere of sorcery. In the fourth instance, it no longer belongs to the sphere of semblance at all; rather, it belongs to the sphere of simulation (Baudrillard 1999, 14-15).

Precisely the latter condition best describes the situation of the saturated imagosphere. Chat rooms, 'second lifes', and 'rate mes' also definitely belong to the same category.

Thus the media does not carry out collectivisation on the digital platform, but rather the complete opposite is true: society dissolves into atomic parts, each of which has its own personalised, custom-made news and entertainment portal. The idea is that all states of meaning have been swallowed into a single dominant form of media. The media alone create events – regardless of what the content of the message is, whether conformist or horrifying. The media contain meanings and counter-meanings within itself. These manipulate the atomised society in every direction. Nobody is capable of controlling this process.

There is yet one more historical attribute of the establishment of an imagosphere under the all-embracing quality of the digital platform, and this is advertising. It follows a path of temporal evolution. We live in a period that is characterised by the absorption of all virtual means of expression by the advertising means of expression. All original forms of culture, all defined languages are absorbed by it because it lacks depth. It is momentary and forgotten after a moment. This is the triumph of superficial form, the lowest common denominator of all meanings, the ground elevation of meaning. It is the triumph of entropy over all possible tropes. The lowest form of the energy of signs (Baudrillard 1999, 131).

The digital platform has lifted the form of the advertisement to a new level. Firstly, public and private divisions in politics, culture, space, etc. disappear. The visible attributes of this new synthesis are all kinds of tracking systems, including systems for tracking terrorists, which are, in turn, evolving into new

information systems. These systems bring us to the point where soon there will no longer be an intimate sphere. The intimate sphere has become public by nature. The tabloids inform the public of the most intimate facts of private life.

Secondly the knowledge of reality and the fiction of imagination have become intertwined. In a respectable newspaper world class politicians compete with Harry Potter in the form of Daniel Radcliffe. In a couple of years nobody will remember the sex scandal of Dominique Strauss-Kahn in the form of the historical personage of Strauss-Kahn himself – everybody will remember Abel Ferrara's film with Gerard Depardieu. "I am the director. No one is going to stop me talking about my film" announced Ferrara (BBC News 2012, 5 Feb). No one will able to influence what kind of a story he decides to tell. The History Channel, where one could supposedly look for history, has transformed into actors acting the story or animations (very soon amalgamating into one) presenting the show. Reality and imagination have become one.

Oliver Stone has presented his new Showtime series and his new book – *Untold History of the United States*. It is about 75 years of American history shown in 10 hours. "This," he pronounced, "is truly the meaning of these events." (Goldman 2012). It is of course not new that a director switches from fiction to documentary. The new synthetic media situation, however, does not allow us to go with the old genres, it will be definitely seen in the context of and as an addition to Stone's films *Platoon*, but especially the more recent *JFK* and *W*. With these amalgamations the nature of history, which the discipline itself hates most of all, becomes more evident – it is not a science but an interpretation as a narrative. Very often just one among many.

The conservative historian Ronald Radosh, professor emeritus at The City University of New York, said he found himself wanting to do harm to his television while watching the first four episodes, which he reviewed for the right-wing Weekly Standard. Radosh had been blogging skeptically about the Stone project since its announcement in 2010, but now that he'd actually seen it, he said, it was the historian rather than the conservative in him who was most offended (Goldman 2012).

The same was said by Sean Wilentz, a Princeton historian who is regarded as decidedly left-leaning. He also accepts there cannot be two historians more unlike each other than him and Radosh. The confusion here is not just political but disciplinary.

Thirdly we see the amalgamation of social and natural scientists: Bruno Latour offered this self-analysis:

> For twenty years or so, my friend and I have been studying these strange situations that the intellectual culture in which we live does not know how to categorize. For lack of better terms, we call ourselves sociologists, historians, economists, political scientists, philosophers or anthropologists. But these venerable disciplinary labels we always add a qualifier 'of science and technology', 'Science studies', as Anglo-Americans call it, or 'science, technology and society'. Whatever label we use, we are always attempting to retie the Gordian knot by crisscrossing, as often as we have to, the divide that separates exact knowledge and the exercise of power – let us say nature and culture.

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Radcliffe now thinks Miliband has magic touch

The Harry Potter star says the Liberal Democrat leader has become a Tory 'whipping boy'.

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Gerard Depardieu met Abel Ferrara at the Deauville film festival

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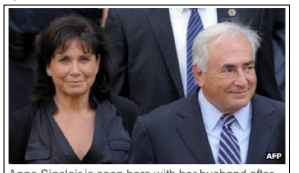
Anne Sinclair is seen here with her husband after the case against him in New York was dropped

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> Hybrids ourselves, installed lopsidedly within scientific institutions /.../ (Latour 1991, 3).

In his book about the everyday practice of a science laboratory he concentrated on the social actions involved in establishing a scientific fact. The problem for participants was to persuade readers of papers (and constituent diagrams and figures) that its statements should be accepted as fact. To this end rats had been bled and beheaded, frogs had been flayed, chemicals consumed, time spent, careers had been made or broken, and inscription devices had been manufactured and accumulated within the laboratory (Latour 1981, 88). All these amalgamations of historical oppositions or at least dialectical counterparts are currently synthesised into heterotopia or possible universes capable of existing simultaneously both in temporal and spatial modes.

8. The typology of the screen

We have crossed the threshold of a new era. New digital-technological systems are the foundation for this new era of amalgamations and the format of these transformations is its interface – the screen. The IPhone, IPad, ITablet and MacBook are the perfect examples of this synthesis. They are not just four separate appliances in the form of four objects. They present a digital platform interfaced with four screens of different sizes dedicated to the same function on different occasions.

The digital platform is not "mine", it is composed of several integral parts, which I have no knowledge of nor command over. Firstly, because it has become impossible for me as a user to know what exactly I am using. Is it a machine or is it a bundle of licences that is attached to another bundle of licences and patents. The machine has become irrelevant as I can easily transform everything on its hard disc and operative memory into another machine. Further, the machine has become irrelevant as the content of my actions is not even localised – it has joined the cloud.

Secondly the digital platform has its own autonomy to update, communicate, initiate and activate software that is nothing but a string of zeros and ones, a protocol guarded by intellectual property laws around the domain of meanings that constitute my work.

Nevertheless the platform of digital-technological amalgamations is finally presented as visual in the format of the screen. The screen in the form of a material or mental structure is a relatively old phenomenon. It comes down to the basic question of every screen-like representation: how is it possible to convey on a two-dimensional surface various signs and three-dimensional objects. In a more sophisticated version the screen or membrane is an imaginary epistemological device connected to seeing and viewing the world. The question of signs presented is quite simple, if not taking into account McLuhan's focus on the aggressiveness of the written alphabet – they just depend on the media technology used – from signs on sand to electromagnetic waves produced by organic light-emitting diodes.

The question of images is much more complicated as it also includes the questions of the epistemological nature of *perspectiva artificialis*. It is the historical relationship between *perspectiva naturalis* (or *communalis*) and *perspectiva artificialis*. *Perspectiva naturalis* deals with the laws of natural vision.

Perspectiva artificialis can be seen as "a serviceable method for constructing images on two-dimensional surfaces" (Panofsky 1991, 36).

Perspectiva as an understanding of vision and distance was formulated by Euclid and later mentioned by Lucretius and Vitruvius. Euclid demonstrates how the appearance of objects is a function of their relationship to the observer. This relationship could be expressed accurately through geometry. (Perez-Gomez 1997, 13) Perez-Gomez and Panofsky believed that interpretations in the translations of the passage in the *Ten Books on Architecture* by Vitruvius, where he makes use of "scenographia" and "*circini centrum*", indicate that the linear perspective was not fully understandable in Antiquity (Panofsky 1991, 38-40):

> In 1.2, Vitruvius describes this scenographia/sciographia, rendered to modern English translations as "perspective." As we will demonstrate, these modern translations fail to do justice to the original text, in which there is no obvious allusion to a geometric construction analogous to the Renaissance perspectiva artificialis"(Perez-Gomez 1997, 46).

Without entering into argument with that claim, it would still be fair to remark that Lucretius's description does resemble the construction of the vanishing point, the main conceptual cornerstone of the linear perspective:

> Though a colonnade runs on straight-set lines all the way, and stands resting on equal columns from end to end, yet when its whole length is seen from the top end, little by little it contracts to the pointed head of a narrow cone, joining roof with floor, and the right hand with the left, until it has brought all together into the point of a cone that passes out of sight"(Lucretius 1966, 385).

His understanding of vision also reminds us of the picture plane or "window" - he makes use of "idols" (in Latin: "membrana" and "simulacrum") which can be "seen through" (Lucretius 1966, 362).

According to Perez-Gomez the real *perspectiva artificialis* must be identified with the Renaissance, where it could be postulated independently of traditional theories of optics. Filippo Brunelleschi is known as the first to "construct" a systematically organised linear perspective drawing and Jacobo Vignola is known as the first to introduce the distance point (the point outside the field of representation, that would serve as a reference marker in determining the rhythm of diminution of transverse lines - usually equal to the distance between the eye of the observer and the plane of image).

Around 1400 Brunelleschi achieved a geometrical-analytical understanding between the space "experienced" and the space "represented", when he created the painting in the baptistery of San Giovanni. The painting could be compared with the view from a specific point in the portal of the Florence cathedral. Brunellechi's experiment with the hole in the painting and the mirror, to compare it with the view, constituted two important abstractions. It defined the horizon of view as an infinite and ideal line and reduced the observer to an infinite abstract point - "point of view" (Damisch 1994, 124).

Here we can refer to the painting by Jan van Eyck (Portrait of Giovanni Arnolfini and His Wife Giovanna Cenami). The perspective structure of the painting is inconsistent, there is no single vanishing point as a geometrical construction. Instead of a vanishing point as the "counter eye" of the observer's subject, there is the 'legal subject' of two witnesses, reflected on the spherical surface of the mirror. The subjects witnessing the event are 'behind' or at least in the same 'space' as the self of the embodied observer of the painting. (Panofsky 1991, 173; Damisch 1994, 130)

This abstraction of "I" into the "subject" of Descartes in the form of geometrical reduction and open to verification and measuring, opens a new epistemological layer for the *perspectiva artificialis*.

> Before the introduction of the distance point, *perspectiva artificialis* had been, strictly speaking, a heterogeneous collection of intuitive monocular constructions based on the apex of the cone of vision as a simplified eye. (Perez-Gomez, Pelletier 1997, 33)

According to Perez-Gomez, architects of the Middle Ages did not conceive the building as a whole and the notion of scale was unknown.[6] Even the artisans, builders and architects of the Renaissance "had not developed a mentality that would allow individual projections to be coordinated within the universal, operational framework of descriptive geometry" (Perez-Gomez; Pelletier 1997, 39-40). Their collective space did not yet exhibit the homogenous, geometric and infinite entity that was to be developed by the post-Galilean science. Nevertheless, the abstraction and thus the difference between space imagined and space represented is emerging. Panofsky points out how in the paintings of Jan van Eyck, the picture frame transforms into a "window to the imaginary world".

> The picture has become a mere "slice" of reality, to the extent and in the sense that *imagined* space now reaches out in all directions beyond *represented* space, that precisely the finiteness of the picture makes perceptible the infiniteness and continuity of the space (Panofsky 1991, 60-61).

Perspectiva artificialis developed into an effective instrument for comprehending and changing the given reality of the world after several conceptual inventions. Kepler's theory of vision with the "optical image within the eye" created an understanding of an image that can exist independently of the observer. This was further developed by the use of the *camera obscura*. Galileo assumed that the world is based on "fixed essences and mathematical laws deployed in a homogeneous, geometrized space" (Perez-Gomez; Pelletier 1997, 55).

Newton postulated natural light as a compound that could be analysed into its component colours. This was the first step in disarming light of the divine quality that so far it had always been. Newton and Leibniz developed infinitesimal calculus. Contrary to Medieval or Renaissance cosmology, where number and geometry were the link between the human and the divine, post-Galilean number and geometry were transformed into technical and instrumental devices for solving practical tasks.

With the development of photography and film the screen became a perfect objectifying instrument. Seemingly the seeing, light and representation on

6. We can only partly agree with that. The document of St.Gall has nothing to do with the building process itself, which can be referred as "constructive practice" by Perez-Gomez. It is the geometrical schema drawn with red lead on the faces of five calfskins. The drawing contains more than forty buildings and is in the scale of 1:192. (Probably using the measure 1/16 of a Carolingian inch representing a foot in nature. The scale itself must have used the multiplication to 12. 12 x 16 = 192.) The plan is dedicated to Gozbert – the Abbot of St. Gall from 816 - 836. While this is not "conceiving of a whole building", it obviously is very close to it. This is made absolutely clear already in the preamble to the plan: "I have sent you, Gozbert, my dearest son, this modest example of the disposition of a monastery, that you may dwell upon it in spirit ... and know my love toward you; think not that I laboured at this design because we believe that you had need of instruction, but rather believe that we drew it through the love of God out of fraternal affection, for you to study only. Farewell in Christ, Amen."(Braunfels 1972:46)

silver plate or film were constituted outside the domain of human vision as well as of consciousness. This contained the possibility of conveying reality in minute detail and constituted a Cartesian space outside and independent of any observer. The abstracting quality of the Renaissance collapsing of the physical subject into a singular abstract point of perspective was lost in materialising the modernist representation. The Cartesian space took over and modern art started to look for new possibilities to break out of the more and more common perspective-built representations. Cinematography developed a new language and composition for feature films and transformed the Cartesian space of the screen into imagination with an extraordinary quality of realness.

Until now the perspective space of photographs and cinema has lived its dual life. At one end is the extraordinary evidence of reality captured by lens and at the other end the phantasy exhibited with a striking level of visible detail. With the development of 3D technology this duality of reality and fantasy is taken to the next level of seduction. The digital platform has erased the border between these dualities which can appear as different approaches. It has amalgamated them together, which means reality and phantasy become identified as one. But the digital platform also has an estranging influence on the identity of existence.

The prevalent function of the digital platform and the dependence of the world on the screen dehumanises human existence. We communicate a great deal with our friends online, but through a screen. The screen has transformed how we look at the world around us. Anything transferring or simply carrying visual information has been transformed to be the screen:

> The *screen* refers to the two-dimensional screens where we watch pictures. This includes movie screens, television and computer screens, screens on cell phones and other hand-held devices, the canvases hanging in museums, and the pages in books and magazines that display photographs and drawings. All of these two-dimensional surfaces are screens. /.../ The *screen world* refers to images on any screen (Block 2008, 5).

By March 2012 Google Books had scanned 20 million books. The work continues at a rate of about 1000 pages per hour. It is just a matter of time until all printed pages in every language will be collected. Every image, photo and film will be digitally accessible. Every new carrier of information that is added will become available through the digital platform in the form of screen. Probably the problem will not be finding information but extracting meaningful generalisations. That again will mean that amongst the jungle of information a meaningful structure, typology or a story has to be created.

This typology in the abyss of information is quite different compared to the typologies discussed in this essay. It will be a very personal interpretation amongst hundreds of others. The structure, typology or narrative will become highly personalised way of using information. The stories created will become multidimensional stretching through screen world to the possible worlds created by space and time modes. We are talking of the new memories of the past as well as possible memories of the future.

9. Disposition: the order of things – a typology as a setting

Having gone through the several possibilities of how to look at typology as a discipline taught and a domain of thought, we can see several possibilities. A typology is not a self-evident phenomenon in different areas of human experience and thought. It has changed during the time and it is not just a passive framework. It exhibits a high possibility of a strong epistemological impact on the field it stratifies.

One can also see the world changing at a rapid pace. The build-up of current culture, practices and technology have also strong impact on how we perceive the possibility of creating a typology, the very essence of the order through which things appear and can be conceived. This directs our interest into new domains such as screening the digital platform. It is a fascinating area touched upon only lightly in this essay but definitely moulding the representation of architecture, its education and quite surely the representation of space and time in the world to come.

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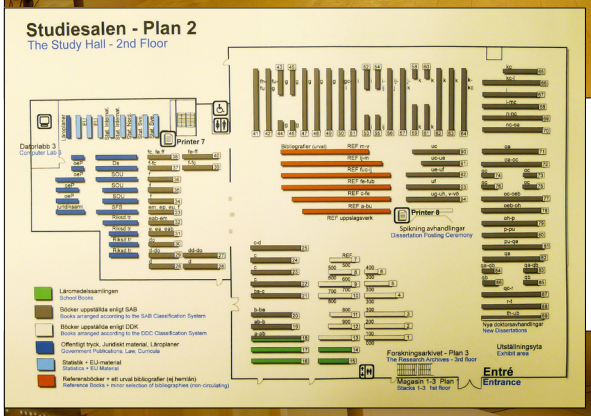
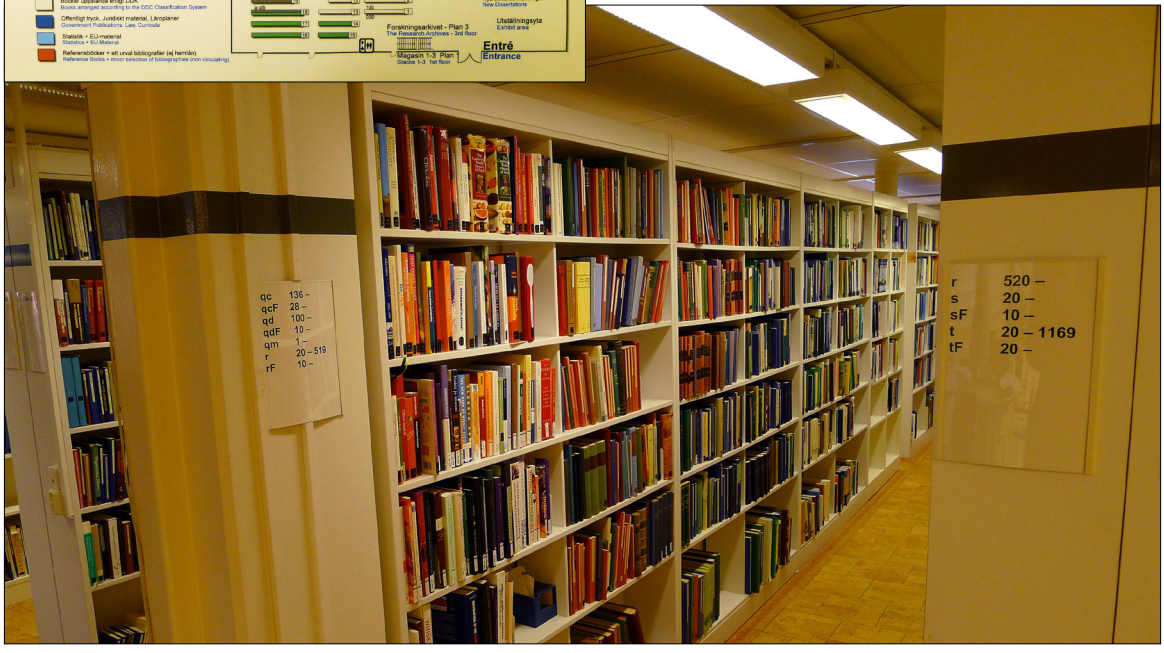
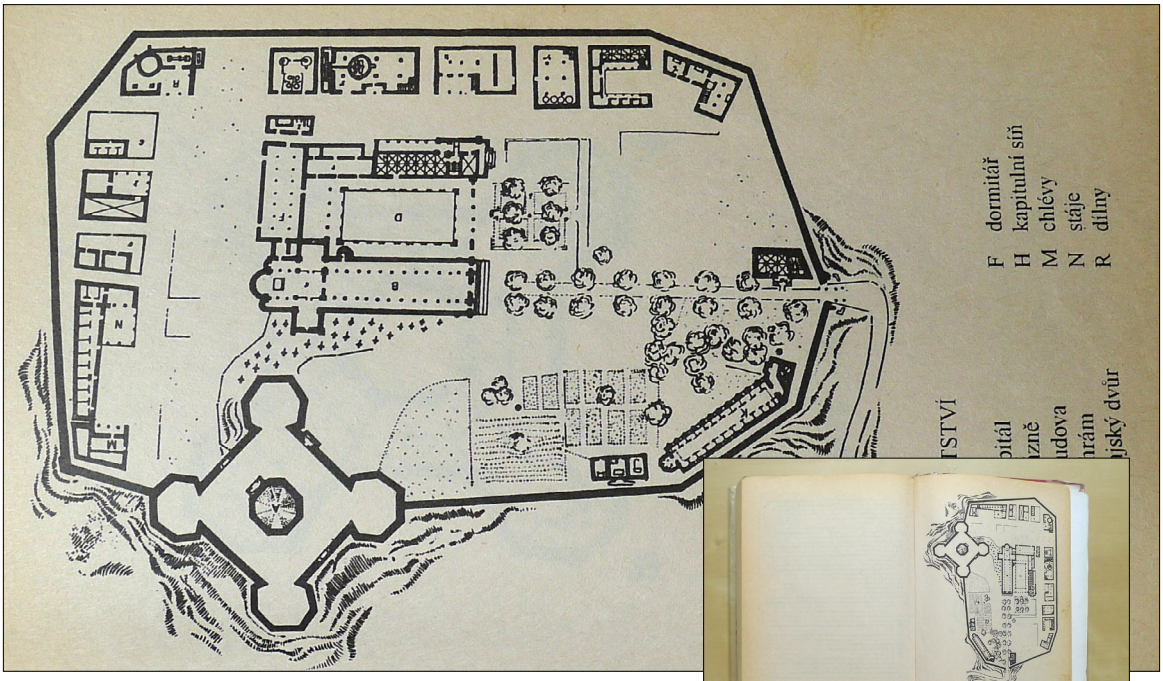
COUNCIL DIRECTIVE of 10 June 1985 on the mutual recognition of diplomas, certificates and other evidence of formal qualifications in architecture, including measures to facilitate the effective exercise of the right of establishment and freedom to provide services(85/384/EEC)

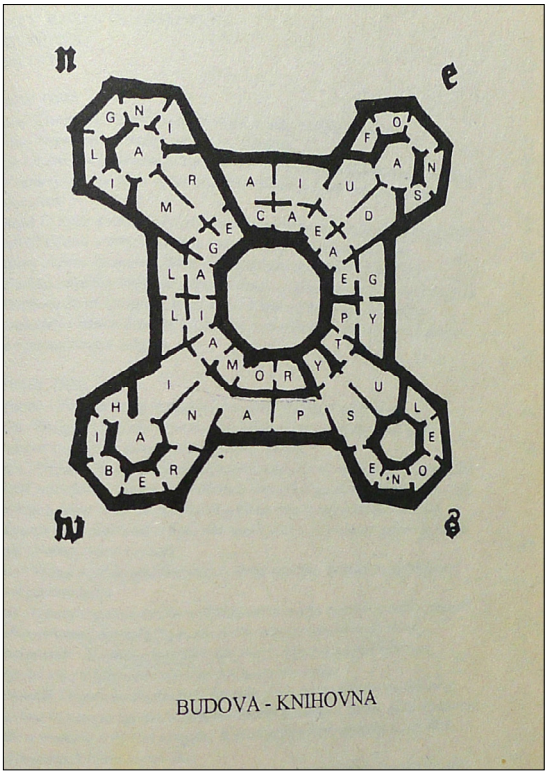
3.1 - 3.2 “A bicycle shed is a building, Lincoln Cathedral is a piece of architecture” - Nikolaus Pevsner.



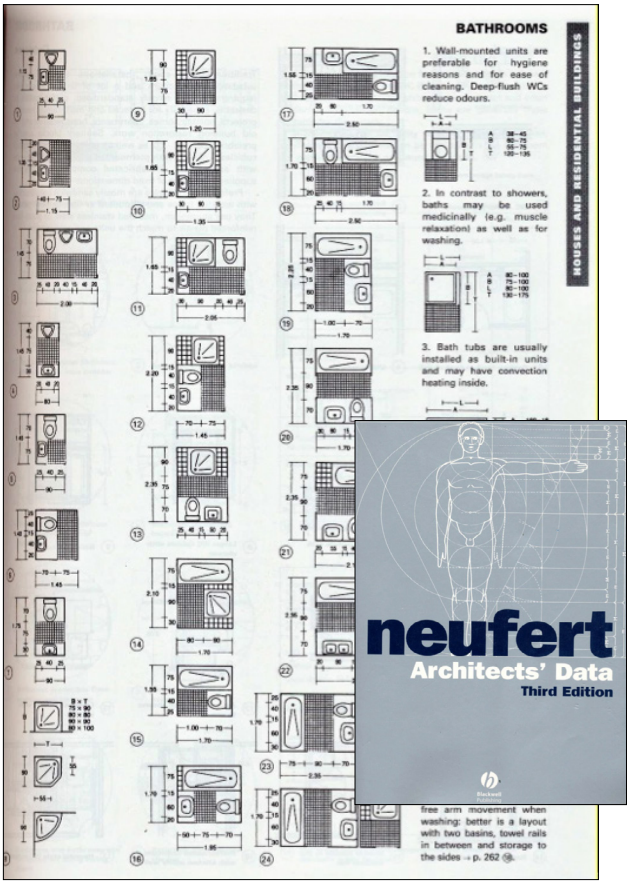
3.3 - 3.5 Umeå University library and the key to the shelves.

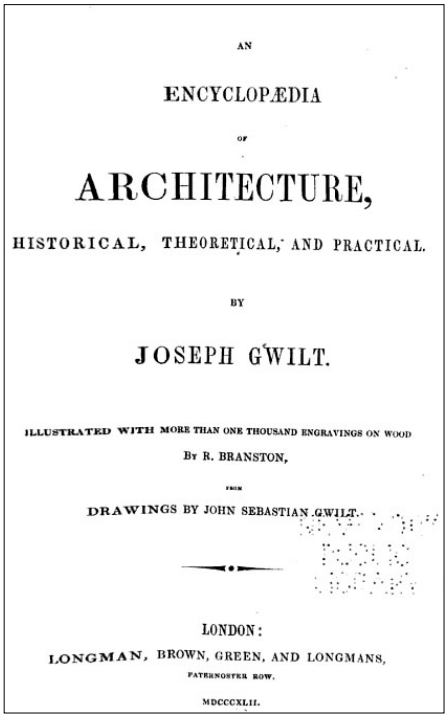




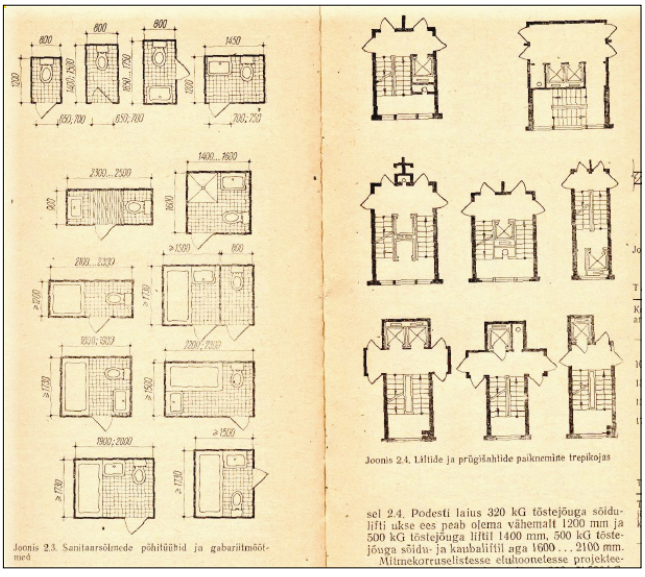


3.6 - 3.9 Eco, Umberto. Jméno růže. 1993.



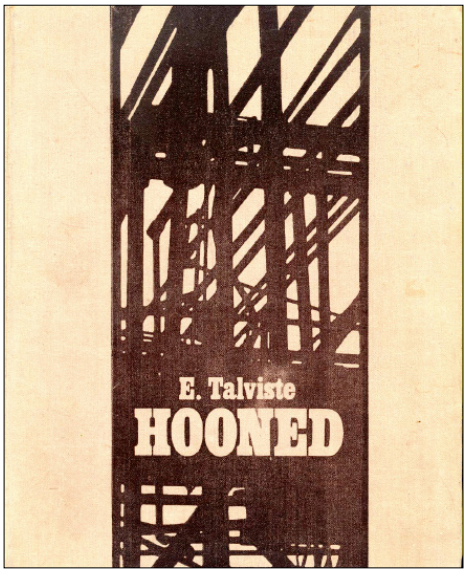


3.10 - 3.11 Neufert. Architects'Data 2000.
3.12 Encyclopaedia of Architecture by Joseph Gwilt.
3.13 Typology book by Erik Talviste - *Hooned* 1974.
3.14 Typical page explaining bath-room and stair-well typology.

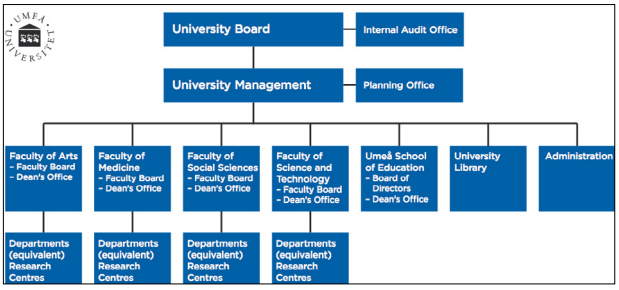

Joonis 2.3. Sanitaarsõlmede põhitüübid ja gabariitmõõtmed

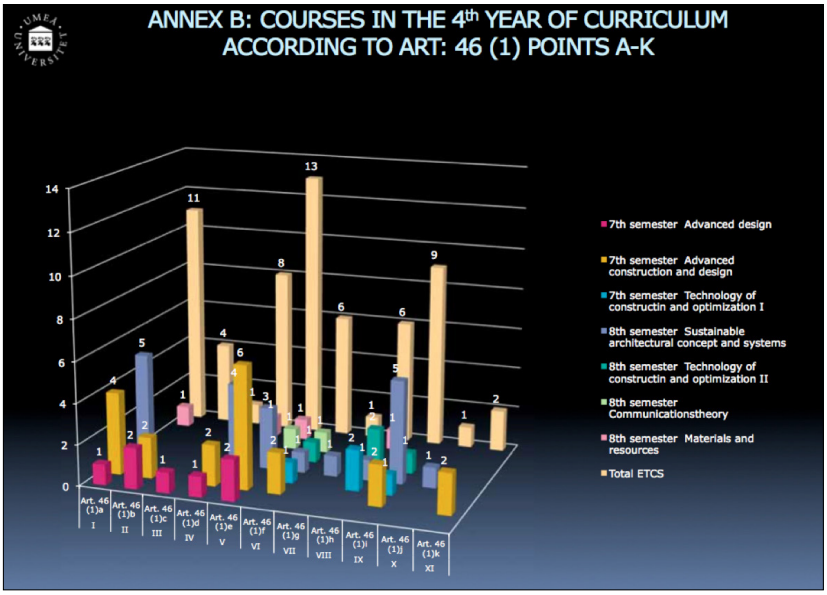
Joonis 2.4. Liftide ja prügišahtide paigutamine trepikojas

sel 2.4. Podesti laius 320 kG tõstejõuga sõidulifti ukse ees peab olema vähemalt 1200 mm ja 500 kG tõstejõuga liftil 1400 mm, 500 kG tõstejõuga sõidu- ja kaubaliftil aga 1600 . . . 2100 mm.
Mitmekorruselistesse elumoonelesse projektee-



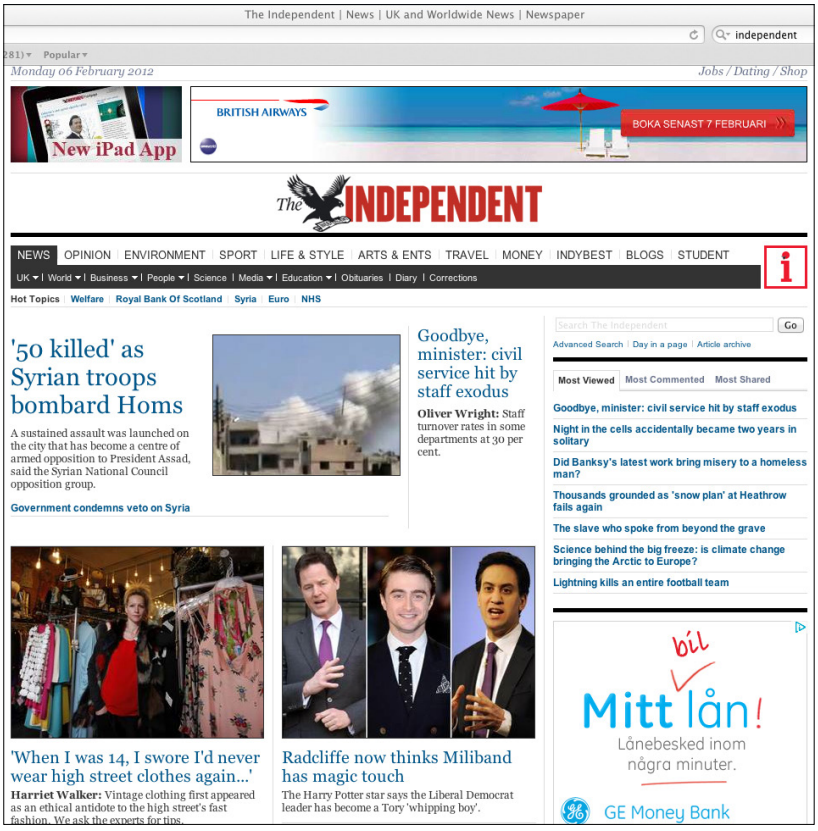
3.15 - 3.16 Waterstones bookshop in London - organised as typological display.





3.17 C. N. Linnaeus. Painting by J.N. Scheffel in Gustavianum of Uppsala.
3.18 The curriculum of 4th year in UMA described as typology of skills, abilities and knowledge, described in PQD.
3.19 Structure of Umeå University as typology of organisation. The lines indicate power structure between the elemnts.

3.20 - 3.23 Kyoto railway stationopened 1997. Architect Hiroshi Hara.The railway station is a hybrid building of several typologies.



3.24 - 3.25 Hybridisation of news and politics. Harry Potter, Nick Clegg and Ed Miliband sharing the same importance in visual and political presentation by the *Independent.*

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Depardieu to star as Dominique Strauss-Kahn

Gerard Depardieu is to star as Dominique Strauss-Kahn in a film about the New York sex scandal that caused the former IMF chief to resign.

US director Abel Ferrara told France's Le Monde newspaper he would be making the film, with Isabelle Adjani playing Mr Strauss-Kahn's wife, Anne Sinclair.

Gerard Depardieu met Abel Ferrara at the Deauville film festival

Mr Strauss-Kahn left the International Monetary Fund last May after being charged with raping a hotel maid.

The case was dropped but ended his ambitions for the French presidency.

Before the scandal Mr Strauss-Kahn, a former French finance minister, was thought to have had aspirations to run as a Socialist contender for the post.

French writer Tristane Banon later accused him of trying to sexually assault her during an interview in 2003, claims he denied. No action was taken because of a three-year statute of limitations but Ms Banon has indicated she may still file a civil suit.

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Ferrara told Le Monde the film would be shot in New York, Paris and Washington.

"In all the places of power: It's a film about the rich and powerful," said the director.

The project has long been rumoured but Ferrara confirmed he would be going ahead with it in June, despite the doubts of his producers Wildbunch.

"I am the director. No one is going to stop me talking about my film," said Ferrara.

Anne Sinclair is seen here with her husband after the case against him in New York was dropped

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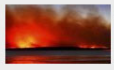
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Gerard Depardieu met Abel Ferrara at the Deauville film festival

Anne Sinclair is seen here with her husband after the case against him in New York was dropped

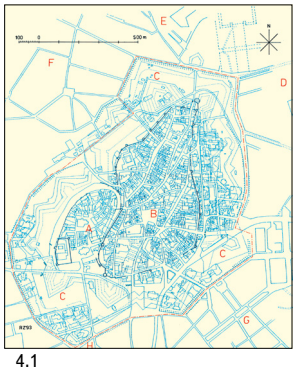
3.26 - 3.28 On-line dramatisation of reality and art of cinematography.

Memories of the Future: Creating Stories in the Imagospheric Plenitude

Jüri Soolep, Umeå University, School of Architecture
Raul Kalvo, Singapore University Technology and Design, City Form Lab

The presentation was delivered at the Annual International Conference on Architecture and Civil Engineering (ACE 2013). Global Science & Technology Forum.

Abstract: This research paper deals with new methods of representing urban and cultural history. The urban fabric of Tallinn (Estonia) has a rich past. It is relatively well investigated and documented in visual form by Prof. Rein Zobel. We are looking for new means of presenting the research already done and also updating it to reflect current events. As the urban fabric is the backdrop for cultural and political events, the mere documenting of these processes create new interpretations that we call multidirectional stories.



4.1

Introduction

In the urban sphere everything is artificial; everything has a clear cause and effect relation. Not a single stone, column, brick, pavement tile etc. has received its position without a premeditated and pre-planned human decision. We can zoom into the smallest details and connect them to the larger system of historical sequences. Thus everything in a city could be easily planned, controlled and executed. Paradoxically, even the best laid master plans and architectural decisions are never realised fully and in most cases the urbanity transforms to chaos of its own liking.

We can describe this chaos with the medieval modus of *anagogicus mos*. The chaos from the smallest elements of matter can be traced to the highest of supreme thoughts of design in the city. Every element has its direct relation between matter and mind, transforming the whole history of urban development into a chaos of meanings. Each and every element participates in this *choros* as meaningful. Suddenly, like lightening, order emerges among the chaos of meanings and a place (a street, a quarter, a city, a region) gains a meaning of a higher rank. People, sometimes the whole of mankind, values what has emerged with symphonic meaning. The space that embodies it, becomes galvanised under the heritage laws. Then it cannot be changed any more and the living city becomes a museum, sometimes a mummy. Being there, we can feel this *choros* of becoming of the space.

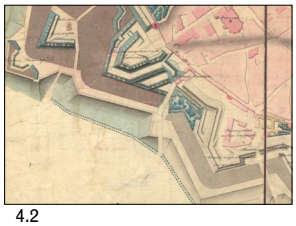
The existential participation – being there – despite its powerful and unique character has its limitations. Firstly, any experience is shaped by our knowl-

edge and fantasy. The imagination blends and orders the empty gaps of the experience. Very often we stand on a street or a square and wonder what these stones have seen in the uncountable days and nights they have been part of this particular city. Their very presence directs our thoughts to the past as well as to the future. But soon this experience becomes a memory and fades into the past of our mind. Secondly the experience does not cover the structure or order within the genesis of this particular place. Only hints and sometimes traces of the past can be observed and that usually also means it is the experienced and trained eye that is eager to look for them. The wider public is deprived of the chance to delve more deeply into the genesis of the place.

The legacy of prof. Rein Zobel

We propose to investigate how the memories of the past provide a possibility of understanding urban development in a more comprehensive way. These memories can be brought together to enrich the experience of a city. Memories of the past also interpret and evaluate the space, bring out the multitude of meanings hidden in this particular space. Memories of the past also have different meanings for different viewers, thus creating the manifold of possible meanings for the city.

In the case of medieval Tallinn (the historical capital of Estonia) we have research by the late Professor Emeritus Rein Zobel. His long and fruitful career was dedicated to unravelling the early development of Tallinn from the time the first stones were laid in its walls and streets. Zobel published several books on the urban design and fortifications of Tallinn, but they have been available only to the small number of Estonian readers and they contain only a fraction of Zobel's graphic archives. The book *Tallinn (Reval)in the Middle Ages. Town Building in the 13. – 14. Centuries* in 2001 was a major step forward in synthesizing the knowledge and data gathered over many years into a unified system. This book opened a new layer for understanding in a coherent way how Tallinn developed in all the domains of urban design. It explained on several levels how the city operated and what the structure for the building fabric was in the years to come.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A tool for understanding urban development was developed by Zobel since 1964, with the help of the geologists Künnapuu and Eesmaa. It was an archive of geological bores as well as archaeological and technical excavations in Tallinn's old city. The existence of more than 1100 vertical profiles in precisely documented locations was a vast resource. This helped Zobel to develop a new research method – historic and topographic reconstruction. The vertical profiles were necessary to describe the once existing surface, sea level, landscape, roads and other topographic circumstances. With the calculation of post-glacier unloading (about 2 mm per year for Tallinn) it was possible to describe the topography of the main natural elements before building started. This meant that the virgin landscape could be reconstructed in detail. All this assisted in understanding the dynamic changes in urban development and helped to explain the formerly unknown reasons for several structural elements within the city [1]; [2]; [3]. The towers, gates, moat, walls and other fortification elements were reconstructed in hundreds of drawings in their different development phases. This has remained largely unpublished.

With the help of original topography and historical archive research Zobel created several development maps of Tallinn. Each of these was conceptually a section of Tallinn's space-time continuum. These reconstructions with the actual historical maps of the city create a window into the past. We can imagine this as a three-dimensional matrix. The topographic coordinates specify the space and the timeline of historical maps specifies the history. All the possible memories of the past are locked to their exact place through three coordinates. Approaching this matrix creates clouds of memories of the past in a presentable form. These can be engravings, paintings, texts, reconstruction drawings, photographs, music etc. – anything with an audio-visual form that can be presented. We discussed with Zobel several times how it would be possible to illustrate the architectural development in a visual form that would complement the books. Now it seems that digital technology has reached the level that could make this possible.

4.5

To test the idea we chose two cases: one focusing on the spatial axis and the other on the temporal axis. These were chosen because historical knowledge predicted that these places would be active and full of memories. Both of them have played different roles in public life and both of them have been in the keen eye of the political establishment of the time.

Excavating images, Liberty Square

Liberty Square is situated on the border of the Medieval and the Modern city. Its central position and relative openness has made it a perfect place for formal demonstrations of power. All the governments in the history of Estonia have taken care to make their presence felt on this square.


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The simplest and clearest ordering device for public space is a military presence. The armed or seemingly armed orderly posting or marching of uniformly dressed men (and sometimes women) is an indisputable argument. Scanning through the photos of parades with dates attached to them reveals how the space has been colonised by political and hence military will and power. The changes in arms, uniforms and especially helmets with their distinct forms create the atmosphere long disappeared but still powerful. The military order melds together the political will, the means of power and the space it occupies and thus attributes certain meanings and values to the space itself. As large military presentations of meanings are temporary events, the space is released from its formal and political meanings between these events. Of course these events have a periodical nature as long as the power conducting them is intact. So on certain dates the parades take place again and again.

The clear and simple imposition of order through direct military presence makes way for more sophisticated devices that try to maintain the political implications of the space in everyday life. The importance and sometimes sacredness of the space is maintained through laws, both written and customary. The laws try to establish which activities (not initiated by the political establishment) are allowed for the public and which are not. This is fulfilled by several means: starting from policing the space up to creating physical obstacles that promote only certain kind of activities.

The very naming of a space gives the first indications of its importance and use. Liberty Square has had several names: in Medieval times it was just a route from the city gate called *Roosikrantsi (Rosenkrantz,* rosary) remind-

ing us of the dark walkway to the place of execution accompanied by *Hail Marys*; in the 18th century it was called *Uus väljak (Novaja Ploshtshad,* New Square) describing its neutral emergence as a square; in the 19th century it was called *Heinaturg* and *Palgiturg* (*Heumarkt, Sennoi rõnok, Holz- und Heumarkt,* Haymarket and Logmarket) describing its function as a marketplace; in 1910 it was named *Peetri plats* (*Peterplatz, Peters-Platz, Petrovskaja ploshtshad*, Peter´s Square) to commemorate the conquering of Estonia by Peter the Great (in this case from the Swedish Empire); in 1923 it was renamed *Vabaduse plats* and in 1933 *Vabaduse väljak* (Liberty Square) commemorating the liberty and independence of Estonia; in 1941 it was called *Võidu väljak* (*Ploshtshad Pobedõ*, Victory Square) describing the occupation of Estonia by the Red Army and the new soviet government; in 1941 – 1948 it got its previous name back. After that it was changed again to *Võidu väljak* with an attempt to erect a Victory monument that remained incomplete. Lastly, from 1989 it was again called *Vabaduse väljak.*

The markedly invisible laws and naming/renaming for the space are also complemented by slogans or billboards but most clearly by monuments and statues. These embody both the political will and the poetics of art, thus trying to maintain the political meanings as something static between the periodical political presence of parades and demonstrations. Liberty Square is particularly rich in competing monuments. In 1911 the Peter´s monument was erected and in 1923 it was removed to another location. In 1950 a monument was erected to the communist revolutionary

Viktor Kingissep and in the 1990s it was demolished. In 1957 a memorial stone to the 1940 "revolution" was added which has also disappeared. In 2003 the sculpture of the Liberty Clock was added and in 2009 the monument to Victory in the War of Liberty was erected. Both these last monuments present slightly different and competing political concepts of the new Estonian independence.

Presenting all these memories of the past in a digital tool we will enrich our understanding of the public space as well as present the multitude of values, hopes and disappointments embodied in the current moment of this space in Tallinn.

Politics and Imagospheric plenitude: the Bronze Soldier

The richness of meanings embodied in the memories of the past can be illustrated using the example of Tõnismäe Park. In April 2007 the Estonian government removed the Soviet monument of the Bronze Soldier to the military cemetery. The defenders of the monument, calling themselves the Night Watch, organised a demonstration that became a massive riot that lasted for two nights.

I was interested in how it is possible that a monument in a particular space taken to another place could cause such a violent event. If the monument remained the same in both locations it must have been the action in the space itself that was considered so important as to initiate riots. It was also interesting to see what was the mechanism of energising people and what meanings could have been attributed to the space inside this process [4]; [5].
In April 1945 at the end of the Second World War, soviet soldiers and officers were buried in Tõnismäe Park. Their dead bodies were brought together from


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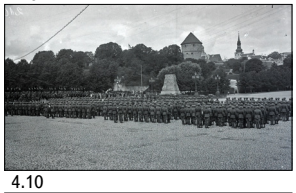
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many different places. The circumstances of their deaths are unclear and in this context they are not important either, although it is quite likely that they did not perish in active combat. In May 1945, a competition was announced for a monument and surrounding open space at Tõnismäe, which was to be called Liberators' Square. Initial plans were to erect the monument on Victory Square. The new plan for the monument was prepared according to drawings by the architect Arnold Hoffard-Alas and the sculpture was made by Enn Roos in 1947. As Hoffard-Alas's student Tõnu Virve wrote, the conceptual basis of the monument is the portal to the realm of the dead. In 1964, a so-called eternal flame was added to the monument. A short gas flame rose from a small angular pit in the middle of a bronze five-pointed star.

Regardless of the apparent atheism of soviet power, the square was a highly charged sacred space and this became particularly apparent after the eternal flame was added. The eternal flame is one of the oldest metaphors for remembrance of war in Indo-European culture - "inextinguishable honour" - *kleos aphthiton*. Originally, a composition with five-pointed stars and the eternal flame was on the back of the pylon as a bronze relief. The ritual of the place itself was connected to compulsory political liturgy on the 9th of May and on the 22nd of September (the official date of the end of WW II in the USSR, and the official anniversary of the capture of Tallinn respectively). It is important to understand that the Tõnismäe complex as a "portal to the beyond" with its "guard'; "avenger" or "mourner" in front of it had a clearly iconic structure. But this iconic structure is three-dimensional, it is not just a symbol or sign. Aleksei Lidov writes about this kind of structure in the scared spaces of Byzantium: "The 'paradigm of the flat picture', still dominating in our minds, does not help to establish an adequate perception of the spatial imagery and of hierotopical projects. It seems that crucially significant in this respect is to recognise the spatial nature of iconic imagery as a whole: in Byzantine minds the icon was not merely an object and a flat picture on panel or wall, but a spatial vision emanating from the depiction into the environment in front of it and existing between picture and its beholder" [6].

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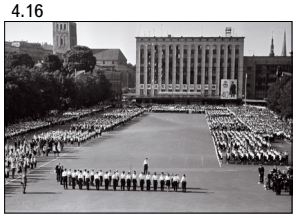
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The most characteristic attribute of Byzantine hierotopia is also the participation of the experiencer in the spatial design. The experiencer functions within the image as if he/she were an integrated element of it - a pre-planned component. Spatial experience mixes with descriptions, light, aromas, movements and sounds to form a unitary whole. Furthermore, the experiencer, who has collective and personal memory, spiritual experience and knowledge of the iconic process, participates in the creation of this spatial image. The collective nature of creating a new spatial image must be emphasised at this point. At the same time, this image exists in objective reality as a dynamic structure, changing its elements according to individual experience in procession.

The *hierotopic* build-up of the soviet monument can take us further on to archetypal imagos from Ancient Greece: *temenos, chora, choros aston, panta chorei, agerigraptos Logos, anastasis* (and its Latin counterpart *resurgo*), *hetoimasia* and *deësis*. The history, myths, cultural and religious archetypes amalgamate into a presence with trajectories to the past and future.

Here it is also interesting to see how the current media sphere is connected to the events of Tõnismäe. The historical and archetypal amalgamation suddenly becomes a grounding surface of political values. The group calling

themselves *Nochnoi Dozor* was the organised activator of the iconic space of the Bronze Soldier. It is quite probable that this name itself is taken from the Timur Bekmambetov's film *Night Watch*. Let us consider what kind of iconography their self-identification was founded on. Bekmambetov's film was completed in 2004 at the *Pervoi Kanal* film studio, which belonged to the Russian government. The film was based on the book of the same name by Sergei Lukjanenko. Both the film and the book proved to be very popular in Russia and abroad. The action of the film takes place in contemporary Moscow, which is a battleground in the struggle between good and evil. The film is made in a certain style of "magical realism", where everything seems to be everyday and ordinary, yet events themselves are totally unreal. Thus two forces are presented in the form of two political classes that are in constant struggle. They are "simple working folk" who gather during the nights as voluntary militia units to do good. And their opponents - businessmen, profiteers, owners, dealers, Mafiosi, prostitutes – are vampires to be controlled. Identity, which has its own specific known and visual attributes, form and ideology are combined with class hostility.

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This line of investigation also takes us further back to Rembrandt and his painting *Night Watch*, of the Amsterdam para-military *doelen*, the Russian power-structure *Gorsvet* (allusion of *Gorsovet* - city council), *Gasprom, Zabulon* and *Geser*. It is difficult not to see a specific political-technological imagosphere behind this adventure film, which allows today's positive hero to join and identify with the sufferings and mission of the soviet people from the past. Thus by the time of the events at

Tõnismäe, the "awakened" Stalinist icon and liturgy, the poles of good and evil, the discontent of the Russian-speaking population, the personal existential memories of Russians of WW II etc. had all accumulated and only a spark was needed to ignite the fuse and unfortunately blow up the charge.

Presenting all these memories of the past surely will help us understand the spaces in the city, witness their emotional build-up and dwell in thousands of possible worlds.

I also believe the Tõnismäe events tell us that we have entered a new realm which one could call the imagospheric world. As we are surrounded by the atmosphere and habit of the litosphere, we are now constantly surrounded by imagos. This has always been the case, but never before has the visual taken such a major role in culture and politics. Imagos surround us constantly, but their full meaning has surfaced only now when the different traditional parts of the media sphere have become denser and amalgamated into one unified field. This unified field prevents us from differentiating media channels any more: news videos, feature films, documentaries, newspapers, television, the web etc. All these different media, media structures and their genres are compressed into the digital platform and surrounded by a screen, usually of our personal computer. This is a new and powerful environment where "mystifications and brilliant eversions, historical and anti-historical attitudes, bitter intellectualisations and mild mythologies" [7] intermix into an inseparable whole.

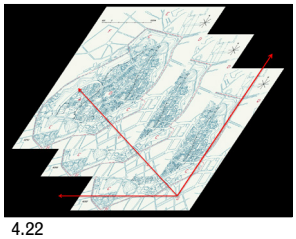
New digital-technological systems are the foundation for this new era of amalgamations and the format of these transformations is its interface – screen. The IPhone, IPad, ITablet and MacBook are perfect examples of this

synthesis. They are not just four separate appliances in the form of four objects. They make up a digital platform interfaced with four screens of different sizes dedicated to the same function on different occasions. The digital platform is composed of several integral parts which I have no knowledge about. Firstly because it has become impossible for me as a user to know what exactly I am using. Is it a machine or is it a bundle of licences? The machine has become irrelevant as I can easily transport everything on its hard disc and operative memory into another machine. Secondly it has its own autonomy to update, communicate, initiate and activate software that is nothing but a string of zeros and ones, a protocol guarded by intellectual property laws. Nevertheless the platform of digital-technological amalgamations is presented as visual in the format of the screen.

We ask – can we use the new digital platform to enrich the city, its space and architecture by presenting the imagospheric plenitude of meanings? Can we connect the diverse cultural and religious structures to the presentation of Tallinn city in its space-time continuum? Can we transform the possibilities of memories of the past into the future stories of multidirectional customisation?

Technological Tools and Platform to be used

From a technological standpoint our aim is to build a **toolset** and **workflow** to store, organize and present space-related historical information. Usability is a key feature in this project since the target users and audience are architects, historians and the wider public. An important element in achieving this is to build a short feedback loop [8], [9] and give full manual control over the process to the user. There is no reason to separate design and presentation tools. A number of trends are showing that these two elements are coming closer and closer together since there is enough computing power. It is not surprising that word documents present a very similar image on the screen to what we see on print. In the computer interface field it all goes under WYSIWYG (What You See Is What You Get) term. Many 3D software have recently come to include real time photorealistic rendering in standard packages (Modo 601, 2012, Blender Cycle, 2012, Autodesk 3D Studio max 2011). Great help in achieving this is coming from the development of GPU (graphic processing unit) and this computing power can also be used for graphics. The Nvidia CUDA [10] platform is widely used among scientists to calculate non-graphical information audio, finance and etc. We would like to integrate these principles into our work as much as possible. Another general principle comes from Joshua Bloch who stated that all API should follow the "When in Doubt, Leave it Out" guideline. In general we would like to build our workflow around two main principles: having a very short and realistic feedback loop and having a very small but effective vocabulary.



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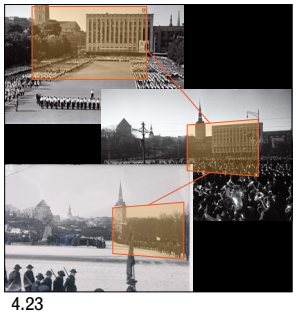

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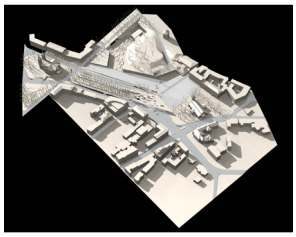
The main content is **maps, photos** and **drawing** based material. Most of this information is not too precise in a digital context and there is significant amount of data of which there is no longer any trace in the real world.

This project needs to deal with very different datasets and to make workflow flexible, we have to divide the project into three different solutions: **map, image,** and **model.** These solutions are independent, which allows them to be developed or to be used independently. Since they all share a spatial dimension it is possible to combine the content along the process. From a develop-

ment perspective we have divided this into three general phases: **organizing, data collection** and **delivery.** During the organising phase, the data input workflow is worked out. The aim is to build an intuitive (easy to use), scalable (no limits to data input), collaborative (multiple access to same data source) and extensible (raw data can be shared by multiple tools) solution. The **development** phase focuses on how to turn content in raw data (for example building on maps) into an over-laying dataset. This may be different depending on the solution type. The delivery phase is the part of the project when final clean-up is done and the project can be used by the general public. Under the project we mean two things: firstly that the content is ready for public use and secondly that the tools and workflows are ready for public use.



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We are trying to **integrate** as much exciting technology as possible although it is hard to find software which has three dimensions: **time, space** (location) and **theme** (content). These are important for organising and design. In the case of maps there are some solutions, as even Google Earth provides an elementary toolset to do that. In the case of photos and models it is more difficult.

Map solution

During the first phase data is gradually collected and geo-referenced. It has to be associated with necessary space; time attributes can be done in most known GIS platforms: ESRI ArcGIS [11] which is a commercial product or qGIS [12] which is a free alternative and there are many others. For sharing purposes it seem feasible to use mapbox [13]. It is easy to extend and it relies on good infrastructure with the Amazon web service S3.

The aim of the second phase is to digitalize all raster images with building digital geometry on top of that. One of the key elements is to get a dynamic terrain model through which dynamically changeable landscapes can be presented. Similarly to the previous phase we can do most of the work in widely available GIS platforms. For presentation purposes it is probably important to port information to WebGL or some game engine (Unity3d [14], Unreal engine [15]).

Photo solution

The first phase, which is data organizing, requires a platform which is not available on the market. Arranging photos according to time and theme is not a complex task and can be done with various different software. There is stand-alone general-purpose software like Adobe Bridge [16], or more dedicated software like Verons [17]. There are also web-based tools like Yahoo Flickr [18] or Google Picasa [19]. Most of them allow you to geo-reference where the images are taken but they do not let you connect features on images and geo-referenced objects on an image. Our aim is to move from picture to picture (Fig. 5) and this software does not provide any solutions to do that. There is another branch of software able to generate 3D models out of sets of images using (SfM [20], SLAM [21] methods). The most popular ones are 123D Catch [22] (previously known as photofly), Microsoft Photosynth [23] or the open source stand-alone software Visual SfM [24]. These platforms allow us to move from image to image but there is a lack of time information. All time is merged to one single moment. For our purpose it is also not necessary to create a 3D model out of images.

The aim of this stage is to build a web application to associate images with a time dimension, geo-information and feature association. Sometimes we also need to connect images where critical features have changed. For example, sometimes the urban fabric between two pictures has changed dramatically

The second phase is concentrating on mapping information on images. An image of a person can be associated with a name. It is important to build a web application for this project to ground source information. The most important part of information collection is to capture invisible information: the name of a person; a description of an activity, etc. We are not too interested in capturing visual information, for example a name from a logo. There is a possibility of using automated visual object detection and 3D recognition algorithms.

Model solutions

During the first phase drawings/photos are collected and annotated with time and space information. It is important to work out where different buildings are located in urban scale. It is very similar to the map solution at this point and there might be interesting overlaps. For example, ground floor plans can be linked. At the same time the main focus is to organize drawings so that they can be easily used for architectural modelling. All ground level plans will be geo-referenced in GIS software. Additional drawings will be grouped in folders.

The second phase is 3D modelling. The model will be built up out of solid elements (watertight mesh). Elements can intersect with one another. Every building will be developed in a separate file. This allows us to manage every individual unit. Bringing them all into one file can be done automatically. The landscape for the model needs to come from map solution terrain model. The final product of this solution will be a collection of 3D models, which can be presented over a period of time.

We hope the amalgamation of technology with urban and cultural history will bring forward new exciting stories, worth reading and telling.

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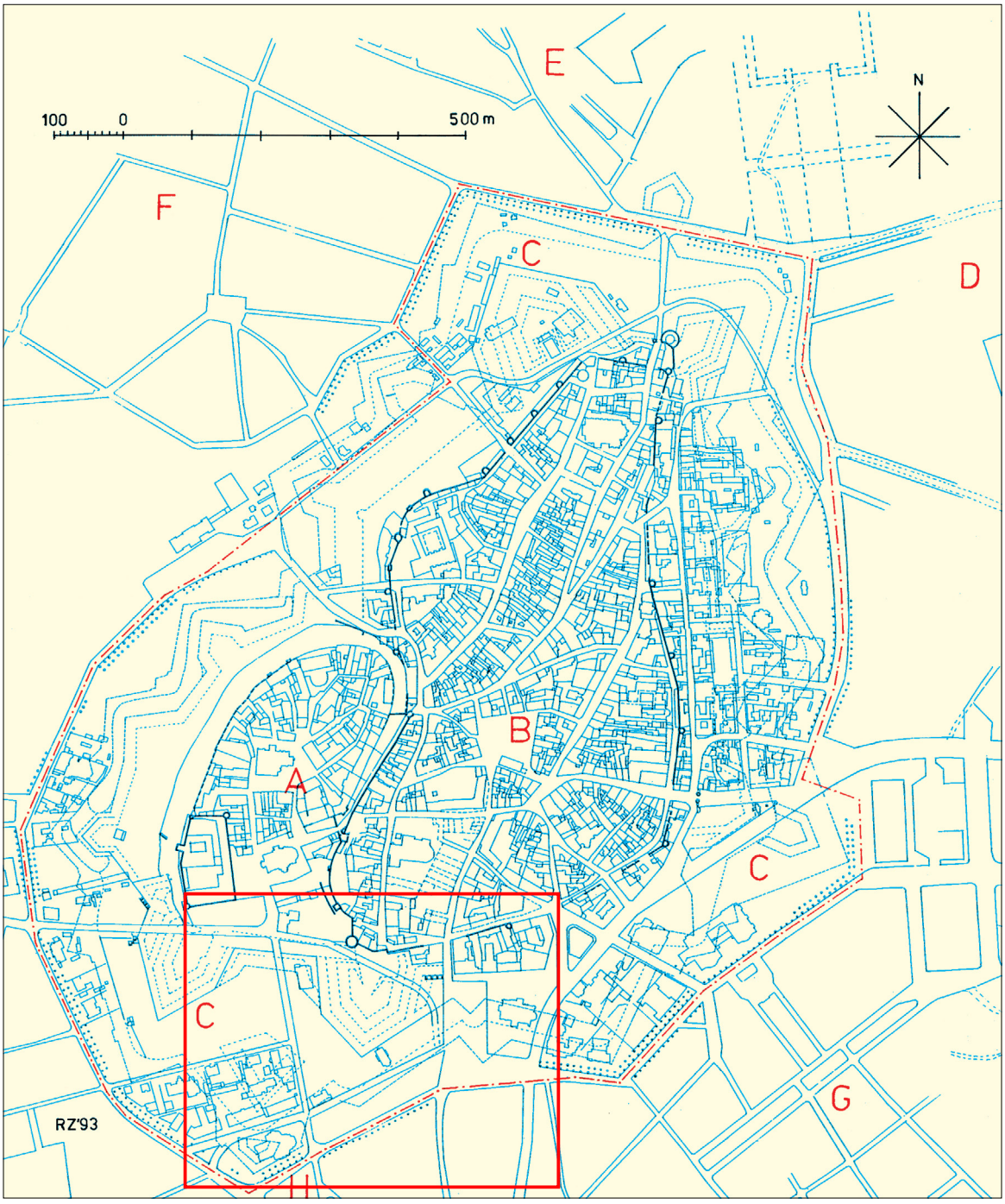
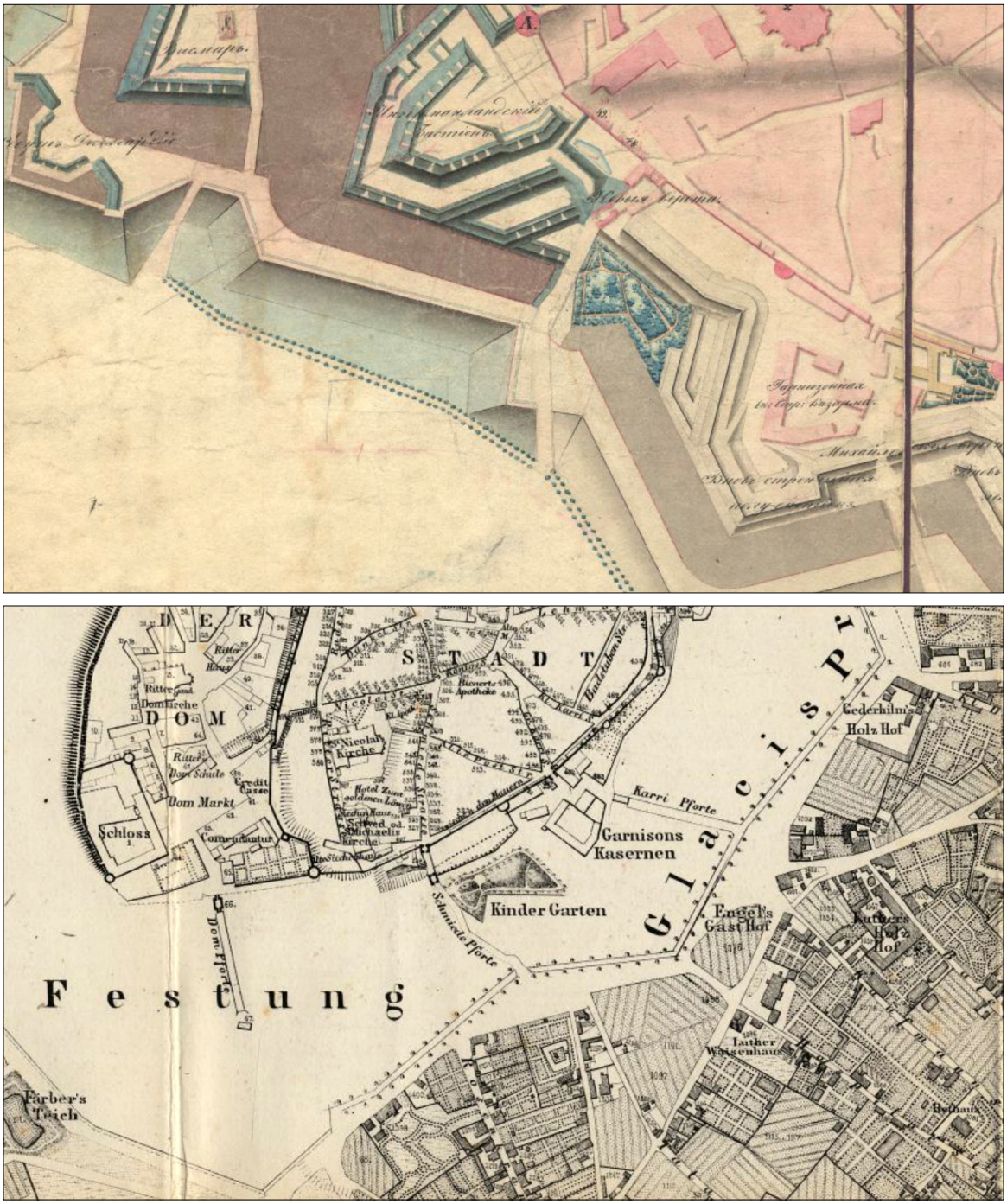


4.1 Reconstruction of Tallinn fortifications. Rein Zobel. Published with the permission of the author.



4.2 Plan of Reval. 20 August 1848. http://www.ra.ee/kaardid/index.php/et/map/viewImage?id=70640&page=1
4.3 Geometrical plan of Reval. 1855. http://www.ra.ee/kaardid/index.php/et/map/viewImage?id=70004&page=1
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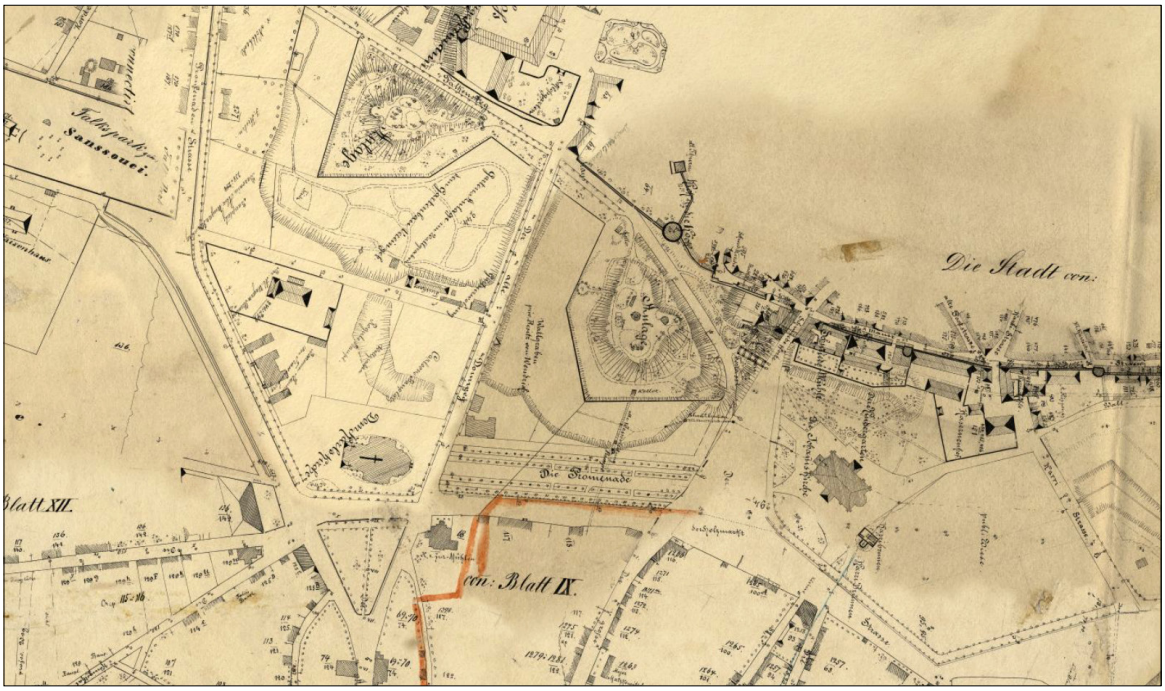

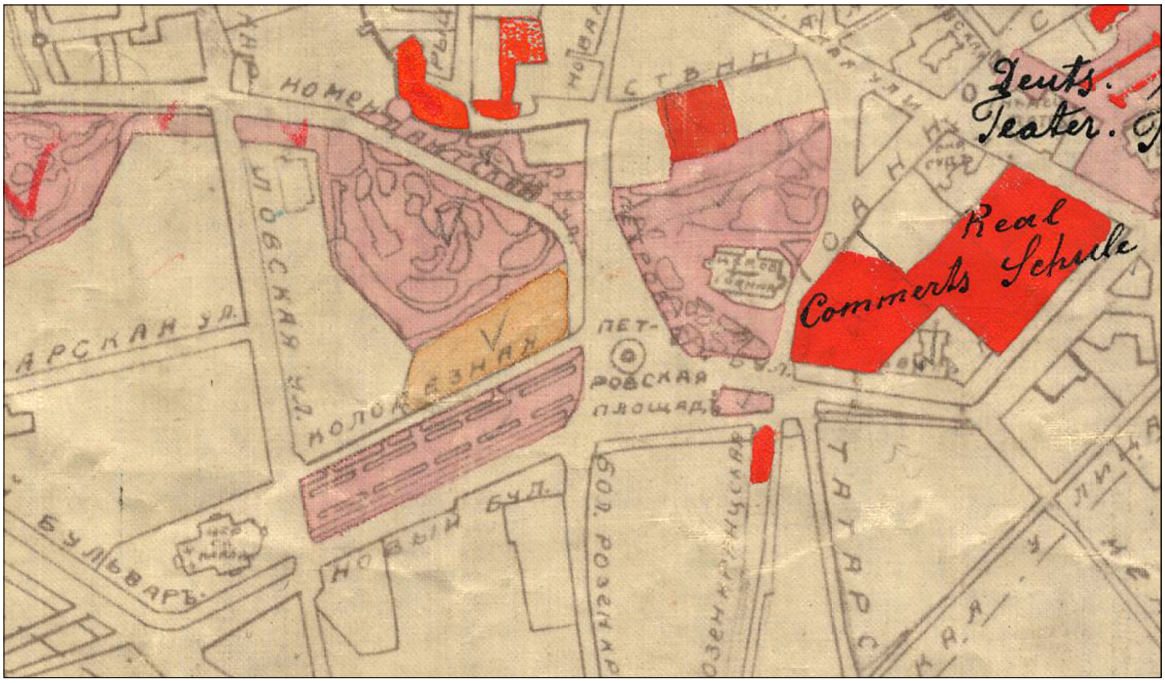

4.4 Tallinn city plan. 28. October 1882. http://www.ra.ee/kaardid/index.php/et/map/searchAdvanced?archive=TLA&fond=149&inventory=4&item=22&vmode=grid&q=1 .
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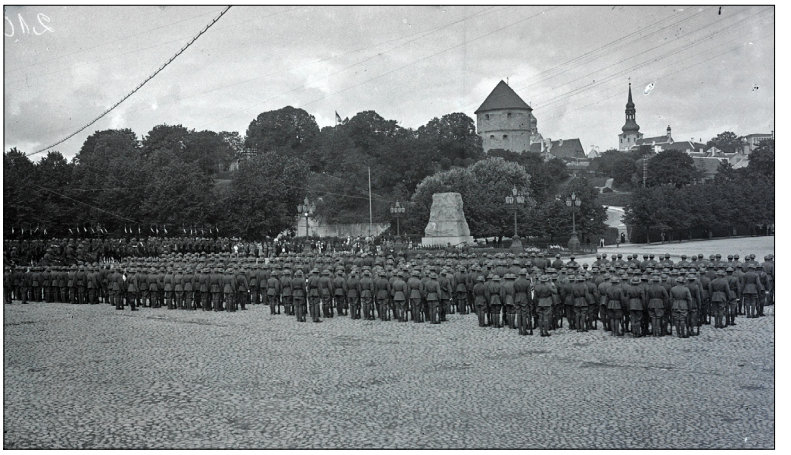
Published with the permission of Tallinn City Archives.

Historical illustrations published with the permission of Estonian National Archives, Film Archive.
4.6 Monument of Peter the Great. Erected 1910, removed 1922.
4.7 Estonian army. First anniversary of Estonian Republic. February, 24 1919.

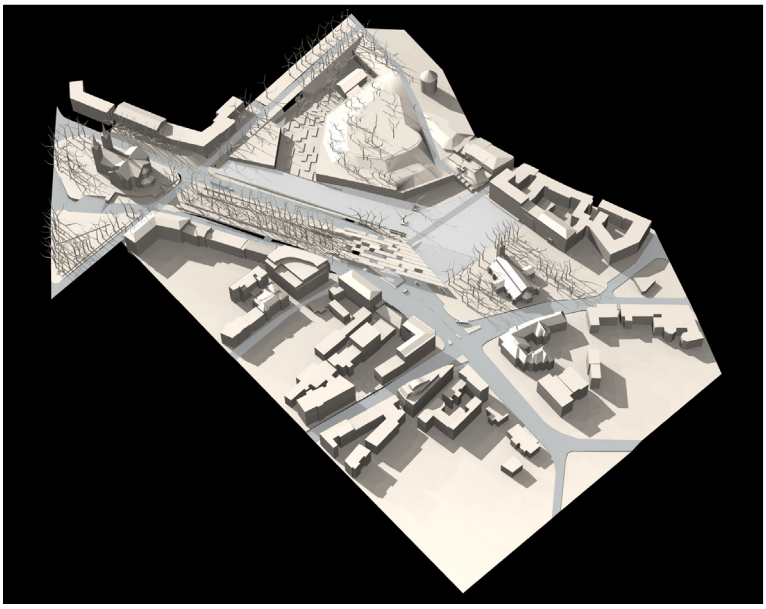
Historical illustrations published with the permission of Estonian National Archives, Film Archive.
4.8 - 4.9 Panoramic views of the Liberty Square around 1920.



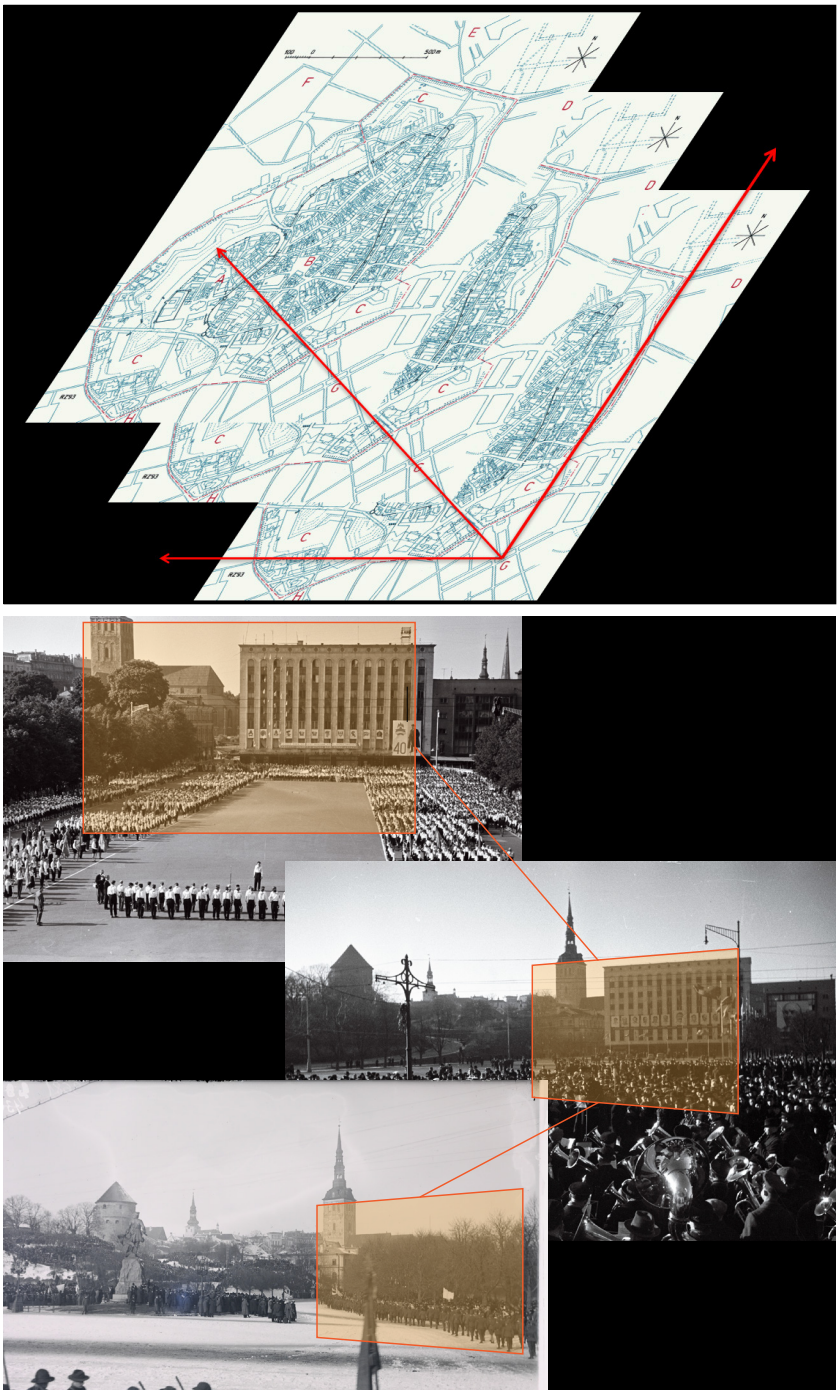
Historical illustrations published with the permission of Estonian National Archives, Film Archive.
4.10 - 4.13 Military parades on the Liberty Square 1922 - 1940.

Historical illustrations published with the permission of Estonian National Archives, Film Archive.
4.14 - 4.16 Communist demonstrations after 1945.

Historical illustrations published with the permission of Estonian National Archives, Film Archive.
4.17 - 4.19 The Liberty Square views until 1992.



4.20 The winning entry of architectural Competition in 2004. Authors: Andres Alver, Veljo Kaasik, Tiit Trummal. Photo by A. Alver, published with the permission of the author.
4.21 The Liberty Square 2017. Photo by A. Alver, published with the permission of the author.



4.22 When historical maps are layered on top of each other a virtual space-time container emerges. The container is governed by coordinates of space and time. Any document linked to these coordinates will become a part of space-time container.
4.23 When spatial objects are tagged with space- time coordinates, they become recognizable and searchable either by type, time or space and generate their own visual narratives.

Remarks on Doctoral Education of Architecture in Europe

The essay is based on the welcome address of the EAAE|ENHSA International Forum on Doctoral Education in Europe: Archidoctor Universalis in Riga, March 11-15, 2013 and was published in the conference proceedings[1].

1. Names Used as Academic Titles

Naming of things and phenomena is important. How we name them, thus they will be and how they are, we will call them. The old hermeneutic circle, cut only by the first words of primary religious or mythic texts – reciting of which does establish the formal beginning: again and again.

Enuma Elish – the Babylonian genesis epic says (Annus 2005, 138):

> *When above the heaven was not named*
> *And below the earth's name called ...*
> *When no gods had made their coming*
> *No names were called, no fates cast ...*

It is quite informative to look at the names and etymology in the history of academic and professional titles within the sphere of architecture.

One of the first remarks about demanding education in architecture comes from Socrates:

> But what employment do you intend to excel in, Euthedemus, that you collect so many books?" Euthedemus returning no answer, as at a loss what to say: "You perhaps intend to study physic," said Socrates; "and no small number of books will be wanting for that purpose." " Not I, upon my word." "Architecture, perhaps, then? and for this too you will find no little knowledge necessary (Xenophon 1840, 583).

In the 7th century the builders from Roman tradition were called *magisterio cementariorum* – masters skilled in masonry. The builders of Lombardy were known as *magistri comacini* or *comanicus*. That was connected to the name of the lake Como, around which the well-known masters came from. (Kostof 1977, 69).
Pierre de Montreuil (1200-1267) the celebrated author of Sainte-Chapelle was buried in the chapel of Saint-Germain-des-Prés and on his epitaph was written: *vivens doctor lathomorum*[2].

1. Doctoral Education in Schools of Architecture across Europe. 2014. European Network of Heads of Schools of Architecture. Charis Ltd, Thessaloniki, Greece.

2. The full text being: *Flos plenus morum vivens doctor lathomorum, Musterolo natus jacet Petrus tumulatus Quem rex caelorum perducat in alta polorum Christi milleno bis centeno duodeno cum quinquageno quarto decessit in anno* (Carruthers 2010, 31).

There are hints that the Medieval master masons did not only operate as highly skilled *artefices* or *auctores* but also as "men of words" – thus academics, teachers or highly powered supervisors. The usually quoted *Par ci me le taille*, can be interpreted in a much more rich way than the usually referred to arrogance of a master mason[3].

Alain de Lille (1116-1202) *Alanus ab Insulis*, was the theologian and poet so varied and profound in his knowledge that he was called during his lifetime *doctor universalis*. Latin word *doceo|docere* – means to teach. This stem word is also connected to commonly known words as *docent* and *doctrine*, thus meaning teacher and teaching as fully developed system of thought.

Albertus Magnus (1193-1280) Albert the Great or Albert of Cologne was called during his lifetime *doctor universalis* as well as *doctor expertus*. Later the titles of *Magnus* and Saint were added to his name. Albert Magnus became also known as the *Doctor of the Church - Doctor Ecclesia*.

Doctores Ecclesia refers to the people, whose doctrines were highly important for the development of Catholic Church. It started with four *Fathers of the Church – Patres Veteres*, *Kirchenväter*. There were four in Latin Church – Saint Gregory the Great, Saint Ambrose, Saint Augustine and Saint Jerome. In 16th century the Catholic Church also recognized the first Orthodox Church Fathers – Saint John Chrysostom, Saint Basil and Saint Gregory Nazianzen. Later 35 persons were nominated as *Doctores Ecclesia*. Out of these three were women – Saint Teresa of Ávila, Saint Catherine of Sienna and Hildegard of Bingen.

Here we see one of the first formalized or canonized definitions of *Doctores Ecclesia*.

The requisite conditions to become a *Pater Ecclesia* are enumerated as three:

eminens doctrina - eminent learning/teaching
insignis vitae sanctitas - a high degree of sanctity
Ecclesiae declaratio - proclamation by the Church (Wiki).

So from names we have arrived to meanings. These three principles govern the conditions of the doctor in Latin Church.
We also know the learned architects who are not called doctors. In Reims Cathedral we can find Hugues Libergier's (1229-1267) tomb slab. In the upper part of the slab the text says: *Maistre Hves Libergier*. Erwin Panofsky believes the depiction of the architect resembles the clothing of an academic or Scholastic – *pilleus*, gloves, cape. Hugues also holds in his hands the rod (*virga*) and model of the church – the sign usually dedicated to the patrons of the building.

Philippo Brunelleschi (1377-1446) the author of cupola of Santa Maria del Fiore in Florence was named on his tombstone: *corpus magni ingenii viri*. This is translated as "very talented man" or "great ingenious man". The last word *ingenious* arrives into late Middle English as derivation from Latin – *ingenium* - mind, intellect. The same root of which engineer arrives to English – *ingeniare* – contrive, devise.

3 .The well known quote is: Magistri cementariorum, virgam et cyrothecas in manibus habentes, aliis dicunt: *Par ci me le taille*, et nihil laborant; et tamen majorem mercedem acciiunt, guod faciunt multi moderni prelati. And the second one: Operantur aliqui solo verbo. Nota: In istis magnis aedificiis solet esse unus magister principalis qui solum ordinat ipsa verbo, raro aut numquam apponit manum, et tamen accipit majora stipendia aliis. Sic multi sunt in Ecclesia qui habent pinguia beneficia, et Deus scit quantum faciant de bono; operatur in ea solum lingua, dicentes; 'Sic debetis facere' et ipsi nihil horum faciunt (Carruthers 2010, 23).

The Latin world *genius* comes from *gignere* ("to beget") – it is the "attendant spirit from ones birth" – similar phenomena as Socrates was referring as *daimon* - guardian spirit "replete with knowledge" (http://www.pantheon.org).

The Medieval masons were very often called Master or *Meister*. The mason of that level was usually the member of the particular Guild. Probably the old stem was Latin *magister* – *magis* – meaning more important. Probably connected to Proto-Indo-European word – *magyios* – related to root *meg* – great, big, - *megalos*. *Magister* thus has referred to an outstanding mastery.

The common names also for people becoming or wanting to become the Master were: *apprentice* and *journeyman*. The apprentice became a part of Masters family and worked with him until the Master considered his knowledge and skills sufficient. In masons' guilds that took approximately 5-7 years. Journeyman was sent to exchange knowledge and skills to a friendly guild abroad for two to three years. With completion of studies one was ready for master examination.

Today the term *doctor* is mostly used to denote the medical doctor which is much later development that the Doctors of the Church. It was in the 13th century in Paris, where the term *doctor* passed from theology to law and medicine, referring to the theoretical part of the profession (Carruthers 2010, 35). Architecture was here a favorite example as in this profession the result has to been foreseen and contrived, before the process of executing really starts.

2. Confusion of Meanings of Academic Titles

I have personal experience of two formalized doctoral systems: in the former Soviet Union and in the United Kingdom. Both were established long before of the beginning of Bologna developments.

Firstly about the doctorate in the USSR. This was a closed and highly protected area of expertise because of its political sensitivity. All the areas of knowledge were submissive to communist ideology, even if it was impossible. In the academic system of the USSR were three nominations:

Candidate of Sciences in ...,
Doctor of Sciences in ... and
Academician.

The general formation of the first degree of advanced studies consisted of three Candidate exams, usually done in the first year and writing the thesis, called the dissertation of the candidature. The exams were to secure that the applicant had obtained and understood sufficient body of knowledge in the field of studies. It also was designed to force the communist ideology into the studies. The most important criterion for the dissertation was to produce original solution to a major problem or problems in the field of studies. That was the formal difference of the candidate research compared to the research in general.

The Doctor of Sciences was much more complicated form of the academic advancement. The Doctor of Sciences had to have substantial list of major publications and usually his/her own research school. That was meant both

intellectually and institutionally. So the Doctor of Sciences in the USSR was the recognition of senior advanced researcher and also of his/her tested political loyalty to the state.

Secondly I have experience of the UK system of advanced studies. The system consisted and still consists of two academic recognitions as well as one honorary position. The academic positions are:

- Master of Philosophy (MPhil) and
- Doctor of Philosophy (PhD)[4].

Everybody who enrolled into the doctoral studies was positioned in the category of Master of Philosophy. In the middle of studies the decision was to be made: either to proceed and graduate with MPhil or continue directly for the PhD. The decisive criterion that separated the two was the promise of:

> *the creation and interpretation of new knowledge, through original research or other advanced scholarship, of a quality to satisfy peer review, extend the forefront of the discipline, and merit publication.*

Today the criteria have been worked further and they present itself the framework for higher education qualifications in England, Wales and Northern Ireland (FHEQ). The list of criteria include in addition to the above mentioned criterion, the following:

> - a systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of an academic discipline or area of professional practice;
> - the general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline, and to adjust the project design in the light of unforeseen problems;
> - a detailed understanding of applicable techniques for research and advanced; academic enquiry.

Typically, holders of the qualification will be able to:

> - make informed judgements on complex issues in specialist fields, often in the absence of complete data, and be able to communicate their ideas and conclusions clearly and effectively to specialist and non-specialist audiences;
> - continue to undertake pure and/or applied research and development at an advanced level, contributing substantially to the development of new techniques, ideas or approaches
> and will have:
> -the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent environments.

So both described systems of doctoral education consist of two-tier program, but the amount and level of studies differ quite a lot and the systems are not formally nor essentially easily comparable. So both the former soviet titles *Candidate* and *Doctor* have been transformed into or have been compared to Doctor of Philosophy.

4. The modern Philosophiae Doctor probably originated from University of Berlin where Wilhelm von Humboldt in 1810 advocated for holistic pursuit of knowledge. Humboldt originated PhD became adopted in the USA and the UK at the turn of the century and became a standard in many English-speaking countries (Wiki; Belderbos, Verbeke 2005, 83).

Bologna declaration, that aimed to clarify readable and comparable degrees, transferable credit system and student mobility, compressed the national and independent academic traditions of doctoral education into one layer – the third cycle. Bologna declaration says very little about third level education. The stages of first and second level were called Bachelor (*Baccalaureus*) and Master:

> Adoption of a system essentially based on two main cycles, undergraduate and graduate. Access to the second cycle shall require successful completion of first cycle studies, lasting a minimum of three years. The degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification. The second cycle should lead to the master and/or doctorate degree as in many European countries.

Out of these recommendations PhD as a third cycle of studies was a logical development. There are two reasons which made adoption of PhD as the outcome of third cycle easy: Firstly, the second cycle received Master nomination in the majority of European countries as a formal title. Secondly the second cycle with the title as Master, was already in many cases, as principle, already considered as research orientated educational level.

The European Higher Education Area developed the Bologna process further also from the point of view of third cycle[5]:

> With a view to achieving better results we recognise the need to improve the synergy between the higher education sector and other research sectors throughout our respective countries and between the EHEA and the European Research Area.
> To achieve these objectives, doctoral level qualifications need to be fully aligned with the EHEA overarching framework for qualifications using the outcomes-based approach. The core component of doctoral training is the advancement of knowledge through original research. Considering the need for structured doctoral programmes and the need for transparent supervision and assessment, we note that the normal workload of the third cycle in most countries would correspond to 3-4 years full time. We urge universities to ensure that their doctoral programmes promote interdisciplinary training and the development of transferable skills, thus meeting the needs of the wider employment market. We need to achieve an overall increase in the numbers of doctoral candidates taking up research careers within the EHEA. We consider participants in third cycle programmes both as students and as early stage researchers.

The so called *Dublin Descriptors* were proposed first in 2002 as common criteria for Bachelors' and Masters' education. In 2004 it was revised and included also the third cycle education. The document was called *Shared 'Dublin' descriptors for Short Cycle, First Cycle, Second Cycle and Third Cycle Awards*[6]. It is rather interesting to note that here in the glossary the word *research* is given in a very fluid state:

> The word '**research**' is used to cover a wide variety of activities, with the context often related to a field of study; the term is used here to represent a careful study or investigation based on a systematic understanding and critical awareness of knowledge. The word is used in

5. The European Higher Education Area - Achieving the Goals. Communiqué of the Conference of European Ministers Responsible for Higher Education, Bergen, 19-20 May 2005.

6. Qualifications that signify completion of the third cycle are awarded to students who:
- have demonstrated a systematic understanding of a field of study and mastery of the skills and methods of research associated with that field;
- have demonstrated the ability to conceive, design, implement and adapt a substantial process of research with scholarly integrity;
- have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits national or international refereed publication;
- are capable of critical analysis, evaluation and synthesis of new and complex ideas;
- can communicate with their peers, the larger scholarly community and with society in general about their areas of expertise;
- can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge based society (http://www.tcd.ie/teaching-learning/academic-development/assets/pdf/dublin_descriptors.pdf).

> an inclusive way to accommodate the range of activities that support original and innovative work in the whole range of academic, professional and technological fields, including the humanities, and traditional, performing, and other creative arts. It is not used in any limited or restricted sense, or relating solely to a traditional 'scientific method'.

Still until today in Europe several nominations of historical nature have remained in the doctoral education. The most well-known is *Habilitation*. It comes from Latin *habilis* and means "fit, proper, skillfull". It is the highest qualification that a scholar can achieve in several countries in Europe, Central Asia, and the Caucasus (Wiki).

Compared to the three cycles of Bologna process it is earned after obtaining a research doctorate, and thus appears as the fourth cycle of academic titles. *Habilitation* requires that the candidate had to write a professorial thesis (or habilitation thesis). It has to be based on independent scholarship, reviewed by and defended before an academic committee:

> However, the level of scholarship has to be considerably higher than that required for a research doctoral (PhD) thesis in terms of quality and quantity, and must be accomplished independently, in contrast with a PhD dissertation typically directed or guided by a faculty supervisor (Wiki).

The debate on *Habilitation* is still ongoing in Germany.

In Sweden and Finland an intermediate degree, comparable to MPhil of the UK, still survived. It is called respectively *licentiate* and *lisensiaati*.

> In Swedish and Finnish universities, a Licentiate's degree, recognised as a pre-doctoral degree, is equal to completion of the coursework required for a doctorate and a dissertation which is formally equivalent to half of a doctoral dissertation (Wiki).

In France the title *Docteur d'Etat* is now replaced by *Habilitation à Diriger des Recherches*. The award of the French *Habilitation* is a strict requirement for supervising PhD students and applying for Professor's position.

The process of understanding academic titles is even more complicated by the transformative process of academic positions and appointments. Here the nominations of *Docent* and *Professor* become the part of the discussion. For instance those in Germany who hold the *Habilitation* can become nominated *Privatdozent*, which means the title holder can teach without the supervision of the Professor (Wiki).

We can conclude this section with the interpretation that the *Universum Doctoralis* is not just so simple and clear as it looks at the first glance.

3. New Directions of Doctoral Studies

International Forum on Doctoral Education in Europe of ENHSA took place in March 12-14 of 2013, in Riga. On the forum several traditional and new doctoral programs were presented and discussed. I have a feeling that in its en-

tirety the forum described that a new paradigm is under formation in doctoral education in the field of architecture. The new paradigm itself has not been formulated but it clearly shows the loosening up of traditional methods and formation of doctoral education in architecture.

Traditional methods and formation of doctoral education in architecture I see mostly in the field of history, theory and technology of architecture. The first two – history and theory – mostly rely on historical and philosophical traditions. These are histories and philosophies of architecture. Technology of architecture mostly relies on the traditions of positivistic sciences and in some cases to the managerial traditions.

Since I remember myself being part of the architectural education and its international networks the discussion of new research methods and doctoral education has been around. That is now close to fifteen years. Particularly clearly I remember the conference *The Unthinkable Doctorate* in Brussels by Sint-Lucas School of Architecture in 2005. The conference call asked:

> Doctorates in the 'architectural sciences'(considered in their most general sense, including urbanism, urban design, and regional planning), in the various domains of construction, and in theory and history of architecture are currently recognized.
>
> But a 'doctorate in architecture' which is constituted from the architect's work itself – the verb 'to architecture' is yet lacking from our vocabulary – has not yet really been explored. What is its field of application? What criteria are applicable to it? What options might be available, and what should be required of potential candidates (Belderbos, Verbeke 2005:13)?

Several "unthinkable" doctorates were presented and discussed. Halina Dunin- Woyseth concluded her presentation with general remark that described the overall situation:

> On the basis of this discussion with regard to the doctorates in architecture an assumption has been made that there is now a supportive climate in Europe for developing various forms of doctorates within the broad scope of the earlier 'unthinkable' and now increasingly 'thinkable' doctorates. Such development seems to be promising for architecture both as a field of expertise and a field of inquiry (Belderbos, Verbeke 2005:99)

This development has resulted in a new type of Creative Practice Research: ADAPT-r[7]. (See: Pedersen, Verbeke, Albertsen in the present volume: *The PhD programme at Aarhus School of Architecture enters its fourth stage*.)

In Scandinavia the tradition of process and design based research has been quite common for more than a decade. Expressions like "making professions" and "creative professions" are not new. In Aalto University the Doctor of Arts has been possible since 1983 and the first graduations were 1990s[8]. In Sweden the support for the research and development in arts began in 2001 and it was targeting at the beginning the educational networks. Since 2003 the Swedish Research Council (*Vetenskapsrådet*) has awarded project grants for artistic practice-based research:

7. Since 1st January 2013 the School is also partner is the ADAPT-r (Architecture, Design and Art Practice Training-research) project (see www.adapt-r.eu). This is one of the largest undertakings in architectural research training ever. The project is funded under the 7th Framework of Research of the European Commission. Partners in this project are KU Leuven, Faculty of Architecture Sint-Lucas (who is coordinator), Aarhus School of Architecture, RMIT (Melbourne, Australia), University of Westminster (UK), Glasgow School of Arts (UK), Estonian Academy of Arts (Tallinn) and University of Ljubljana (Slovenia). The project focuses on interacting with architectural, art and design practices to develop Creative Practice Research. Training activities are scheduled on a bi-annual base in Ghent, Belgium (hosted by KU Leuven, Faculty of Architecture Sint-Lucas) and Barcelona, Spain (hosted by RMIT Europe)(Pedersen, Verbeke, Albertsen).

8. Dissertation including art productions (in the field of art and design). In the field of art and design, a dissertation can also include an art production, a series of art productions meaningfully connected to each other, or a product development project. A written thesis forming a part of the dissertation has to be in a dialogic and analytic relation to the art productions or product development project, and the doctoral candidate has to present in it the targets, methods and findings of the production, series of productions or product development project. Dissertation can include artistic parts, which can be joint productions or projects, provided that the independent contribution of the doctoral candidate can be clearly indicated. The art productions may only be new works. The written thesis must be suitable for publication (https://into.aalto.fi/display/endoctoraltaik/Dissertation+and+Graduation).

> The point of departure for artistic research is found in the artistic process and works. Research, regardless of art form, is practice-based and includes intellectual reflection aimed at developing new knowledge. The results of artistic research are usually presented both as creations and in written form (https://www.vr.se/inenglish/shortcuts/artisticresearch).

Similar processes of supporting artistic research in visual arts can be noted in Wales, where practice based research became widespread and were introduced for architectural research around 2002 (See: Forster, Tweed in the present volume: *New developments in doctoral research at the Welsh School of Architecture*). Here the difference between "practice-based" and "practice-led" research is made. Practice-based Research is an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice. Claims of originality and contribution to knowledge may be demonstrated through creative outcomes. Practice-led Research is concerned with the nature of practice and leads to new knowledge that has operational significance for that practice.

These processes of shifting interests and experimentation in doctoral studies in architectural domain during the last ten-fifteen years bring forward two interpretations:

Firstly, quite similar loosening of a paradigm happened in general architectural education in Europe (though, probably not that clearly visible) during 1970s-1980s. Then the interest of architecture was focused from relating disciplines that composed the architectural curriculum to the design itself. The design studio became the most effective teaching tool. It was recognised that architecture is a worthy intellectual subject in its own right and that architectural education itself offers a special way of learning[9].

Secondly, the research, its methods and outcomes in architectural education, particularly in doctoral research, has reached the period where it experiments with new possibilities. That is also a certain indication of a probable paradigm change in architectural education.

4. Speculation of the Paradigm Change?

To provoke a debate one can go even further and speculate that the current diffusion in research within the architectural education is not a narrow paradigm change by itself, but refers to a much larger tectonic shift in architectural phenomena.

For nearly hundred years we have heard tragic voices in the histories and theories of architecture. They are about the crisis in architecture and emerge under different headings: "loss of the centre", "decline of the aura", "architectural patient surviving or succumbing", among others. There have also been a huge number of manifestos proclaiming a new start for the new architecture. The latest development of architecture can be seen on the background of many theoretical texts as an enduring crisis.

We could suspect that architecture as an existential profession; thousands of years old; emerging from the intersections of poetics and politics; concerning everyone's fundamental reflection of space and time; could be proud and

9. In 1972 Bill Hillier, John Musgrove and Pat O'Sullivan called for changes: "A few voices crying in the wilderness that architecture contained its own fundamental disciplines could not stop the onward march of these simple and powerful ideas, and by and large they still hold the stage today" (Hillier, Musgrove, O'Sullivan 1972, 29:3:2).
The "simple and powerful ideas" - they referred to concerned the understanding that architects were not fit to generate new knowledge for themselves and that this was the job of 'related' disciplines. The educational consequences of these ideas were seen by the authors in a milieu containing a rich variety of related disciplines. Students were to be well grounded in each of them. This made the education of architects "broad and shallow", the designer's field thus became "more complex and less structured".

arrogant in its universality and all-embracing being. This arrogance is exactly the string of character that developers, politicians, historians and many others blame architects and architecture for. Nevertheless architecture within its universality and all-embracing being still feels uncertain. In this uncertainty of permanent crisis laments for previous glory and longings for a new Messiah are felt[10].

I would choose to be even more tragic and say: it is not just a permanent crisis intuited by historians, theoreticians and architects: we might be facing the full change of paradigm in architecture as a cultural phenomenon and as a professional education. This paradigm could be called modern, if we allow it to stretch from Renaissance to Trans-Modernism. Tafuri calls the last phase of it Hyper-Modernism (Tafuri 2006, xxvii).

One can see three major elements in this long-lasting paradigm that might be at the state of disappearing or mutating: **(1) the representational system of architectural design, (2) the means of producing architecture designed and (3) the authorship of an architect designing.** There are probably more changes (diffusion of public and private affairs, global panopticon, etc.) but these have caught my eye and attention, providing exciting areas of research. These three major elements within architectural phenomena are: orthogonal projections in the form of designing and working drawings, isolation of architects' profession from builders and later from engineers as well as emergence of a singular author for the architectural process. These changes took their shape in Renaissance and have been holding up with different fluctuations until today. Even the Industrial Revolution did not change this development.

I suspect that the reason for these changes is the Technological Revolution, going on now – particularly the new stage of advancement in information and media technologies. The new technology has now transformed from quantitative and cumulative changes into the new structure of quality. Through pan-digitalisation of every sphere of human life, we are rapidly encountered by the on-line parallelism of multitude of possible digital worlds.

Within visualisation and screening of pan-digitalised representational systems, the qualities like hybridisation, arbitrary juxtaposition, simultaneity and multitasking create totally new discourses. One can believe that they bring forward a new epistemology. An ordinary web page today looks like the entry of the Chinese Encyclopaedia of Borges quoted by Foucault in *The Order of Things* (Foucault 206, xvi).

The pan-digitalisation has suggested a new way, how we perceive the realm of physicality, the raw existentiality of thingness around us. The remote sensing, digital markers and switches, large-scale screens, led lighting, etc. have created an epistemological membrane between the existential materiality and human visual and haptic sensing. Architecture is becoming more and more screen-like or is experienced as a screen. The traditional design projections are becoming more close to the online code. The building practice is transformed through CAD/CAM technologies into 3D printing. The parametrical design process with online copying question the legacy of the author of the design.

In the lack of a better term I would like to call this new condition: *imagospheric*. We are constantly and primarily surrounded by images on the screens or

10. Roger Scrutton reminds us of Hans Sedlmayr in 1979:
"What is architecture? Why is it important? How should one build? These questions have never been more urgent, but architects and theorists now seem hesitant to answer them in a serious and systematic way. As Hans Sedlmayr wrote, in Verlust der Mitte, 'the new type of architect has become hopelessly uncertain of himself. He glances over his shoulder at the engineer, he fancies himself in the role of inventor and even in that of a reformer of men's lives, but he has forgotten to be an architect." (Scrutton 1979,ix).
Today we might paraphrase Sedlmayr and say that architect glances over his shoulder at urbanists, landscapers, geographers and others. Sedlmayr's book was published 30 years before the book of Scrutton and it was full of bitter criticism on modern culture and among other phenomena, he was particularly focusing on modern architecture. Manfredo Tafuri brings Sedlmayr into the wider context of other voices:
"Adopting a different kind of tragic outlook /altra tragicita´/, Hans Sedlmayr formulated a critique – reactionary in every sense – centering around concepts such as the "loss of the center" and the "death of light." /.../ For example, it is difficult indeed not to sense the close affinity between Sedlmayr´s intuition of loss, Benjamin´s concept of the "decline of the aura", and Robert Klein´s reflections on the "anguish of the referent." (Tafuri 2006: xxvii-xxviii).
One could add here Alberto Perez-Gomez, whose book Architecture and the Crisis of Modern Science, published in 1983, looked at similar dramatic events:
"When a physician talks about a crisis in the condition of a patient, he is describing a moment when it is unclear whether the patient will survive or succumb. In a true sense, this is now the condition of Western culture. In the last century and a half, man has done it utmost to define the human condition and ironically has lost the capacity to come to terms with it; he is unable to reconcile the eternal and immutable dimension of ideas with the finite and mutable dimension of everyday life " (Perez-Gomez 1988 4,6)

attend to the world like screen. I keep the name *imagosphere* for the time being, to allow its synthetic and broad meanings to be fulfilled.

In some sense, we have crossed the threshold of a new era. New digital-technological systems are the foundation for this new era with several amalgamations and the format of these transformations is its interface – screen. IPhone, IPad, ITablet and MacBook are the perfect examples of this new synthesis. It is not just four separate appliances in the form of four objects. It is a digital platform interfaced with four screens of different size, dedicated to the same function in different occasions and partly interchangeable. The transformation is evident when we consider the recent reminder in *International Herald Tribune*:

> At one time, preparing children for school required buying new clothes and a fresh set of pencils. These days, your child is likely to need Internet access and laptop even more than a composition notebook. For parents, the choices can be overwhelming – and expensive (Buckleitner 2013).

By the way I had to read the sentence twice to make sure that the difference between *laptop* and *notebook* is not the configuration and size but the dichotomy of analogous and digital.

The digital platform is not "mine", it is composed of several integral parts, which I have no knowledge about, nor the command over. Firstly, because it has become impossible for me as a user to know what am I exactly using. Is it a machine or is it a bundle of licences that is attached to another bundle of licences and patents. The machine has become irrelevant as I can easily transform everything on its hard disc and operative memory into another machine. Furthermore the machine has become irrelevant as the content of my actions is not even localised – it has joined the clouds.

Secondly, the digital platform has its own autonomy to update, communicate, initiate and activate software that is nothing but a string of zeros and ones, a protocol guarded by intellectual property laws around the domain of meanings that constitute my work.

Nevertheless which form the message takes, the platform of digital-technological amalgamations is finally mostly presented as a audio-visual in the format of the screen. Screen in the form of material or mental structure by itself is a relatively old phenomenon. It comes to the basic question of every screen-like representation: how is it possible to convey on two-dimensional surface various signs and three-dimensional objects. In a more sophisticated version the screen or membrane is an imaginary epistemological device connected to seeing and viewing the world.

The screen-ness of current life-world has another metaphoric level in architectural profession today. After the WWII architect was the sole consultant of designs for buildings and planning of cities. That has gradually changed. Today architect is but one consultant among the many. The speed of change has been different in different countries and cultures, but the vector of development is quite clear.

As a broad trend of development it predicts the profession is in the need of transforming, or worst - the profession could be extinct soon. The decisions

in **larger scale of space are dominated**, just to count some, by: environmental scientists, social scientists, political scientists, geographers, human geographers, economic geographers, landscape designers, landscape architects, urbanists, urban designers, planners, etc.

It is also clear that the **smaller scale of space is more dominated** by: designers, furniture designers, interior designers, graphic designers, interior architects, life-style consultants, florists, professional mediators etc.

What is left for the architects?

Within this line of speculation one can wait for extremely interesting developments in architectural phenomena, architectural education and soon enough in architectural research, particularly in the doctoral research.

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Architecture, Education and Tomorrow

The lecture is based on the seminar Future Scenarios in Umeå University, School of Architecture and was published in architectural journal MAJA 4-2014.

1. Tomorrow is Today

In recent years one could constantly feel that the future is present before a past has become the past. It looks like future has put a special pressure on the presence of today. As if everything happens before, before its real time. It concerns not only architecture but also our everyday life in the Digital Universe.

Recently we were introduced to Amelia. She can speak 20 languages, understand concepts and learn from her mistakes. She can read several textbooks in a day and can probably be replicated infinite number of times. She is an algorithm, "a learning cognitive agent", designed by IP Soft. She could be your job interviewer or your new boss. You can probably customize how she/he/it looks. This is a bad news for those who believe that human mind and intelligence are not just a network of circuits on chips and an access to the data. Hong Kong venture capital fund has gone a step further: they have appointed a new board member – intelligent investment analysis software VITAL (Wall, Matthew 2014). That algorithm has the voting power in the board – it really is making decisions for humans.

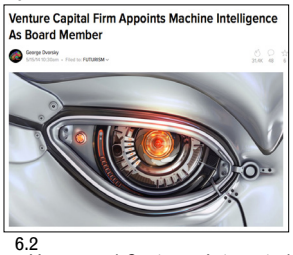
The spectacular development of robotics is another field of the future and the past. Isaac Asimov published in 1942 a short story titled *Runaround*. He devised there a set of laws, called the *Three Laws of Robotics*. The essence of these laws was that a robot cannot injure a human being, or allow human beings to come to harm. Today both algorithms and their robotic extensions are created to be used for killing human beings[1].

2. The Third Industrial Revolution

In October 2014 *The Economist* published a special report on the world economy. It was about the new industrial revolution called the "third great wave":

> A third great wave of invention and economic disruption, set off by advances in computing and information and communication technology (ICT) in the late 20th century, promises to deliver a similar mixture of social stress and economic transformation. It is driven by handful of technologies – including machine intelligence, the ubiquitous web and advanced robotics – capable of delivering many remarkable in-

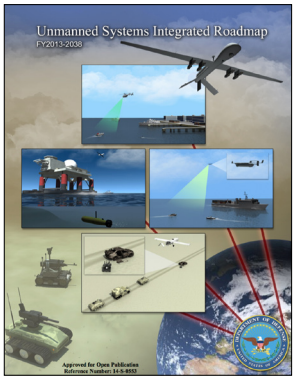
6.1



6.2

1. Unmanned Systems Integrated Roadmap. FY2013-2038. USA Department of Defence. http://www.defense.gov/pubs/DOD-USRM-2013.pdf. As a matter of fact the report does not specify use of fatal force, but it is hard to figure how Figure 33 specifies autonomous missions worldwide without using force. Page 25 clearly declares the effort: "Take the "man" out of unmanned. Currently personnel costs are the greatest single cost in DoD, and unmanned systems must strive to reduce the number of personnel required to operate and maintain the systems. Great strides in autonomy, teaming, multi-platform control, tipping, and cueing have reduced the number of personnel required, but much more work needs to occur."

> novations: unmanned vehicles; pilotless drones; machines that can instantly translate hundreds of languages; mobile technology that eliminates the distance between doctor and patient, teacher and student(The World Economy Special Report, 2014).



6.3

Recently it has been not so much the hardware that has developed but several productive innovations: cloud computing, more efficient algorithms and more powerful translating software have pushed forward the digital revolution. This means that several jobs we have today can be computerized. The report by Oxford University scholars showed that 47% of 700 professions analyzed are at high risk of being automated away in America (The World Economy Special Report, 2014). In some areas the material input of a product's general value diminishes as original design and engineering take over. The product becomes more and more dematerialised. People are willing to pay much more for content in services like digital communications, health care, education and telecommunications.

ICT also means that the labour market becomes more competitive on global level:

> No longer can governments count on a growing industrial sector to absorb unskilled labour from rural areas. In both the rich and the emerging world, technology is creating opportunities for those previously held back by financial or geographical constraints, yet new work for those with modest skill levels is scarce compared with the bonanza created by earlier technological revolutions (The World Economy Special Report, 2014).


6.4

There is also an efficiency lag built into the ICT development. It is pushing salaries up for the selected few but the general reorientation of workforce and efficiency brought by this new technology has not happened yet. And it might not start automatically as several sections of workforce in some professions may become obsolete.

There is another paradox. Although space constraints disappear with digital highways, cities still enjoy a number of benefits, so people tend to stay there despite higher costs and more crowd. Real-life distance to customers, friends and lovers is important. It also seems ideas spread in urban environments much more easily. Places of life and work diversify even more depending on the income.

One of the areas fared to go through radical changes is education. Online offerings are improving and expanding. Big and strong institutions build their own, often free, online courses to match their curricula. Some are already offering complete online degrees. Education thus becomes more flexible and definitely significantly cheaper. Online courses can make a huge number of lecturers and docents unnecessary.

3. Massive Higher Education

All the previously said happens on the peak of massive higher education. The phenomenon of education massification started to appear in the second half of the 20th century.

Higher education is regarded in the knowledge-based economy as an intellectual resource that has gradually taken over some weight of the material resources and physical labour. This will only be enhanced and fastened by the Third Industrial Revolution. We can already now say that the higher education has been transformed into a segment of world economy , which has its own mass product: knowledge that is created, gathered, transferred and sold.

The temple university of Fichte, Schleiermacher and Humboldt was based on the myth of university as an institutional place for "auto-motion of universalizing speculative spirit" (Grauberg 2013,1792). It was built on the authority of the institution, which again was built on the authority of its professors, who were part of the institution: a self-supporting and self-legitimizing whole. After the WW II, this myth lost its trustworthiness and positivistic science paved the way for the new massification. Post-modern science does not legitimize itself through such ideological schemas, but supports itself through experts and consensus on the usage of its new forms.

The position of experts and horizontal institutional build-up of universities as well as the question of usage of public money has often brought forward for massified university a totally new and increasing burden: the requirement to prove its quality through self-appraisals, accreditations, validations and quality assurance processes. In the worst-case scenario it is also influenced by more or less populist university rankings. One can see the Bologna Process and Lisbon Strategy with more than 40 countries participating in the European Higher Education Area as a noble task of creating comparable and coherent higher education for Europe.

Some medical professions and architecture have been in the scrutiny of comparable learning outcomes earlier than the other professions in Europe. The Professional Directive (*COUNCIL DIRECTIVE of 10 June 1985 on the mutual recognition of diplomas, certificates and other evidence of formal qualifications in architecture, including measures to facilitate the effective exercise of the right of establishment and freedom to provide services (85|384|EEC)*) and the more general Qualifications Directive (*DIRECTIVE 2005|36|EC OF THE EUROPEAN PARLAMENT AND OF THE COUNCIL of 7 September 2005 on the recognition of professional qualifications. PQD*). It can probably be explained on the basis of an assumption that these professions were difficult to be formalized in the institutional evaluation system, because of their "existential" nature, due to which they are studied for relatively long time with a "master", who had to teach how to apply general and expert knowledge, skills and abilities into professional practice. The most productive study method in architecture is still the studio teaching.

In the view of the Third Industrial Revolution we can expect the focus, mechanisms, validity and quality assurance of architectural education to be changed. It is still a question whether the architectural education is going to change and is there a need for that?

4. The "new normal for architects"

Severe crisis in the architectural profession in Europe started with the global financial crises in 2008. When reflecting on the Third Industrial Revolution, one might think that the enduring crisis is not just one of its kind as we have witnessed before, but can easily be the sign of a changing world. The crisis

was triggered by vast global networks of stock and financial markets that had lost their credibility and balance in sophisticated instruments of cross-national virtual dimension. This virtual dimension was brought forward by digital platform and web, automated stock and currency sales and loose financial control over cross-national banking syndicates.

Architectural profession is suffering in the aftermath of the financial crisis because building economy was largely connected to the financial sector through mortgages and loans. A study on this sector from 2012 says that construction input fell 3% between 2010 and 2012, following the fall of 13% between 2008-2010. It has been estimated that the architectural market fell 11% from 2010 to 2012, following the fall of 22% from 2007/8 to 2009/10. (The Architectural Profession in Europe 2012. A Sector Study Commissioned by the Architecs' Council of Europe. December 2012, 4) Another study completed in 2014 reveals that 55% of architectural practices consider the current situation bad or very bad. Only 22% are optimistic. (12th Economic Trends Survey of the Impact of Economic Downturn. Architecs' Council of Europe. January 2014). Despite the slowdown of market, the number of architects has increased: it is estimated that there are 549 000 architects in Europe. This is 13 % more than in 2008.(The Architectural Profession in Europe 2012. A Sector Study Commissioned by the Architecs' Council of Europe. December 2012, 2)Architects have lowered their expectations and have adapted to the "new normal".

I see it as a threat that this "new normal" may not go away. It is hard to support it with hard evidence, but one can see two trends that stabilize the current situation for a while: firstly, in many countries the architectural practice and architects are losing their position to developers in the building industry. Developers are "principal contractors" and they fuse together into one package the building, designing, planning and financing. Architects as socially conscientious public intellectuals are more often than not seen as the disturbing nuisance for gathering profits. Secondly, within the massification of education, the numbers of students has to be kept up – so more of "sexy" curricula can be expanded. Hence the number of architectural and design students also keeps growing.

The described situation is going to be even more serious if the Third Industrial Revolution really has the power and consequences as predicted by the report in *The Economist* – it means that the middle section of labour will be automated away in the profession of architecture. The polarization could leave a few star-designers at the top and technical personnel at the lower end. It may also happen that the technical personnel does not need to have an architectural education, but can have applied software and computation skills education instead. The same could happen to construction engineers.

5. Possible Paradigm Change in Architecture

For nearly hundred years we have heard tragic voices in the history and theories of architecture. They are about the crisis in architecture and emerge under different headings: "loss of the centre", "decline of the aura", "architectural patient surviving or succumbing", "anguish of the referent", among others[2]. There has also been a huge number of manifestos proclaiming a new start for new architecture. The latest developments in the architecture of Europe are often seen as an enduring crisis.
I choose to be even more tragic and say that it is not just a current permanent

2. Scrutton, Roger. *The Aesthetics of Architecture*. London. Methuen & Co. 1979.; Sedlmayr, Hans. *Art in Crisis. The Lost Center*. New Brunswick and London. Transaction Publishers. 2009.; Perez-Gomez, Alberto. *Architecture and the Crisis of Modern Science.*Cambridge, Massasuchets/ London: MIT Press. 1983.; Tafuri, Manfredo. *Interpreting the Renaissance. Princes, Cities, Architects.* Cambridge, Massachusetts. Yale University Press. 2006.

crisis intuited by historians, theoreticians and architects: we might be facing a full change of paradigm in architecture as a cultural phenomenon and as a professional education. This paradigm may be called modern, if we allow it to stretch from the Renaissance to the Trans/Post-Modernism. Manfredo Tafuri calls this last phase Hyper-Modernism (Tafuri 2006, p.xxvii).

There are three major elements in this long-lasting architectural paradigm of 500 years that might be at the state of disappearing or mutating:

- the representational system of architectural design
- the means of producing architectural design and
- the authorship and isolation of the architect as the author of design.

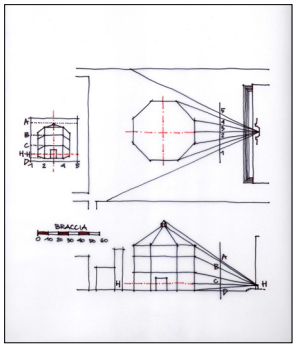
There are probably more changes but these are strategic ones and have been triggered and brought forward by advances in computing, information and communication technology as well as by imagospheric development resulting from new media technologies.

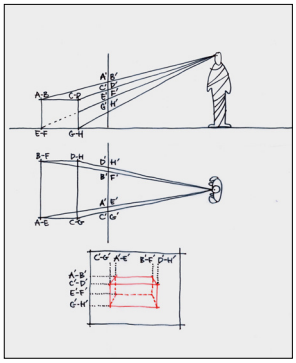
The representational system of architectural design is still fully used in the form of working drawings (projections in the form of plans, sections, elevations and perspective), which epistemologically constitute different sections of ideal imagination of parallel vision in the Cartesian space, finally governed by coordinates and mathematically describable to the smallest detail. This understanding of analytical-geometrical structure of projections is mostly connected to Filippo Brunelleschi and dates back to the beginning of the 1400s. It is in concordance with other early modern developments:

> The modern scientific revolution has consisted in relating movement not to privileged instants, but to any-instant-whatever. Although movement was still recomposed, *it was no longer recomposed from formal transcendental elements (poses), but from immanent material elements (sections)*. Instead of producing an intelligible synthesis of movement, a sensible analysis was derived from it. In this way modern astronomy was formed, by determining a relation between an orbit and the time needed to transverse it (Kepler); modern physics, by linking the space covered to the time taken by a body to fall (Galileo); modern geometry, by working out the equation of a flat curve, that is the position of a point on a moving straight line at any moment in its course (Descartes); and lastly differential and integral calculus, once they had the idea of examining sections which could be brought infinitely closer together (Newton and Leibniz)(Deleuze 2005, 5).

Gilles Deleuze refers here to the logic of synthetic projections of space and time in the form of infinite sections that can be described mathematically. In case of architecture we recognise the genesis of a section and its infinite multiplication in CAD software visually described on 2D surfaces or 3D printouts.

The existing system of architectural representations is rapidly changing in two directions: becoming an algorithm of the parametric solution or becoming a virtual reality, supported by BIM. The traditional working drawings on paper are becoming obsolete. Instead of a drawing, there will be algorithms ready for CAM or printing. This change would not be significant unless we agree that in design it is the personal representational language, which being





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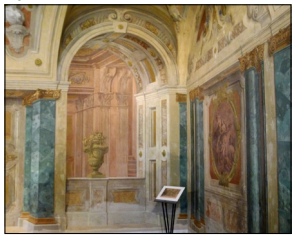


6.8

in touch with the reality of matter and society, allows architecture to become a cultural phenomenon not just an utilitarian building.

The means of producing architectural design is still fully used in the form of traditional building techniques. Carpentry, masonry and metal-works still hold their ground. It is not too different from the organisation of the building process, developed by Brunelleschi for the demanding construction of the cupola of Duomo. It included working in shifts, food breaks and complicated hoisting machinery. Current new composite structures and materials have changed the work processes. The algorithmic design and BIM enable already today fully automated flow of materials and construction of the final product in CAM. Further development promises large-scale composite objects materialised through 3D printing. The processes of how architecture is designed and produced puts architects, developers and customers into a completely new situation.

The general term explaining 3D printing is additive manufacturing (Warnier, Verbruggen, Ehmann, Klanten 2014). The elements added are the relatively thin algorithmic sections of the object. The technology then lays and bonds these sections together in the different materials. This technology draws architecture and construction engineering much closer to the design, machine building and material studies.


6.9

The authorship and isolation of the architect as the author of design is still fully used in the form of intellectual property rights. Again we can refer to the Renaissance where Brunelleschi, Leon Battista Alberti and Donato di Niccolo (Donatello) established the authorship of an artist or architect by personal example. Alberti wanted to go even further and fully isolate architect as an intellectual deviser of *lineamenti* from builders and ban him from the building site. Alberti claimed his authorship of the building by demanding that the design and building were to be identical and no alterations were possible (Carpo, Mario 2011, 22). Gradually this isolation started to took place and medieval master masons disappeared. After the French Revolution the architect became isolated again, this time from engineers. Nevertheless the right of the author remained.

The system based on intellectual rights of an author is undergoing a change. The sectorial studies of ACE show that the role of an architect has diminished as the principal consultant. Architect is turning into one of many consultants. For 30 years the spatial planning has been gradually slipping into the hands of geographers, urban planners and landscape architects. The interior is taken over by interior architects, designers and fashion designers. Architect as the major author of spatial solution is gradually dissolving.

Within the digital platform the overall position of author is being questioned. Digital platforms bringing up new methods of creation and in some spheres distribution already rejects the author entirely – with the parametric development of design and user participation, the authorship becomes questioned also from the theoretical and legal point of view.

> As digital fabrication processes invite endless design variations (within given technological limits), and promise to deliver them at no extra cost, the question inevitably arises as to who is going to design them all. In a parametric design process, some parameters are

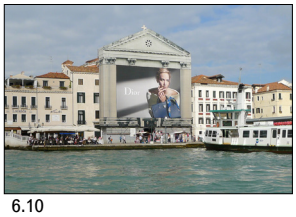
> by definition variable. This variability may be automated and machine controlled: /.../ But a third possibility cannot be ruled out: some parameters may be chosen, at some point, by someone other than the "original" author, and possibly without his or her consent (Carpo, Mario 2011, 22).

We can conclude that the major elements of architectural profession today, which began at the turn of 14th and 15th century like representations, building processes and authorship are gradually mutating.

6. Diagnosis of the phenomena within the Loosened Paradigm

Diagnosis 1: Imagosphere.

We have entered the stage of imagospheric development of current culture and economy. The supremacy of image dominates every aspect of our life. It has emerged due to ICT and new media techniques. The whole representational system of media and communications in the current world has changed. The technology has transformed from quantitative changes into new quality. Through pan-digitalisation of every sphere of human life we are rapidly falling into on-line parallelism and this parallel reality is mainly accessible through an image on a screen. The visualisation and screening of pan-digitised representational systems has reached a totally new level – it surrounds us constantly as an environment of its own kind.[3] In the visual sphere the qualities like hybridisation, arbitrary juxtaposition, simultaneity and multitasking create several new discourses.



6.10

The pan-digitalisation has infected the realm of physicality, the raw thingness around us. Remote sensing, digital markers and switches, large scale screens, led lighting and etc. have become a membrane between the existential materiality and human visual and haptic sensing. Within this process architecture becomes more and more screen-like. The apparent and illusionistic method of depiction is gradually attaining a more prominent position. The digital platform allows the existing parts of the imagosphere to amalgamate into a synthetic whole. A perfect little cell of the imagosphere accompanies us everywhere – a small instrument that makes telephone calls, takes photographs, sends e-mails, plays music and does a dozen other things. The screen accompanies us everywhere – it is a membrane or filter through which we communicate with the world.

In Baudrillard's opinion, the phases of depiction within imago may be as follows:

-it is the reflection of a profound reality;
-it masks and denatures a profound reality;
-it masks the *absence* of a profound reality;
-it has no relation to any reality whatsoever: it is its own pure simulacrum (Baudrillard, Jean 1994, 6).

Imagospheric media has reached the last levels of simulacra.

The media does not carry out collectivisation on the digital platform, rather the complete opposite is true: society dissolves into atomic parts, each of which has its own personalised, custom-made news and entertainment por-

3. The term *imagosphere* was coined as a metaphor for the state of saturated images that surround us like atmosphere, but it also includes the belief that visual images have a much more complicated and hidden semantic structure than ordinary language or text – thus the term imago. Trying to locate the term in a context or some theoretical framework I found the closest analogue in Juri Lotman's concept of semiosphere. It was first published 1984 in the journal Signs Systems Studies (Труды по знаковым системам).

tals. All states of meaning have been swallowed into a single dominant form of media. The media alone creates events, regardless what the content of the message, either conformist or horrifying, is. The media contains meanings and counter-meanings within itself.

Diagnosis 2: Imagospheric Plenitude.

New digital-technological systems are the foundation of this new era of amalgamations and the format of these transformations is its interface – the screen. IPhone, IPad, ITablet and MacBook are perfect examples of this synthesis. It is not just four separate appliances in the form of four objects. It is a digital platform interfaced with four different size screens dedicated to the same function on different occasions. It also contains a synchronised digital organism of user's workstation, files, archives, calendars, cloud computing etc.

The digital platform is composed of several integral parts, which I have no knowledge of or command over. Firstly, because it has become impossible for me as a user to know what exactly am I using. Is it a machine or is it a bundle of licences that are attached to another bundle of licences and patents. The machine has become irrelevant as I can easily transform everything on its hard disc and operative memory into another machine. Further more the machine has become irrelevant as the content of my actions is not even localised – it has joined the clouds.

Secondly, the digital platform has its own autonomy to update, communicate, initiate and activate software that is nothing but a string of zeros and ones, a protocol guarded by intellectual property laws around the domain of meanings that constitute my work. Nevertheless the platform of digital-technological amalgamations is finally presented as a visual in the format of the screen.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Every new carrier of information added will become available through the digital platform in the format of a screen. The problem will be not finding information but extracting meaningful generalisations. This again will mean that amongst the jungle of information a meaningful structure, typology or story has to be created. This typology in the plenitude of information is quite different compared to the typologies that existed before imagospheric events. It will be a very personal and singular interpretation against all the other possible interpretations. The structure, typology or narrative will become highly personalised in the channels of using the infinite amount of information. The stories created will become multidimensional, stretching through screen world to the possible worlds that might or might not be connected to the material reality of being. We are talking of singular memories of the future. At the same time surveillance of Big Data has become a business of its own right. If the information of a singular person is grouped into the pipeline of billions, it suddenly starts providing valuable information.

Diagnosis 3: Amalgamation of public and private.

Digital platform has lifted the form of document, fiction, advertisement and news also to a new level. Firstly public and private divisions in politics, culture and space disappear. The visible attributes of this new synthesis are all kinds of tracking systems, including systems for tracking terrorists, which are, in turn, evolving into new information systems. These systems bring us

to the point where soon there will no longer be an intimate sphere. Big Data of security services allows everything to be known. The intimate sphere has become public by its nature. Tabloids inform the public of the most intimate facts of private life. Facebook, Twitter and other social networks transform private life into online publicity with escalating visual quality. Google glass allows the double directional exchange between private view and public/ private information amalgamations. The case of Julian Assange shows that even the well-hidden secret data can become public.

Secondly, the knowledge of reality and fiction of imagination have become intertwined. In a respectable newspaper the world class politicians compete with fictional characters like Harry Potter. The lines between documentary, fiction and propaganda have disappeared. Fiction films deal with current events and real characters, but they are also fictional projections, which can easily change public opinion as well as possible future events. Stories of Assange and Dominique Strauss-Kahn in the form of fiction films become documentaries of the future. Reality and imagination have become one.

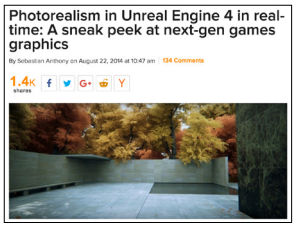
Diagnosis 4: Hybridisation of material and digital.

Smart phones have brought along several smart extensions: for instance smart home with its digitally manipulated appliances. The development of the Third Industrial Revolution has advanced the idea of Internet of Things (IoT with its larger system called Web of Things). It is based on the possibility of embedded digital devices and communication between physical objects. Wikipedia expects by 2020 around 50 billion such objects. When we now can make several physical objects work and communicate together, one might imagine in the future all the different elements of these objects up to the tiniest particles, can become participants in the network. This creates a parallel digital universe, which gradually stops being parallel, as it becomes an integral part of the material being. That includes the living beings – the concept of Internet of Food as a scanning mechanism of food chains has been proposed.

Partly we can imagine it happening in a grand scale already now. Even if we look at pristine nature, not yet touched by human hand and thus having nothing artificial about it, we can believe it being part of the hybrid symbiosis of material and digital. That is due to the radio waves, optical scanning of satellites or drones and other meaningful signals that can be interpreted as having a contact with the non-artificial nature. Google Earth has transformed the planet into artificial representation synthesising image of reality with digital information.

Diagnosis 5: Augmented reality of stereoscopic vision.

Biocular human vision and awareness of space allow us to sense the surrounding world in a stereoscopic way. This is sometimes called *perspectiva naturalis*. The question of representing space is very old. It is also relatively complicated from the philosophical point of view, if we want to be precise. To simplify the argument for architecture we can say that the question of representing space is largely the historical question of the relationship between *perspectiva naturalis* (or *communalis*) and *perspectiva artificialis*. *Perspectiva naturalis* deals with the laws of natural vision. *Perspectiva artificialis* can be seen as "a serviceable method for constructing images on two-dimensional surfaces"(Panofsky, Erwin 1991,36).



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According to Perez-Gomez the real *perspectiva artificialis* must be identified with the Renaissance, where it could be postulated independently of traditional theories of optics. Brunelleschi has been known as the first to "construct" a systematically organised linear perspective drawing and Jacobo Vignola has been known as the first to introduce the distance point (the point outside the field of representation, that would serve as a reference marker in determining the rhythm of diminution of transverse lines - usually equal to the distance between the eye of the observer and the plane of image).

> Before the introduction of the distance point, *perspectiva artificialis* had been, strictly speaking, a heterogeneous collection of intuitive monocular constructions based on the apex of the cone of vision as a simplified eye (Perez-Gomez, Alberto; Louise Pelletier 1997, 33).

6.16

Today due to the digital possibilities the difference between *perspectiva naturalis* and *artificialis* is gradually disappearing. It has not been as fast as believed before: the gaming industry has still postponed the massification of Oculus Rift and other virtual reality gadgets. Nevertheless we see that military industry has reached it: F35 Helmet Mounted Display System has biocular vision, "provides enhanced situational awareness", "look-through-aircraft capability" and provides weapon targeting with all necessary flight information. This means that the screen that has separated the digital and material worlds will disappear into a new kind of 3D human vision of augmented reality.

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7.Conclusion

The question based on the above discussed themes is: will the architectural education change with the rest of the world and is there a need for that?

Project-based architectural education in touch with different areas of life-world, equipped with several sciences, histories and theories is very good. The epistemological transformations of architectural education in which actual is treated as possible and possible as actual are very creative. In architectural education every architects develops his/her own particular handwriting to solve problems. Yet it seems to me: its goal has remained too narrow.

In the beginning of this speculation we looked at three currently active domains that are possibly influencing the future of architectural education: the Third Industrial Revolution, massive higher education and the business reality of architectural profession in Europe. There are several diagnostic speculations that accompany the large-scale paradigm change for architecture. The Third wave can even go further that we can imagine. The gap between work and free time has diminished, it has loosened the relationship between work and wages; labour and its value. The market and its capability of price formation have been corroded by its main new goods – information, that is abundant. Parallel currencies, time banks, cooperatives and sharing are hollowing out the market system (Mason, Paul 2015). Transnational companies have blurred the system of state. The changes seem to go much deeper and architecture and its education is too slow to react.

These diagnostic speculations and the possible large-scale paradigm change promote the need for much bigger experimentation in architectural education as well as in architectural research. Mainstream architectural education has

left largely unexplored such spatial and clearly architectural areas as filmscapes, gamescapes and visual datascapes. These virtual realities, especially with biocular interface, deserve the same architectural quality as do the spaces of life-world. It is not necessarily only the parametric approach that can fill (and has filled) this gap between actual and virtual. It can be imagined that traditional architectural approach in new mutations can also be of much use here.

The experimentation is needed to transform traditional architectural design into the spheres of presentable, imaginable and virtual. The concepts of projects to be tested should be: **space as building, space as a portal, space as imagination, space as a screen, space as data, space as mind** ...

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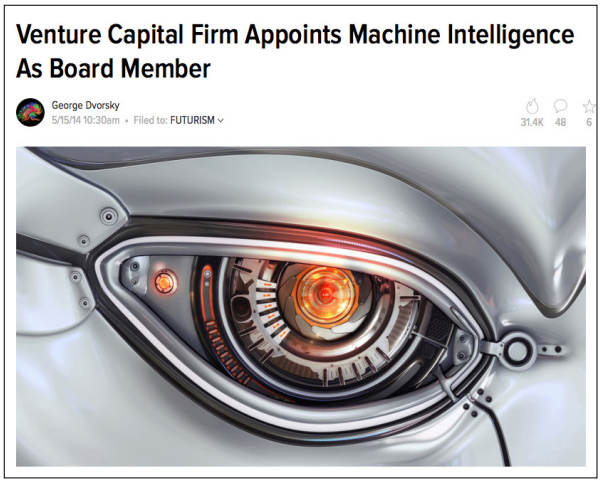
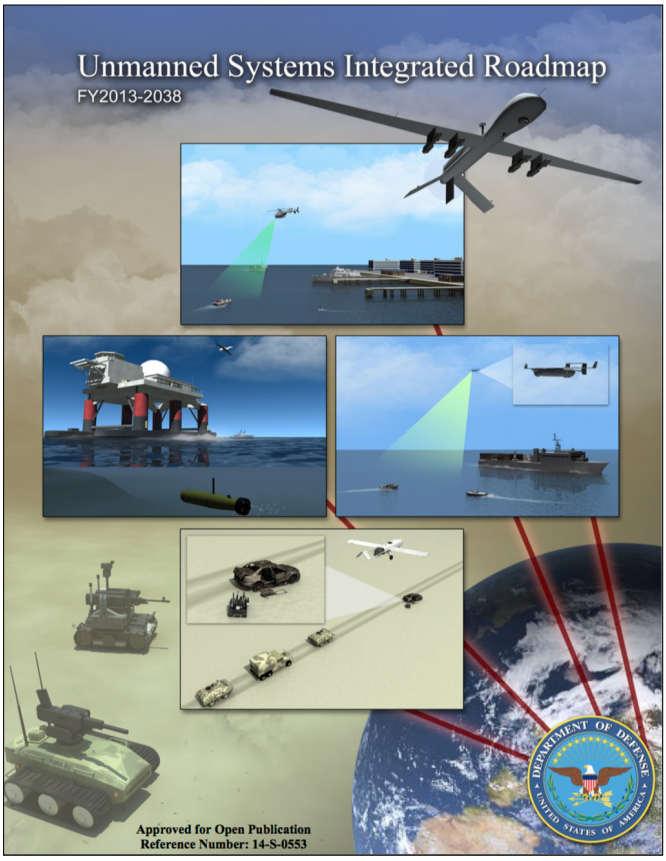
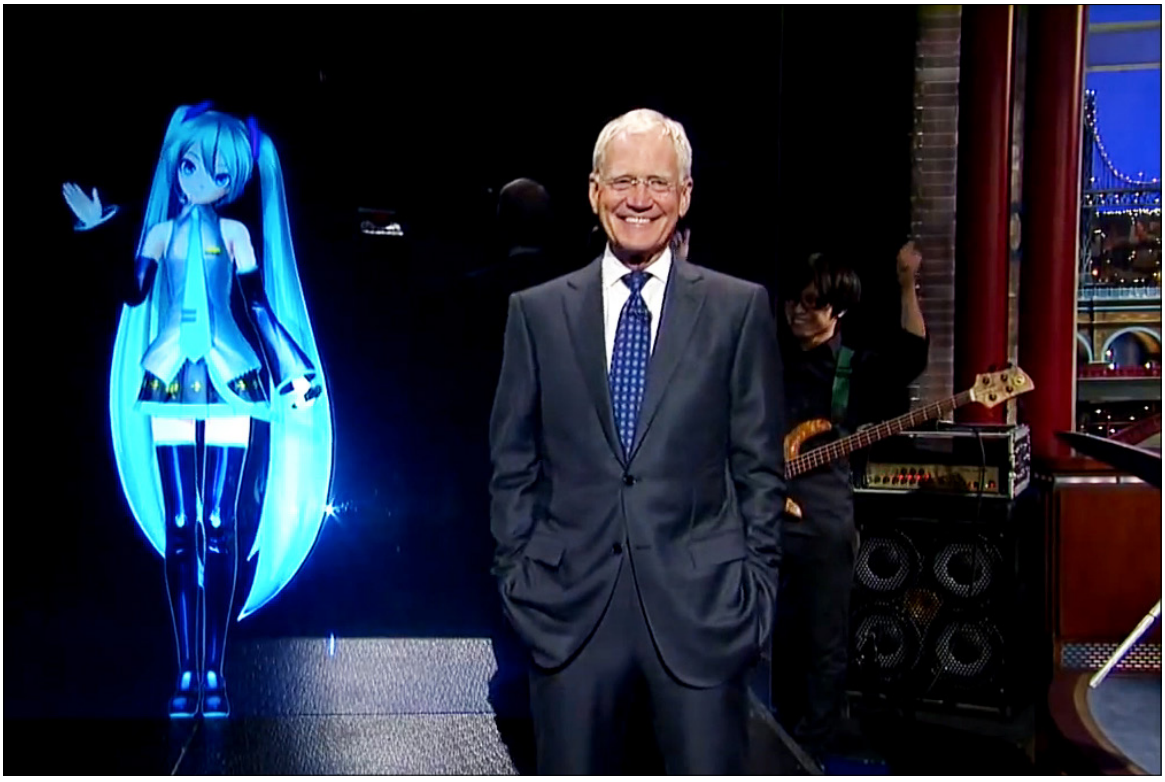
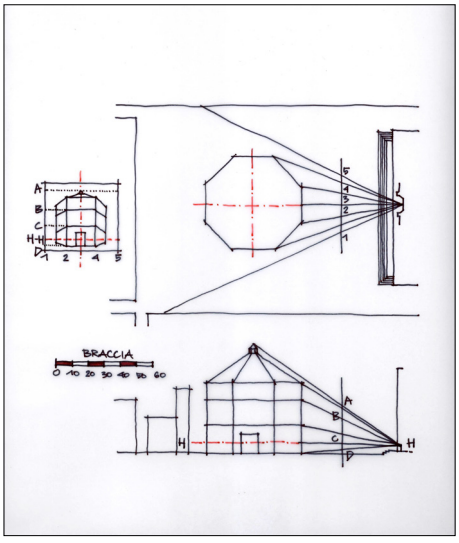
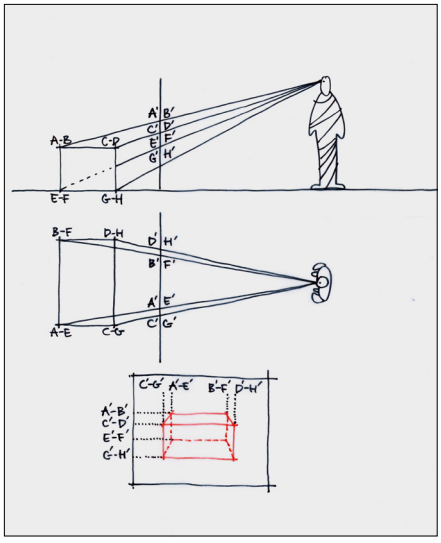




6.1 Please meet Amelia: She can speak 20 languages, understand concepts and learn from her mistakes. She can read several textbooks in a day and can probably be replicated infinite number of times. She is an algorithm.
6.2 Hong Kong venture capital fund has appointed a new board member – intelligent investment analysis software VITAL. It has the voting power in the board.
6.3 Unmanned Systems Integrated Roadmap. FY2013-2038. USA Department of Defence: "Take the 'man' out ...".

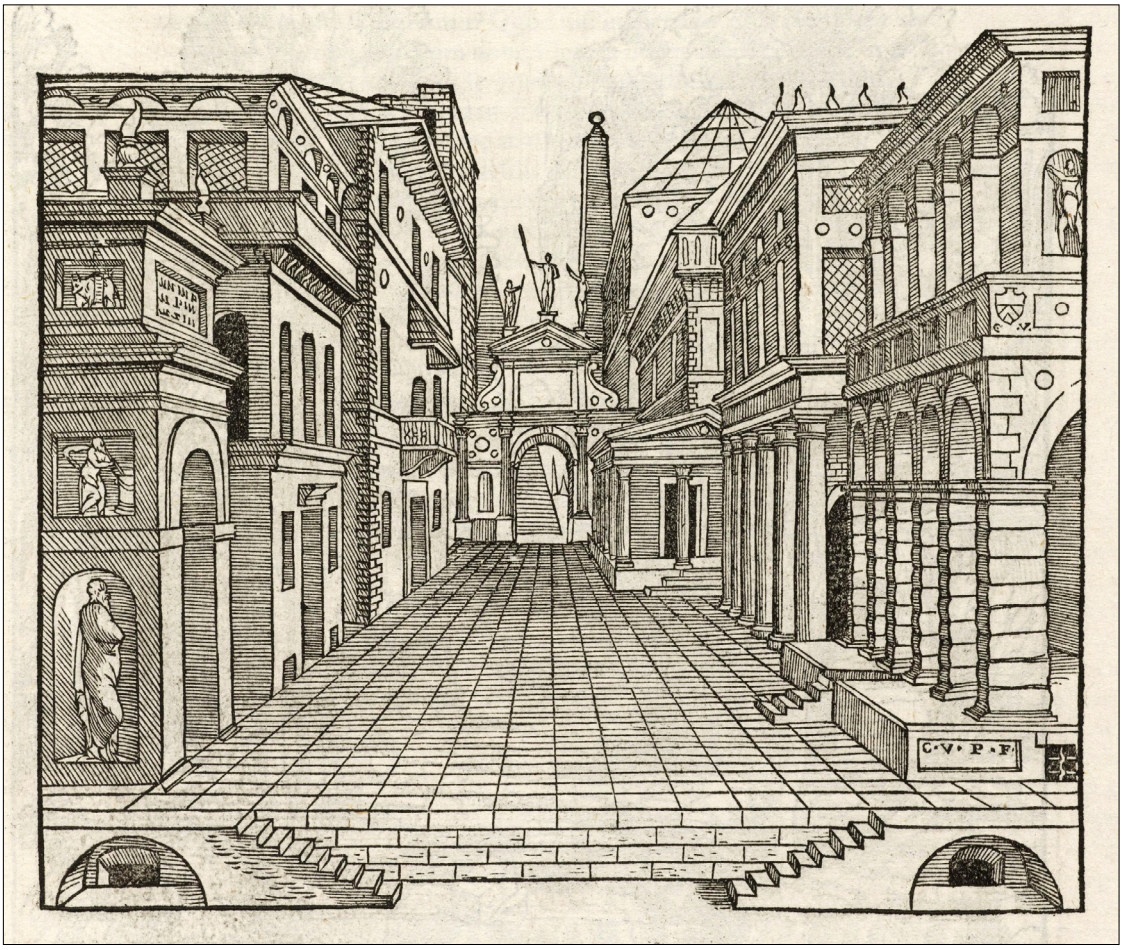


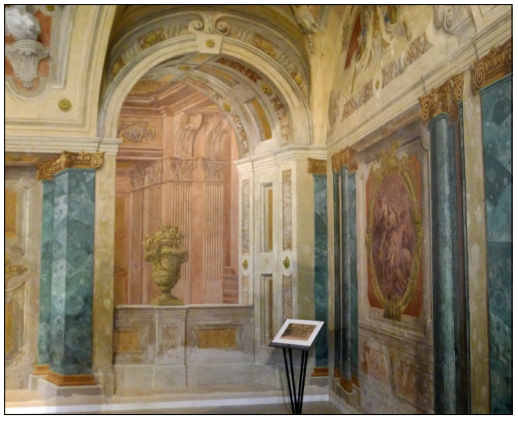




6.4 Hatsune Miku is is a humanoid persona voiced by a singing synthesize application developed by Crypton Future Media. She is open source development with 100 000 songs. Video still from: https://www.youtube.com/watch?v=qA5pIp-dQEr0 /

6.5 The representational system of architectural design still uses projections, which epistemologically constitute different sections of ideal imagination of parallel vision in the Cartesian space. This understanding of analytical-geometrical structure of projections is mostly connected to Filippo Brunelleschi.





6.6 Page 69, from *De architectvra libri qvinqve*, 1569, by Sebastiano Serlio (1475-1554). Source notes: "blocks cut by G. Chrieger". He was the first to include in his book a chapter on perspective *(perspicuè)*. Typ 525.69.781, Houghton Library, Harvard University. Copyright: Wikimedia Commons.
6.7-6.8 *Perspectiva artificialis* used as decoration in the form of theatrical *trompe l'oeil*. Belvedere Palace, Vienna, 1721-23.

6.9 Singapore SUTD. 3D print of a sculpture, measured only by digital means from distance.
6.10 Venice. The buildings becoming huge billboards.

Photorealism in Unreal Engine 4 in real-time: A sneak peek at next-gen games graphics

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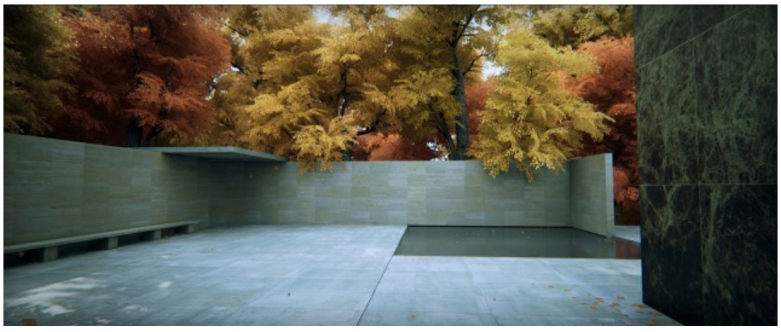
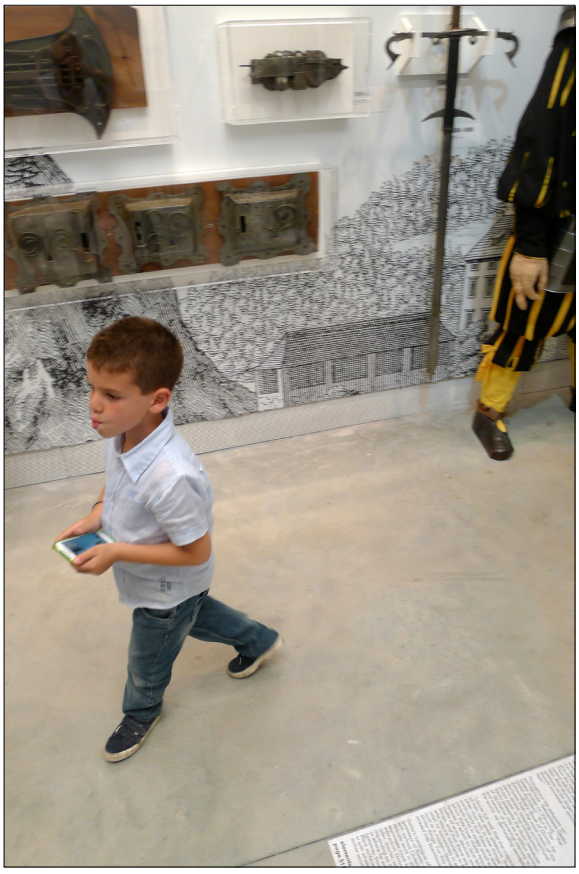


6.11 New digital graphics make it impossible to distinguish between imagination and everyday reality.
6.12 "You have thousands of years of human knowledge, and probably the highest-quality knowledge is captured in books." What if you could feed all the knowledge that's locked up on paper to a search engine (Somers, James. 2017. "Torching the Modern-Day Library of Alexandria." The Atlantic Daily. April, 20 2017)

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Watch: Gérard Depardieu Goes Downtown in NSFW Trailer for 'Welcome to New York'

Watch: Gérard Depardieu Goes Downtown in NSFW Trailer for 'Welcome to New York'

Casey Cipriani
Jul 11, 2014 10:53 am
@@CaseyCip

6.13 Nice sword! Can be digitalised and recorded immediately.
6.14 Nice sword! Can be printed at home.
6.15 Gérard Depardieu embodied Dominique Strauss-Kahn before the court case was settled. In 5 years most of the general public will remember only the story as told by the director Abel Ferrara.

6.16 Deborah Sengl. Die Löwin. Museum ESSL, Vienna.
6.17 Mass production of head mounted displays means that the screen that has separated the digital and material worlds will disappear into a new kind of 3D human vision of augmented reality.

On Collapse

The Testimony was written for the UMA PhD reseach school Review Exhibition: The Extraordinary Life of Elements, UMA School of Architecture, November 2014.

The Testimony of a Passerby

> A passerby on that grey morning in March 1897, crossing, at his own risk and peril, place Maubert or the Maub, as it was known in criminal circles (formerly a centre of university life in the Middle Ages when students flocked there from the Faculty of Arts in *Vicus Stramineus* or rue du Fouarre, and later a place of execution for apostles of free thought such as Etienne Dolet), would have found himself in one of the few spots in Paris spared from Baron Haussmann´s devastations, amidst a tangle of malodorous alleys, sliced in two by the course of the Biévre which still emerged here, flowing out from the bowels of the metropolis, where it had long been confined, before emptying feverish, gasping and verminous into the nearby Seine.
>
> Umberto Eco, *The Prague Cemetery*, 2011

The passerby on that hot morning in June 2014, having crossed, with no risk and peril, the canals and bridges of Venice, found himself, as usual after every two years, in Giardini, amidst the pavilions of Biennale. Not as usual - he found that Modernism had died. Silently. Forever.

The feeling of loss was inevitable and clear. The passerby remembered Erwin Panofsky´s words about pre-Gothic Middle Ages, which had left Antiquity unburied, and alternately galvanized and exorcised its body, as well as his words about the Renaissance standing and weeping at its grave, finally covered, trying to resurrect its soul. Renaissance itself never really died. It transmuted in *Danza Macabra* through several costumes, disguises, skins, muscles and bones into Modernism. Now it was time for Modernism to go. Its soul and body had been resurrected and exorcised as High-Modernism, Post-Modernism, Trans-Modernism, even Hyper-Modernism, but even these ghosts are now gone. It took the High Priest of Modernism Rem Koolhaas to dissect the body of deceased and deliver the autopsy report. It was called: *Elements*.

The passerby listened and a voice cried out: What a *blasphemare* - who says that Modernism is the Golem of Renaissance? Indeed, who?

Is it not the projections they share? It was Philippo Brunelleschi, *magni ingenii viri florentini,* who described in imaginary Cartesian space how man was

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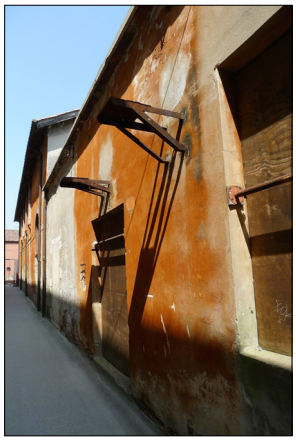
the infinite and abstract singularity of vision behind the oculus of his painting of the baptistery of San Giovanni. It was he who dissected that space and produced projections, we today have simplified and trivialized into plans, sections and elevations. It was Leon Battista Alberti who suggested that the architect should describe depth when drawing the footprint of a building as *ichonographia* – meaning on the parallel plane of the horizon – *ex fundamenti descriptioni* and that the architectural drawings should be executed without altering the lines and maintain the true angles, exactly on the basis of controllable measures.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Is it not the authorship they share? It was Alberti, *florentini viri clariffimi Libri De re aedificatoria dece*, who described in the intellectual space how man was the finite and subjective singularity of authorship. When Brunelleschi said: this building is mine because I built it and got rid of *capomaestro* Lorenzo Ghiberti; then Alberti said: this building is mine because I designed it and forbid the architect from the building site. Which never really worked. It was Alberti again in *De re aedificatoria*, inventing the finality of the author's manuscript. The author became sacred: not a word nor a letter was to be taken away or added to the corpus of his work. It was Donato di Niccoló, known generally as Donatello, who added artistic arrogance and the stroke of a genius to the authorship, refused to be taken as an artisan and established himself as an artist – ready to destroy his own creation rather than sell it cheap. Good art became costly.

Is it not the isolation they share? - the isolation of a builder from an architect and then an engineer from an architect. This isolation not only specified the designer, but identified the builder and building industry. The latter have changed enormously in techniques and materials but the structure of the building process and organization is not much different from the time cupola of Santa Maria del Fiore in Florence was devised by Brunelleschi. It consisted of builders, materials and machines – these came together and the construction began according to the design drawings. These design drawings were also at the same time representations of the future unseen, road-maps to future and legal document between client, builder and designer.

All these, three shared fundamentals of Modernism and Renaissance that bound together the last five hundred years, have now changed in the new Age of Digital Production. There are no more drawings; in their stead is the code, entangled in the labyrinth of corporate licenses of software. The builders are not there anymore, as the code can print anything, in any time, in any material, in any place - wherever the web of signal and web of binary meaning can reach. The authors are no longer there as the copy and original have multiplied into infinite number of originals that can be copied infinite times. The digital manufacturing, parametrical design and end user participation diffuses the author into binary segments blown around the Digital Universe. Very soon everything there is, will be immediately known in digital form, in infinite number of Gutenberg Galaxies.

What a morbid day in Venice, thought the passerby on that hot morning. It cannot be - it's the city of illusion, spectacle, *teatro del mondo*, carnival, sin of wearing a masque, black feathers with red silk, eroticism of covered and exposed. It is *carne levare*, *carne vale*, *carrus navalis* – flesh in promise and flesh in abstinence, flesh in fresh and flesh in decay. Life in living. Is there a hope?

The evidence was there: *Elements* of architecture, taken apart, examined carefully, classified, exposed and commented. *Elements* of architecture: floor, ceiling, wall, stair, window, gate, toilet – what a naive and simple-minded idea - carried out in an unseen grandness of the curiosity cabinet. Was it *Kunstkammer, Encyclopédie, ou dictionnaire raisonné*, or really the body of evidence? Koolhaas can be accused of many of things, but not of naiveté nor of simplemindedness. The body of evidence deserved attention.

Firstly, *Elements* overwhelmed with empiricism. It looked as if it was not enough to search, describe and analyse the elements of architecture, which was also done to exhibit the time and energy spent. *Elements* had to be there physically, in the pure form of matter and existence. Grandness of passerby to touch balusters, to look at handles, window frames, urinals, roofs, machines working ... left a powerful feeling of abundance of things – the thingness of architecture. Renaissance had used this to get rid of High Gothic scholasticism, *Novum Organum Scientiarum* versus *Summa Theologiae*. The new instrument was the new inquisition dissecting nature and its matter to know its secrets. New instruments testing the window frames of future, polishing the door handles on the way.

Secondly, *Elements* overwhelmed with classification. The whole idea of Elements of Architecture, divided and manipulated, seemed Foucauldian – architecture as the order of things and things of the order as architecture. The matter at hand was seduced, forced, pressed and pulled into compartments predetermined by the typology of Koolhaas. Hundreds and thousands of measurements of balusters tabulated on walls. This was what we would have got a long time ago, if Carl von Linné had studied architecture in Uppsala. The classification extended even further into the restored library, which became a true prolongation of exposition. It remained unclear whether matter was shaped on the example of books or books imprisoned like the matter. The library with its empty auditorium with its empty chairs and *tabula rasa* screen, detached from a bubbly reception crowd had a strange feeling of a silenced mausoleum of knowledge. One felt the Foucauldian rarefication in full swing. The body of evidence twisted.

Thirdly, *Elements* overwhelmed with historicism. Koolhaas: "After several Biennales dedicated to the celebration of the contemporary, Fundamentals will focus on histories ...". History – oh yes, that treacherous path. Have we not been warned by Manfredo Tafuri how mystifications, brilliant eversions, historical and anti-historical attitudes, bitter intellectualisations, mild mythologies and what else mix themselves together? History – another fundamental of Renaissance and Modernism brought first together for art and architecture by Giorgio Vasari. Empiricism and historicity tend to be contradictory, but classification – the geometry of mind, matter and space so nicely binds everything together. One, though, can remember in the history of Venice the Council of Ten and Supreme Tribunal, with masked assassins. The passerby then imagined the historians of architecture as the Guild of Assassins. Disguised in the shadows of the past, covering their path randomly with myths and facts, they creep closer to stab the blade of past into the back of presence. We are lucky that they come from architecture. The real history is used as image and pretext for the missiles in Palestine, Ukraine and in so many other places. Modernism by the way had already managed to start the two World Wars - its time was definitely up!


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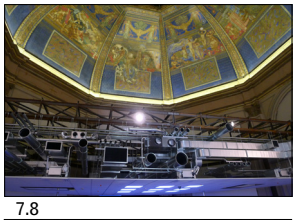
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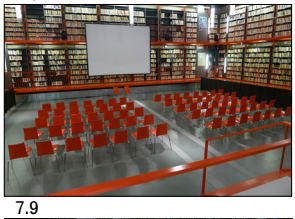
7.9


7.10

The evidence was clear: on the fruitful decay of Modernism something entirely new is being born. It is also symptomatic that the Biennale tried to hide and mask the absence of image and the absence of digital. These have been carefully buried under the empirical, taxonomical and historical. But the careful observer noticed already in the exhibition prologue: in the case of ceiling, that the ventilation system was a camouflaged abundance of composition with the slight whim of Peeping Tom. And that was just the beginning. One can believe that with the Digital Universe taking hold of all there is and could be, its modes of imagery and digitality will build everything anew, but without drawings, authors and builders of architecture.

The passerby also noticed the immense shroud of Italy, numerous international trials in cacophonic chorus of requiems, known and unknown architects and critics, product placement of Rolex, bribing the press as well as, AkzoNobel, recruiting restorers of the colors of life, endorsed by the High Priest. Business as usual.

Then suddenly ... the passerby gasped ... there it was, in the front of the main pavilion: the Carcass of Modernism, after being dissected and picked clean like the bones in the desert, it was rebuilt in sustainable material, distorted by the new projections, forbidden to be used because of the public safety concerns – nothing more than a tombstone cast in the virtual cemetery of the Age of Digital Production.

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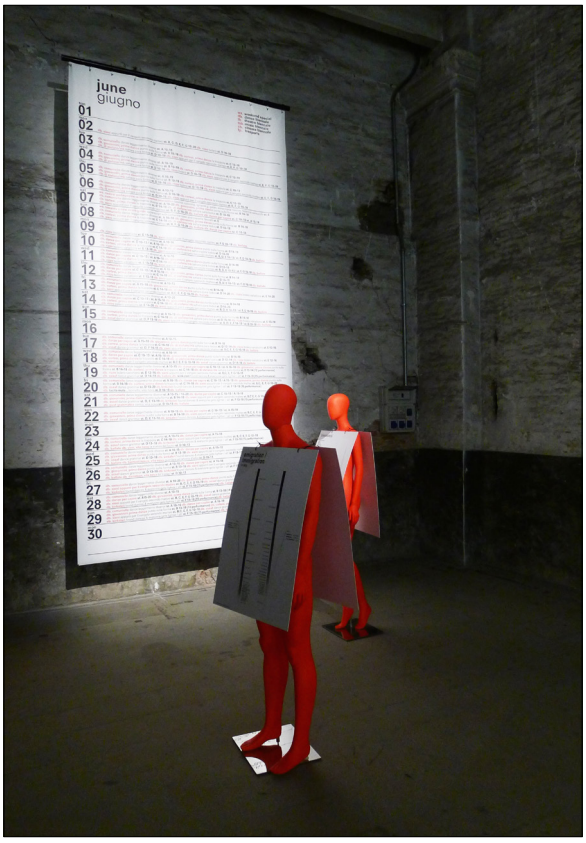
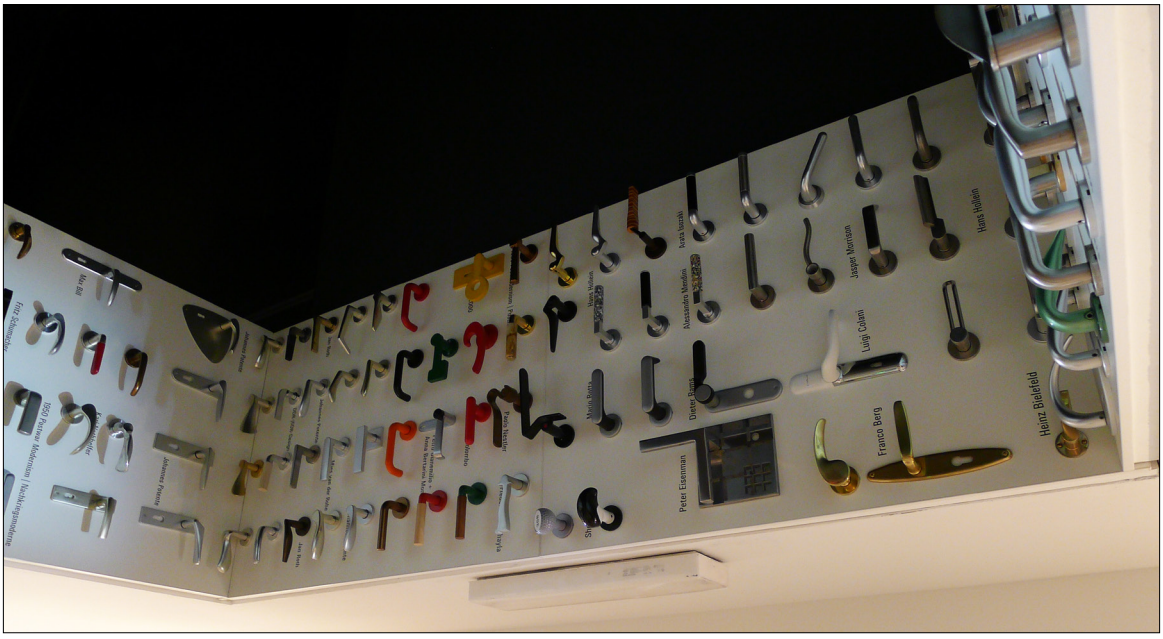
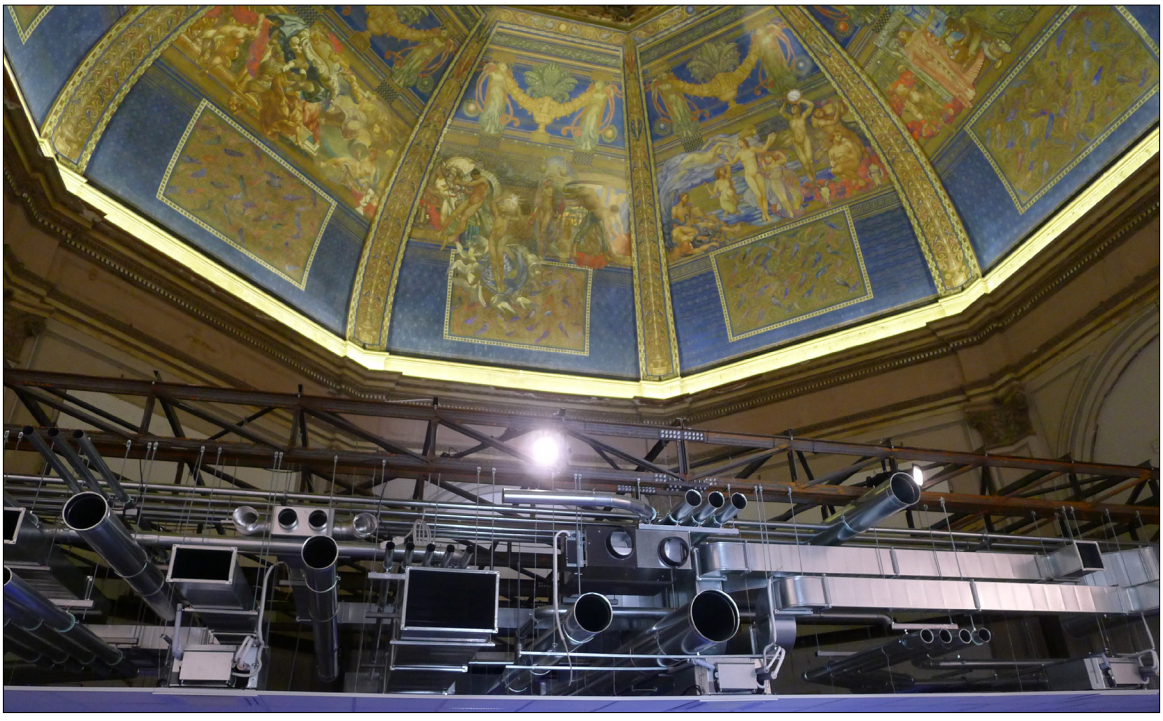


7.1 Lonely mannequins of Biennale. Very soon they will be life-like robots with mind of their own.
7.3Timeless walls of Biennale. Rare existential experience lasting from year to year.
7.2 Business as usual. Rem Koolhaas delivering the autopsy report of Modernism.

7.4 -7.6 *Kunstkammer* of balusters. Not to be touched.





7.7 Hundreds of door and window handles.
7.8 Abundance of tube composition, camouflaged to be a machine.

7.9 Tabula rasa and mausoleum of knowledge before Google Book project succeeds.
7.10 There it was – the Carcass of Modernism, after being dissected and picked clean like the bones in the desert, it was rebuilt in sustainable material, distorted by the new projections, forbidden to be used – nothing more than a tombstone in the virtual cemetery of the Age of Digital Production.

Behind the Looking Glass: Screen and Projective Image in Architecture

The essay was written for Swedish research network After Effects: Negotiating Theories and Methodologies in Architectural Research and presented at ARENA third annual conference Impact by Designing, Brussels 5-6 April, 2017

Imagospheric Condition

The world economy and culture have entered the era of the Third Industrial Revolution. This revolution is based on digital domain and rapid advances in computing algorithms and autonomous robotics (Frey, Osborne 2013). In 25 years it has totally changed the information, communication, entertainment and surveillance technologies – both in their form as well as content. One can speculate that we have arrived to the collapse of the paradigm called Modernism. Even the labels such as Post-Modernism or Trans-Modernism do not seem to be enough to fully capture large scale changes.

Even without deep theoretical explanation several new directions in everyday life can be easily noticed that predict the loosening of the previous paradigm and support the forthcoming of a new one. The final stage of collapse can be located in the banking crises of 2008, which gradually developed into an economic crises and brought down among other things the professional architectural market in Europe. Since then the banking and immobility market have not fully recovered. New trends have emerged: unprecedented rise of populism and nationalism has risen (Grexit, Brexit and US presidential elections were an unimaginable scenario a couple of years ago). Europe has witnessed a massive migration movement and military activity with violent changes of its borders in ways unseen since the WW II[1] . Artificial Intelligence has developed to the level, where humans are no match to it in complex games like chess, go and lastly now in poker. Very soon Artificial Intelligence is expected to be better than humans in planning economy and military actions. All these indications of the previous paradigm disintegrating do not show any signs of slowing down yet.

There is one phenomenon that is clearly visible in the collapse of the Modernist paradigm. I have called it **imagospheric** condition. Very soon every text, call, message, image and film ever made in the world could be digitally and instantly accessible. I have used the term *imagosphere* as a metaphor for the state of current development, dominated by the supremacy of image. Every new carrier of information added or created will become potentially available through digital platform in the format of a screen – it becomes visual. In most cases the screens are also the only means to access the digital platform – they are the "windows" of the digital domain. The world today is mediated through an interface or membrane of specific kind. Saturated images surround us like atmosphere. I'd like to suggest that visual images have a much more complicated and autonomous semantic structure than ordinary lan-

1. The democratic order has weakened and fractured at its core. Difficult economic conditions, the recrudescence of nationalism and tribalism, weak and uncertain political leadership and unresponsive mainstream political parties, and a new era of communications that seems to strengthen rather than weaken tribalism have together produced a crisis of confidence not only in the democracies but in what might be called the liberal enlightenment project. That project elevated universal principles of individual rights and common humanity over ethnic, racial, religious, national, or tribal differences. It looked to a growing economic interdependence to create common interests across boundaries and to the establishment of international institutions to smooth differences and facilitate cooperation among nations. Instead, the past decade has seen the rise of tribalism and nationalism, an increasing focus on the Other in all societies, and a loss of confidence in government, in the capitalist system, and in democracy. (Kagan 2017).

guage or text – thus the term *imago*. This autonomous essence can be traced back to Antiquity when Greek and Latin expressions for images started to divert from each other. The Latin *imago* gradually lost its original sacred or magical value and was understood as a rather neutral figure, picture, portrait or representation. Originally *imagines maiorum* were the death masks of ancestors. Representations of ancestors were also carried in the funeral processions of deceased relatives. Their preparation was closely connected to the making of death masks and has become known as one of the roots of naturalism in Roman portrait art (Antiigileksikon 1983,142).

In Greek tradition picture or image was never desacralized (Εικόνα – eikona – picture, icon, reflection and imagination – μεταφ). Icon, referring to picture and religious image, sustained the sacred and magical value[2]. More precisely, Greek culture transmitted Egyptian tradition, where, during Ptolemy's era, embalming disappeared and the icon appeared in its place - a portrait drawn on a wooden tablet. Early Christianity did not know either icons or the symbol of the cross. Icons are nothing more than pictures of the mortals Mary and the baby Jesus, or of martyrs and saints. These pictures have become or have been made sacred through the martyrdom. It was precisely in evolving Byzantium that iconodulism - the worshipping of pictures - spread, and was complemented later by iconoclasm. Later, the Protestant Reformation also went through the similar process. Nevertheless, icons have been preserved up to the present in Eastern European orthodox tradition. We see the tradition, extending back to Egypt, of honouring the portraits of the deceased in Orthodox and Russian cemeteries.

The function of the icon, however, is entirely different from the image or *imago*. The icon is a gateway to the magical and sacred world that is opened up by prayer or meditation. The meanings that generations of people have prayed into icons can be experienced directly as religious ecstasy and their semantic field is probably rather specifically defined.

The imago and the *imagosphere* only marginally bear this kind of essence. Nevertheless the personal, collective and archetypical meanings of the *imagosphere* are hidden deep between the modern, alienated surface layer of the image phenomena. Images establish their own space/time structure, they exhibit the personal creation history and composition. They also establish particular value system and composition. All these deeper meanings remain mostly hidden from the creators and distributors of imagos. Images do not easily allow themselves to be tested on their truth value – whatever they depict has an existence – in an "intentional inexistence". Words and text can be evaluated, syllogisms can be proved, but they do not establish similar many-layered meaning field rooted in our experiences of images.

As an example here one could compare the image of blindfolded woman from the film of *50 Shades of Grey* (The Telegraph. 05 March, 2015). India bans 50 Shades of Grey even after cutting out the nudity.) and description of blindfolded woman, Venus or Cupid in history of visual arts to explore the possible field of meanings:

> Contrasting as they do uplifting spiritual love with debasing sensual passion, they act, so to speak, as witnesses in a law-suit of *Bright-eyed 'Amore,'* extolled in philosophical poetry, vs. *Blind Cupid,* invented and stigmatized by moralizing mythographers. To the modern beholder

8.1

2. Let us at this point consider words such as:
Εικονικός – eikonikos – pictorial
Εικόνισμα – eikonisma – icon
Εικονογραφημένος – eikonografemenos – illustrated
Εικονοκλάστης – eikonoklastes – destroyers of icons, iconoclasts
Εικονοστάσι – eikonostasi – ikonostaas – self-standing sacred wall of icons

8.2

> the bandage over Cupid's eyes means, if anything, a playful allusion to the irrational and often somewhat puzzling character of amorous sensations and selections. According to the standards of traditional iconography, however, the blindness of Cupid puts him definitely on the wrong side of the moral world. Whether the expression caecus is interpreted as 'unable to see' (blind in the narrower sense, physically or mentally) or as 'incapable of being seen' (hidden, secret, invisible) or as 'preventing the eye or mind from seeing' (dark, lightless, black): blindness 'conveys to us only something negative and nothing positive, and by the blind man we generally understand the sinner,' to speak in the words of a mediaeval moralist." Blindness is therefore always associated with evil, excepting the blindness of Homer, which served supposedly to keep his mind unvitiated by sensual appetites, and the blindness of Justice which was meant to assure her impartiality. Both these interpretations however are foreign to classical as well as to mediaeval thought; the figure of blindfold Justice in particular is a humanistic concoction of very recent origin (Panofsky1972, 109).

The closest analogue when trying to locate the term *imagosphere* in a context or some theoretical framework can be found in Juri Lotman's concept of *semiosphere.* It was first published 1984 in the journal *Signs Systems Studies* (Lotman 1984). He refers to two traditions in semiotics: first is the Pierce – Morris school, which takes the sign to be primary element of any semiotic system; and the second Saussure – Prague school, the basic core of which is the antinomy between language and speech (text). In the first school the sign is an isolated element and all the following semiotic functions are based on the succession of signs. In the second school the isolated act of communication is the initial element and model for any semiotic act (Lotman 1999, 9). Lotman concluded:

> It may now be possible to suggest that, in reality, clear and functionally mono-semantic systems do not exist in isolation. Their articulation is conditioned by heuristic necessity. Neither, taken individually, is in fact, effective. They function only by being immersed in a specific semiotic continuum, which is filled with multi-variant semiotic models situated at a range of hierarchical levels (Lotman 1999, 10).

Lotman named such a continuum *semiosphere*:

> /.../ it is more useful to establish a contrasting view: all semiotic space may be regarded as a unified mechanism (if not organism). In this case, primacy does not lie in one or another sign, but in the "greater system", namely the semiosphere. The semiosphere is that same semiotic space, outside of which *semiosis* itself cannot exist (Lotman 1999, 11).

Semiosphere has two major attributes: the boundary or border zone of semiosphere and secondly, the irregularity and certain fragmentation of the semiosphere itself. The major attributes bring forward several descriptors of semisphere.

> Insofar as the space of the semiosphere has an abstract character, its boundary cannot be visualised by means of the concrete imagination. Just as in mathematics the border represents a multiplicity of points,

> belonging simultaneously to both the internal and external space, the semiotic border is represented by the sum of bilingual translatable "filters", passing through which the text is translated into another language (or languages), situated outside the given semiosphere. "The isolated nature" of the semiosphere subsists in the fact that it cannot be contiguous to extra-semiotic texts or non- texts. In order that these may be realised, they must be translated into one of the languages of its internal space, in other words, the facts must be semioticized (Lotman 1999, 12).

He based the term on the analogy with Vladimir Vernadsky's concept of *biosphere.* Biosphere of Vernadsky was a cosmic mechanism, which occupied a specific structural place in the planetary unity. It included the totality of living things and formed a layer around the planet. Vernadsky also used the concept of *noosphere*. That concept was developed by Pierre Theilard de Chardin, Eduard Le Roy and Vernadsky in Sorbonne around 1920 and was used again in the later works of Vernadsky (Wiki). Noosphere is a specific development of biosphere – the stage where human rational activity acquires a dominant role. Lotman warned against identifying semiosphere with these two concepts of Vernadsky:

> If the noosphere represents the three-dimensional material space that covers a part of our planet, then the space of the semiosphere carries an abstract character. This, however, is by no means to suggest that the concept of space is used, here, in a metaphorical sense. We have in mind a specific sphere, possessing signs, which are assigned to the enclosed space. Only within such a space is it possible for communicative processes and the creation of new information to be realised (Lotman 1999, 10).

Semiosphere is equipped with a rather complex structure of centre and periphery, subsystems, hierarchies, cores and nuclei. Later Lotman also allowed the possibility of several *semiospheres*.

Imagosphere can be seen as a special type or domain within *semiosphere.* Currently it seems that *imagosphere* is overwhelming the core of all kinds of *semiospheres*. Most of the life is mediated through images on the screens. The screens mediate the world through an interface or membrane with its own epistemological settings. Some of these settings are as old as mankind after cognitive revolution and some may be quite recent. Within the traditional image of two-dimensional (2D) surface and Modernist movement image in film and video (2,5D) new forms of image surface. These are the stereoscopic moving image and recently the Virtual Reality images produced by devices like HTC Vive and Oculus Rift. These exhibit totally new qualities of experience and act as powerful new media devices, bringing forward their own syntax and grammar to the image phenomena. Lotman described the renewal of semiosphere:

> /.../the system might lose its unity and self-being and "crawl away". In all the cases, whether linguistic, political or cultural, we discover similar mechanisms: some part of semiosphere (as a rule departing from the core structure) in the self-description – either real or ideal which depends on internal orientation of its present or future condition – creates its own grammar. Then there is an attempt to distribute

> these norms to the whole of the semiosphere. The private grammar of one cultural dialect becomes the meta-language of describing the culture all together (Lotman 2004, 255).

I believe the image-based culture has taken over the previous speech and text dominated culture as well as enforced its own epistemological settings to the screen dominated media. Virtual Reality will only accelerate this process.

The *imagospheric condition* of current world can be described by several clearly visible possibilities or trends: Firstly, the **plenitude of information** is quite different compared to the state of culture and economy that existed before digital domain. Plenitude of information deals with infinite abundance. Information within imagosphere can create, interpret, mutate and copy itself limitlessly. In October 2015 Google had scanned 25 of approximately 130 millions of books[3]. The problem will not be finding information but extracting the meaningful and graspable interpretations. The process also is or tends to become instant – the means of communication distribute it immediately to all receivers who care to be turned on-line. It is increasingly difficult to keep plenitude of information in the constraints of property rights, including the intellectual property rights. The digital domain has partly broken out of the previous legal system already. Some believe it threatens the traditional elements of Modernist paradigm – labour, market, value and price (Runciman, 2015).

3. April 15 conference (2016), the Supreme Court declined to take up Authors Guild v. Google effectively ending one of the defining copyright battles of the digital age. The high court's denial lets stand a unanimous ruling by the U.S. Second Circuit Court of Appeals that Googles scanning and indexing of out-of-print books from libraries is a fair use under copyright law (http://www.publishersweekly.com/pw/by-topic/digital/copyright/article/70064-the-copyright-battle-continues.html)

Secondly, digital platform has transformed documents, fiction, advertisement and news into a new unified field – *infotainment* as it is sometimes called. The previous typology disappears or merges. As a start, the public and private divisions in politics, culture and space disappear. After that, the knowledge of reality and fiction of imagination become intertwined. Films of Julian Assange, Dominique Strauss-Kahn and Edward Snowden in the form of fiction will become documentaries of the future. One can witness a strong **amalgamation of public and private**, but within it also **reality and fiction.** This has been recently described as post-truth era of media.

> Americans – or, at least, a particular subset of Americans – have had enough of experts, facts, math, data. They distrust them all./.../ The survey found that more than 4 in 10 Americans somewhat or completely distrust the economic data reported by the federal government. Among Donald Trump voters, the share is 68 percent, with nearly half saying they don't trust government economic data 'at all'. (Rampell, 2016).

When the facts don't matter, how can democracy survive? The Washington Post. 17 October:

> Algorithms such as the one that powers Facebook's news feed are designed to give us more of what they think we want – which means that the version of the world we encounter every day in our own personal stream has been invisibly curated to reinforce our pre-existing beliefs. When Eli Pariser, the co-founder of Upworthy, coined the term "filter bubble" in 2011, he was talking about how the personalised web – and in particular Google's personalised search function, which means that no two people's Google searches are the same – means that we are less likely to be exposed to information that challenges us or broadens

> our worldview, and less likely to encounter facts that disprove false information that others have shared./.../ Publications curated by editors have in many cases been replaced by a stream of information chosen by friends, contacts and family, processed by secret algorithms. The old idea of a wide-open web – where hyperlinks from site to site created a non-hierarchical and decentralised network of information – has been largely supplanted by platforms designed to maximise your time within their walls, some of which (such as Instagram and Snapchat) do not allow outward links at all. (Viner, 2016).

Thirdly, the last Industrial Revolution has advanced the idea of Internet of Things (IoT, Web of Things, Internet of Food). It is based on the possibility of embedded digital devices and communication between physical objects. This has created a parallel digital universe, which gradually stops being parallel, as it becomes an integral part of the material being. Thus one can witness a strong **hybridisation of material and digital**.

Fourthly, biocular human vision and awareness of space allow us to sense the surrounding world in a stereoscopic way – we apprehend the space. This can be called *perspectiva naturalis* as compared to *perspectiva artificialis* – analytical-geometrical construct to present or simulate the spatial qualities on 2D surface. Today due to digital possibilities the difference between natural vision and visible representations on 2D surface are gradually disappearing. The military industry has already reached the new level in the form of F-35 fighter Helmet Mounted Display System that has biocular vision. This means that the screen so far separating the digital and material worlds as a recognisable membrane with its own frame will disappear into a new kind of 3D human vision of augmented reality, sometimes also referred as full immersion. The amalgamations within the digital domain become more direct and close to human experience. Thus one can witness a strong **hybridisation of informational and existential.**

Fifthly, the development of neuro-sciences and digital bionics/prosthetics might lead in not so distant future to the direct links between digital and conscious. The Google futurist Ray Kurzweil believes it to be around the 2030s.

Architecture hesitant

The new directions in the development of culture and economy have caught architecture without warning. They also have arrived and consolidated in the particularly vulnerable times for Europe. I see in architecture as a holistic phenomenon two major constituencies that have been mostly affected: architectural practice and architectural education. Both enjoy certain autonomy or identity but are closely connected in rather complicated relations of reproduction, reflection, anticipation and feed-back. Architectural press and publications enjoying far greater independence, are more and more swamped into online and instant platform of digital domain, tend to operate in-between and around these major constituencies.

As a broad interpretation, the European architectural phenomena are caught in the middle of the aftermath of two processes: architectural practice is in the middle of consolidation into "new normal" for architects as the profession and architectural academia is entangled in the massification of higher education. Both processes can be interpreted as partly triggered by the loos-

ening of the existing paradigm in the form of new media and communication technologies.

Severe crisis in the architectural profession in Europe started with the global financial crises in 2008. When reflecting on the Third Industrial Revolution, one might think that the still enduring crisis is not just one of its kinds as we have witnessed before, but can easily be the sign of a changing world. The crisis was triggered by vast global networks of stock and financial markets that had lost their credibility and balance in sophisticated instruments of cross-national virtual dimension. This virtual dimension was brought forward by digital platform and web, by automated stock and currency sales and loose financial control over cross-national banking syndicates as well as by "shadow banking" in investment funds.

Architectural profession is suffering in the aftermath of the financial crisis, because building economy was largely connected to the financial sector through mortgages and loans[4]. Despite the slowdown of market, the number of architects has increased: it is estimated that there are 549 000 architects in Europe. This is 13 % more than in 2008 (The Architectural Profession in Europe 2016. A Sector Study Commissioned by the Architects" Council of Europe.2016. p. 2.). Architects have lowered their expectations and have adapted to the "new normal". This means: less work, lower salaries and smaller offices. I see it as a threat that this "new normal" may not go away as hoped in ACE policies.

Firstly, in many countries the architectural practices and architects are losing their position to developers in the building industry. Developers are "principal contractors" and they fuse together into one package the building, designing, planning and financing. Architects find themselves not as the main contractors for creating space, but as one of the numerous consultants. Architects as socially conscientious public intellectuals are more often than not seen as a disturbing nuisance for gathering profits. Information and communication technologies have also advanced the labour markets (including architectural), which are becoming wider and more competitive on global level[5]. It really does not matter where the work is done, if the work-place is digitally well connected.

Secondly, the massification of education, including architectural and design education can be witnessed. The massification has been influenced by the organic elements of globalization: increasingly integrated world economy, new forms of ICT, emergence of a new international network of knowledge and the role of English language[6] . It is also gaining momentum from Bologna process by increasing number of mobile students and three-tier structure of higher education. This has resulted in the importance of student numbers (financing through "head-money") and competition for better students. Universities have tried to adjust to the trends by changing curricula to compensate missing student numbers, for example by boosting more of "sexy" curricula. Hence the number of architectural and design students, who still have a lure for creativity and prospects for interesting professional work, remains the same despite of the crises[7] . The massification of education adds another layer of administrative and bureaucratic work on top of developing new content for architecture courses. Recent decades have witnessed continuous rise in self-evaluations, accreditations and validations.

4. A study on this sector from 2012 says that construction input fell 3% between 2010 and 2012, following the fall of 13% from 2008 to 2010. It has been estimated that the architectural market fell 11% from 2010 to 2012, following the fall of 22% from 2007/8 to 2009/10 (The Architectural Profession in Europe 2012. A Sector Study Commissioned by the Architects" Council of Europe. December 2012. p. 4.). Another study completed in 2014 reveals that 55% of architectural practices consider the current situation bad or very bad. Only 22% are optimistic (12th Economic Trends Survey of the Impact of Economic Downturn. Architects" Council of Europe. January 2014.).

5. "No longer can governments count on a growing industrial sector to absorb unskilled labour from rural areas. In both the rich and the emerging world, technology is creating opportunities for those previously held back by financial or geographical constraints, yet new work for those with modest skill levels is scarce compared with the bonanza created by earlier technological revolutions" (The World Economy Special Report. The Economist. 4 October 2014.).

6. The massification has been influenced by the organic elements of globalization: increasingly integrated world economy, new forms of ICT, emergence of a new international network of knowledge and the role of English language (Altbach, Philip G; Reisberg, Liz; Rumbley, Laura E. Trends in Global Higher Education: Tracking an Academic Revolution. A Report Prepared for the UNESCO 2009 World Conference on Higher Education. UM Educational, Scientific and Cultural Organisation. 2009.).

7. It is not easy to find statistics on dynamics of student numbers, but an estimation can be made on the EAAE guides and older publications of EAAE. Where the comparison can be made between years 2006 and 2014 – the numbers of students have remained the same.

This situation is going to be even more serious if the Third Industrial Revolution really has the power and consequences as predicted by the report in The Economist – it could mean that the middle layer of labour will be automated away in the profession of architecture. The polarization could leave a few star-designers at the top and technical personnel at the lower end. It may also happen that the technical personnel do not need to have an architectural education, but can have applied software and computation skills education instead.

Collapse of the major paradigm in architecture

What happens to architectural education and practice in the context of loosened paradigm of Modernism and the era of confusion brought forward by the Third Industrial Revolution? What kind of directions for possible development are there available?

It seems that several fundamental elements of architectural design that have been taken for granted for quite a long time – nearly six hundred years - are changing now. Among them three are most obvious:

- the representational system of architectural design,
- the means of producing architecture designed and
- the authorship of an architect designing.

Even wider and wilder speculation looks very tempting: if we assume that the paradigm collapsing today is Modernist, then at least for architecture this period really started with Renaissance. In that period the current representational system of architectural drawings, system of building and position of architect as an author was established. It is not too far-fetched to think that the rationalism of Rene Descartes and empiricism of Francis Bacon culminated and fused in the architecture of Modernism[8]. At the same time it is legitimate to believe that Modernism started with the First or Second Industrial Revolution. There the metaphorical beginning firstly could be the invention of steam engine and secondly wide spread use of electricity. Instead of prolonging Modernism to Renaissance it would be more exact to think that in architectural phenomena two different paradigms collapse at the same time. The first being digital revolution loosening up Modernism and the second being nearly six hundred years old geometrico-analytical tool of architectural design drawings. It is important to emphasise that this unified geometrical description was not only technical tool, but highly epistemological analysis of human perception and space.

The representational system of architectural design is still fully used in the form of working drawings (projections in the form of plans, sections, elevations and perspective), which epistemologically constitute different sections of ideal imagination of parallel vision in the Cartesian space, finally governed by coordinates and mathematically describable to the smallest detail. The current system of architectural representations is nevertheless rapidly changing in two directions: becoming an algorithm of the parametric solution or becoming a virtual reality, supported by BIM. The traditional working drawings on paper are becoming obsolete. Instead of a drawing, there will be algorithms ready for CAM, cutting or printing.

This change would not be significant unless we agree that in design process it is the personal representational language, which being in touch with the

8. The modern scientific revolution has consisted in relating movement not to privileged instants, but to any-instant-whatever. Although movement was still recomposed, it was no longer recomposed from formal transcendental elements (poses), but from immanent material elements (sections). Instead of producing an intelligible synthesis of movement, a sensible analysis was derived from it. In this way modern astronomy was formed, by determining a relation between an orbit and the time needed to transverse it (Kepler); modern physics, by linking the space covered to the time taken by a body to fall (Galileo); modern geometry, by working out the equation of a flat curve, that is the position of a point on a moving straight line at any moment in its course (Descartes); and lastly differential and integral calculus, once they had the idea of examining sections which could be brought infinitely closer together (Newton and Leibniz)" (Deleuze 2005, 5.).

reality of matter and society, allows architecture to become a cultural and creative phenomenon not just an utilitarian object or space.

The means of producing architectural design are still fully used in the form of traditional building techniques. Current new composite structures and materials have changed the work processes. The algorithmic design and BIM enable already today fully automated flow of materials and construction of the final product in CAM. Further development promises large-scale composite objects materialised through 3D printing or other additive technologies[9].

The authorship of the architect as the author of design is still used in the form of intellectual property rights and in some countries by protection of the title of architectural profession. Today the system based on the intellectual rights of an author is undergoing a change. The sectorial studies of ACE show that the role of an architect has diminished as the principal consultant. An architect is turning into one of many consultants.

The position of the author in general is being questioned within the digital platform. Digital platforms bringing up new methods of creation, and in some areas already reject the author entirely – with the parametric development of design and user participation, the authorship becomes questioned also from the theoretical and legal point of view.

As digital fabrication processes invite endless design variations (within given technological limits), and promise to deliver them at no extra cost, the question inevitably arises as to who is going to design them all. In a parametric design process, some parameters are by definition variable. This variability may be automated and machine controlled: /.../ But a third possibility cannot be ruled out: some parameters may be chosen, at some point, by someone other than the "original" author, and possibly without his or her consent (Carpo 2011:22).

All these developments exhibit possibilities for further change and advancement of architecture. The introductory assumptions and speculation on a major paradigm-change are very interesting, but too wide to examine as a whole. For this study I have decided to look more closely into the phenomena of architectural and spatial representations and augmented vision.

Space imagined, space described

In this paper we look only at the very first of the fundamental elements of change - the representational system of architectural design. The question of representing space, both existential and imaginary, is relatively old. It is also relatively complicated from the philosophical point of view, if we want to be precise: what is the "space" to be represented? It can be approached as a Cartesian *container*, a Kantian *thing-in-itself,* a Husserlian *spato-temporal life-world* or a Heideggerian *Dasein*, not to talk about modern cosmology of space/time/gravity continuum with a touch of quantum to it. We can suspect that the way space presents itself and how we choose to represent it, can be different from the points of view on the same philosophical phenomenon.

To simplify the argument we can say that the question of representing space is largely a historical question of the relationship between *perspectiva natu-*

9. The general term explaining 3D printing is additive manufacturing. The elements added are the relatively thin algorithmic sections of the object. The technology then lays and bonds these sections together in the different materials. This technology draws architecture and construction engineering much closer to the design, machine building and material studies. Warnier, C., Verbruggen, D., Ehmann, S., Klanten, R. Printing Things: visions and essentials for 3D printing. Gestalten. Berlin 2014.

ralis (or *communalis*) and *perspectiva artificialis*. *Perspectiva naturalis* deals with the laws of natural vision. *Perspectiva artificialis* can be seen as "a serviceable method for constructing images on two-dimensional surfaces" (Panofsky 1991, 36).

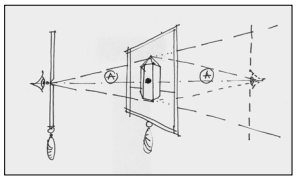
Perspectiva as an understanding of vision and distance was formulated by Euclid and mentioned later also by Lucretius and Vitruvius. Euclid demonstrates how the appearance of objects is a function of their relationship to the observer. This relationship could be expressed accurately through geometry (Perez-Gomez 1997, 13). Interpretations in the translations of the passage in the Ten Books on *Architecture* by Vitruvius, where he makes use of "scenographia" and "*circini centrum*", indicate that linear perspective was not fully understandable in Antiquity (Panofsky 1991, 38-40; Perz-Gomez 1997, 46).

According to Alberto Perez-Gomez the real *perspectiva artificialis* must be identified with the Renaissance, where it could be postulated independently of traditional theories of optics. Filippo Brunelleschi has been known as the first to "construct" a systematically organised linear perspective drawing and Jacobo Vignola has been known as the first to introduce the distance point (the point outside the field of representation, that would serve as a reference marker in determining the rhythm of diminution of transverse lines - usually equal to the distance between the eye of the observer and the plane of image).

According to Perez-Gomez, architects of the Middle Ages did not conceive the building as a whole and the notion of scale was unknown. Even the artisans, builders and architects of the Renaissance "had not developed a mentality that would allow individual projections to be coordinated within the universal, operational framework of descriptive geometry". (Perez-Gomez; Pelletier 1997, 39-40) Their collective space did not yet exhibit the homogenous, geometric and infinite entity that was to be developed by the post-Galilean science. Nevertheless, certain abstraction and thus the difference between space experienced and space represented is emerging. Panofsky points out how in the paintings of Jan van Eyck, the picture frame transforms into a "window into the imaginary world".

> The picture has become a mere "slice" of reality, to the extent and in the sense that imagined space now reaches out in all directions beyond represented space, that precisely the finiteness of the picture makes perceptible the infiniteness and continuity of the space. (Panofsky 1991, 60-61)

The space as represented in the painting of Arnolfini by van Eyck, does not form a unified geometrical construction. There is no distinct vanishing point on the horizon. Nevertheless, the picture resembles the perspective structure and clearly depicts the spatial extension into the depth of the room. Further, the painting is mostly known how it exhibits temporal as well as spatial build-up of perspective. The temporal and spatial extensions are created by the spherical mirror in the depth of the space it depicts. Besides this mirror on the painted wall the author has left his own inscription: "Johannes van Eyck was here" with the date 1434. From the mirror we see back into the space that is geometrically both behind and in front of the painting's surface. There are two figures at the doorway, usually interpreted as witnesses to the marriage procedure. In temporal understanding the picture is a synthesis of 3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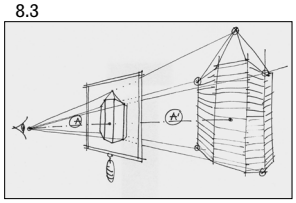
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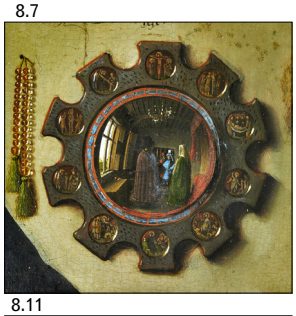
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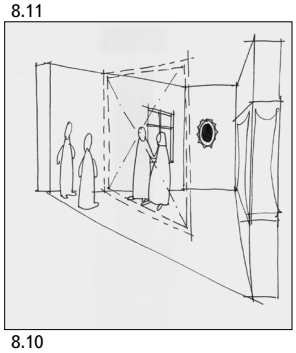
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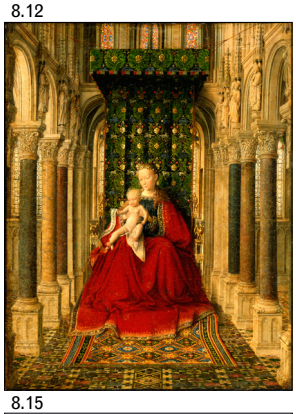
different slices of time (or durations): the moment painter himself must have been standing there and painting (unless van Eyck was imagining the whole situation and it was him standing there only in his mind); the moment when two witnesses are looking into the space and the moment when any viewer in any time is looking into the depth of picture, seeing the second moment. Thus all these durations are experienced at the same abstract presence of time involving the current viewer into the time-scope of nearly six hundred years. These slices of durations are played out in the same spatial perspective – behind the picture surface – thus only in the imagination of the viewer. This imagination is an abstraction but at the same time it is also very exact being part of the painting's composition. It also creates a powerful sense of space-time continuum.


8.12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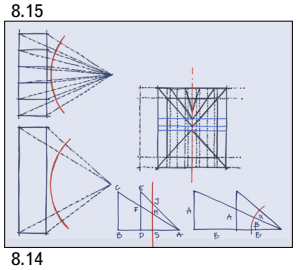
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Similarly enigmatic space is described in the other works of van Eyck – the Dresden Triptych and Madrid Annunciation Diptych. Here the temporal perspective on the wings of the altar or the "cover paintings" is given by presenting the representation of a representation – painting perspective image of a statue of archangel in the form of trompe-l'oeil. This illusionary space is rather shallow, but very clear. Only when the altar is opened the prolonged depth is revealed. Thus the cover paintings operate as an introduction or manual for reading the main paintings' inside. The framing itself is important as the three-dimensional space of the physical frame and the painted frame merge into each other. The temporal perspective is not emphasised here, but the framing disguises the "window into the painting's world" and augments it to the existential reality. The Dresden Triptych also exhibits perspectival structure and vanishing point, but the build-up is more complex than just a linear perspective. When opening the miniature altar, the paintings on the inner side of the wings in a visually dynamic way unfold the perspective space of the central painting (to which their spatial structure corresponds to). They do it in a physical way as in real perspectiva naturalis, the side paintings losing their foreshortening. Also we can notice that the perspectival structure of a gothic church has at least three vanishing points. In an imaginary experiment of merging the vanishing points into one as a custom in the case of linear perspective – the picture surface becomes vertically spherical and thus in imagination brings the central plane of Madonna forward. Similar devices of perspective structure can be noticed in the works of Piero della Francesca and Leonardo da Vinci.

Some ten years earlier than van Eyck, Brunelleschi achieved a similar result between the space "experienced" and the space "represented", when he created the painting of the baptistery of San Giovanni. The painting could be compared with the view from a specific point in the portal of the Florence cathedral. Brunellechi's experiment with the hole in the painting and the mirror, to compare it with the view, constituted two important abstractions. It defined the horizon of the gaze as an infinite and ideal line and reduced the observer to an infinite abstract point - "point of view" (Damisch 1994, 124). This abstraction of "I" into the "subject" of Descartes in the form of geometrical reduction and structurally ready for verification and measurement, opened a new epistemological layer for the *perspectiva artificialis*.

Perspectiva artificialis developed into an effective instrument for comprehending and changing the given reality of the world after several conceptual inventions. Kepler's theory of vision with the "optical image within the eye" created an understanding of an image that can exist independently of the

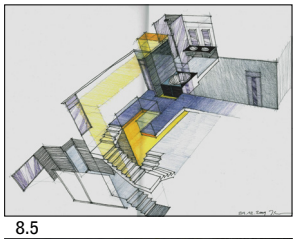
observer. This was further developed by the use of *camera obscura.* Newton postulated the natural light as a compound that could be analysed into its component colours. This was the first step in disarming light of the divine quality, which it had so far always possessed. Newton and Leibniz developed the infinitesimal calculus. Contrary to the Medieval or Renaissance cosmology, where number and geometry were the link between human and divine, the post-Galilean number and geometry transformed into technical and instrumental devices for solving practical tasks.


8.16


8.17

> Desargues, however, was the first to bring this point at infinity to theories of perspective and stereotomy. ... Desargue maintained that all lines in our ever-changing, mortal, and limited world actually converge toward a real point. Although this point was infinitely distant, it was present and susceptible to human control and manipulation. ... However, the prevailing philosophical and theological connotations of infinity, as well as the resistance of traditionally minded painters, craftsmen, and architects, made Desargues's system unacceptable to his contemporaries. Nevertheless, his basic aims would be fulfilled near the end of the eighteenth century by Gaspard Monge's descriptive geometry. (Perez-Gomez; Pelletier 1997, 71)

Since Brunelleschi there has been an interest in the relationships between *perspectiva artificialis* and plans and elevations of the object or space represented. We must say that plans, elevations and sections conceptually are nothing but special projections of the unified spatial imagination, and work as a mathematical and analytical coherent system of describing that imagination. Alberti was one of the first to emphasise the unity between design ideas, plans and elevations and architectural models in the design process.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> This I can say of myself, that I have often started in my Mind Ideas of Buildings, which have given me wonderful Delight: Wherein when I have come to reduce them into Lines, I have found in those very Parts which most pleased me, many gross Errors that required great Correction; and upon a second Review of such a Draught, and measuring every Part by Numbers, I have been sensible and ashamed of my own Inaccuracy. Lastly, when I have made my Draught into a Model, and then proceeded to examine the several Parts over again, I have sometimes found myself mistaken, even in my Numbers. (Alberti 1965, 207)

In his book *On Painting* he suggested that the architect should describe depth when drawing the footprint of a building - *ichonographia* - the meaning on the parallel plane of the horizon (*ex fundamenti descriptioni*) (Perez-Gomez; Pelletier 1997, 27). In the second paragraph of the first book, he defined the existing world within totally geometrical terms in the tradition of Euclid (Alberti 1991, 39). The architectural drawings were to be executed "without altering the lines and maintain the true angles" as well as "exactly on the basis of controllable measures" (Translation by Perez-Gomez. Perez-Gomez; Pelletier 1997, 27). So it was the geometrico-analytical perspective drawing that produced the plans and elevations as "slices" of the imaginary space. The sections followed later as instruments for measuring time in the shadows of the building.


8.6

With the post-Galilean concept of homogeneous space along the axes of x, y and z; the "scientific" projections emerged and became a "legitimate embod-

iment of architectural ideas", because they were more accurate and appropriate to describe the spatiality of the world.

> The "spatiality" that referred to the immediate network of intentions relating man's embodied being with the Lebenswelt, and that allowed for the apprehension of his place in a hierarchical order, could now be replaced by geometrical space. ... At this historical juncture, geometry and number were able to become instruments for the technical control of practical operations and, eventually, for an effective technological domi¬nation of the world.Through the new science of mechanics, man began to subject matter to his will. (Perez-Gomez 1983, 10)

So eventually, the control and precision demanded by the First Industrial Revolution, transformed drawing methods into a representational system, which brought the translation between drawings and realisations into nearly absolute equation. However, this also constituted the ontologisation of this new representational analytico-geometrical system as a human construct into the existential world – a perception that mostly goes hidden today under the widespread experience of photographic and cinematic image of monocular lens.

From there on the core subject for architects and engineers was descriptive geometry. Jean-Nicolais-Louis Durand based his design method entirely on the descriptive geometry and even the perspective itself was not considered to be precise enough. Another instrument of representation - axonometry - was devised. An axonometric drawing objectified buildings on the two-dimensional surface "truly" in homogeneous, infinite and measurable space. From the epistemological point of view that was a real achievement - the **particular observer** of the perspective with his particular "point of view" was removed and changed into a **universal observer** without a body and position in the described space.

Here we can summarise the epistemological consequences of the representational systems in architectural design stemming from the history of perspectiva artificialis a specific space/time structure:

1. Privileged position of vision as a vehicle of knowledge that began in Classical Greece. The existential and intuitive adjustment of buildings and other artefacts to diminish or enhance the differences between non-visual knowledge and perspectiva naturalis (for instance Vitruvius and Lucretius).

2. The apprehension in a single meaningful unity of a designer's experience within the design ideas, ideal projections and architectural models of three-dimensional quality (for instance Alberti).

3. The apprehension in a single meaningful unity of the designer's experience and re-presentations of the objects of lifeworld separated by the particulation or distortion of space and time (for instance vision as the "window to the world" by Dürer, van Eyck).

4. The division of a singular experience of lifeworld into the "subject" of the observer and the represented "object" form a finite "point of view" (for instance the "counter-eye" of Renaissance, della Francesca, Brunelleschi).
5. The apprehension in a single meaningful unity of the experience of the

lifeworld, the quantifiable two-dimensional representation and the abstract "subject" of the observer as an imaginary geometrical point (for instance Brunelleschi, van Eyck).

6. The unity of an instrumental system of descriptive geometry in plans, elevations, sections, perspectives and axonometrics (for instance Villalpando, Desargues, Monge).

7. The finite and measurable two-dimensional representation of an object in the infinite space, with a universal and abstract observer (for instance Durand).

It is also interesting to notice that most of these consequences, even contradictory ones, can be seen in the current major digital construct of space – Google Earth.


8.18

Fluid perspective

The epistemological layers, embedded in the different methods of constructing representational systems, are uneven and partly contradictory among themselves, but as different historical "slices" of development, they also embody the different a *priori* settings in different constructs. At the same time if we consider that the *perspectiva naturalis* within the experience of the lifeworld is an adequate presentation of the shared human reality, then we can assume that the development of *perspectiva artificialis*, *camera obscura*, later also photography and film/video, in their final development, are the true and sufficient representations of that reality. They in some cases also surpass, as a form of knowledge, the experiences of the lifeworld. The lifeworld could be tested against, and measured from, these representations.

This simple, but practical conclusion, will have important implications for our study from the epistemological point of view. It means that the numbers, arithmetic, geometry and logical arguments belong to the sphere of objective reality. They are "discovered" from the objective reality as a special form or structure of that reality. This is advocating an extremely powerful realist, and at the same time positivistic position, which is actually in contradiction with the history of *perspectiva artificialis*.

This realist and positivistic position was criticised by Dalibor Vesely as the dominant understanding of representations in architectural education of the 1980s. In order to clarify the possibilities for this position, a much longer discussion is needed. So in the context of this study only a short remark is made: none of the latent epistemological layers in the representational systems are really explained in the general course of mainstream architectural studies. They are "handed down" like the mathematical or geometrical knowledge in the form of conventional architectural representations or descriptive geometry. Now even these are not very often mentioned as the CAD algorithms take care of all these matters. Nevertheless the form of the unreflected knowledge sets "in action" without articulating all the possible historical and current epistemological layers of representation. They are used intuitively and are established by learning from a teacher, a mentor or more commonly now from a computer program. In the phenomenological approach, one would agree that the different modes of perspectiva artificialis are the invariants of rationalisation of the life-world of the natural attitude. They are radicalised as

collective re-presentations in the form of an intersubjective language and describe the modes of human consciousness. These modes are not a part of reality, but are a universal, collective explanation of the experience of the life-world.

Vesely's criticism of instrumentality of architectural representations came out when the first personal computers emerged and was very soon covered by "machine made" forms of *perspectiva artificialis* and axonometric projections in CAD. Even more – now one could decide which "historical slice" of three-dimensional rendering to use and how to distort it for particular needs of design description.

Only now when speaking in the "post-truth" condition of current culture and politics, can the criticism of Vesely be broadened to all representations – photographic image, film and video, which have become totally unreliable descriptions of reality. Through the digital platform and advanced creative tools in visualisation, any reality can be effectively faked. This also means any imagination can be visually compellingly realised.

We can see the eroding function of traditional reality, when we continue with the perspective structure of representations. It occurs in current positioning and map tools for phones, pads and computers. Cartography has always been an important epistemological as well as instrumental tool. The exact maps were produced not so long time ago in parallel orthogonal projection. This method imagined that the surface to be mapped was projected with parallel lines of vision, as if the eye or the lens would be as large as the mapped surface. For large scale maps this method did not work and specific geometrical distortion was needed to take into consideration the curvature of the mapped surface. The geometry was important as the distances were measured on the map in an analogical way. With coordinate systems and geostatic satellites the mapping became more exact, but the favoured representation of a map was still the orthogonal projection, even on computer screens and mobile devices. With the development of Google Earth and Google Maps this has changed: now the preferred projection is tilted or axonometric surface. Very often the map hybrids into 3D image, if that particular information is available for the space stitching algorithm. We do not rely on orthogonal projection in guessing distances – we rely on coordinate system of points or addresses. The necessary distances are produced in a digital numerical form. The seeing and knowing are separated into different planes of the map. The distances depending on the search are also modified by other data: permeability, density of traffic etc. The distances are not observable and quantifiable any more as space but as a relation within the algorithms of software, totally hidden from the observer.

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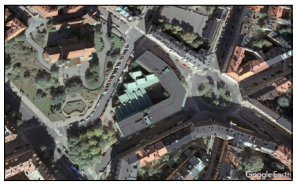
Especially odd and distorted for a conservative eye is the space described in Google Earth, where depending on the angle of satellite and the stitching algorithms the aerial photographs exhibit reverse perspective and other distortions. The street-view function also allows build-up of a "cubist vision" of represented space. Thus the reality becomes shielded from the observer with totally new representational format. It can easily be tested when we move the observed object up and down the screen – its configuration and proportions change. The descriptive geometry has fully collapsed into a new dynamic and fluid representation of space. It remains to be investigated and imagined what kind of epistemological shifts this new fluid perspective will impose to our understanding of space and images.

Virtual reality in the form of biocular vision of HTC Vive or Oculus Rift take the representational techniques of space even further to new levels. Google Earth in VR is already accessible: the quality of three dimensional image is still crude, but it is only the matter of time when it becomes sharp and clear. Very soon the wildest imaginations can be presented with exceptional clarity and reality. They do appear in the life-like modes of space and time for the consciousness of the viewer. It will be a major change for film and game industry, possibly for architectural and other designing profession as well. Within the three-dimensional space of virtual reality of film and game, the techniques and concepts like montage, shots, cuts and camera angels are going to lose their meaning. Instead we will have fully designed or scanned sets, characters, *instrumentarium* and other ingredients of "reality".

So the question in the background for all the above discussed is: will the architectural education change and is there a need for that?

Project based architectural education based on different areas of life-world, equipped with several sciences, histories and theories, is very good. The epistemological transformation of the architectural education, where actual is treated as possible and possible as actual, is extremely creative. Still I am afraid its goal has remained too narrow.

These diagnostic speculations and possibly large-scale paradigm changes promote the need for a much bigger experimentation in architectural education as well as in architectural research. Mainstream architectural education has largely left unexplored such spatial and clearly architectural areas as filmscapes, gamescapes and visual datascapes. These virtual realities deserve the same architectural quality as do the spaces of the lifeworld. It is not necessarily only parametrical approach that can fill (and has filled) this gap between actual and virtual. It can be imagined that the traditional architectural approach in the new mutations can also be of much use. The experimentation is needed to transform traditional architectural design into the spheres of presentable, imaginable and virtual.



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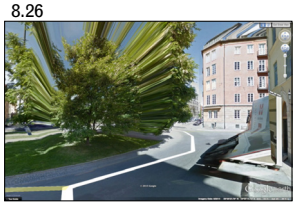
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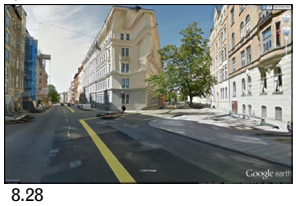

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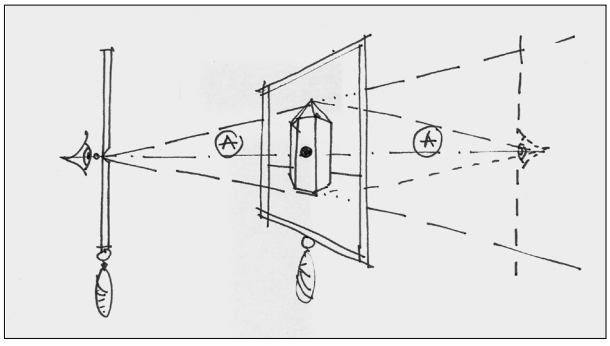
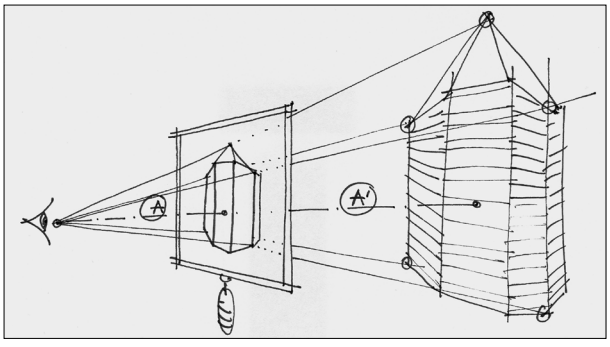
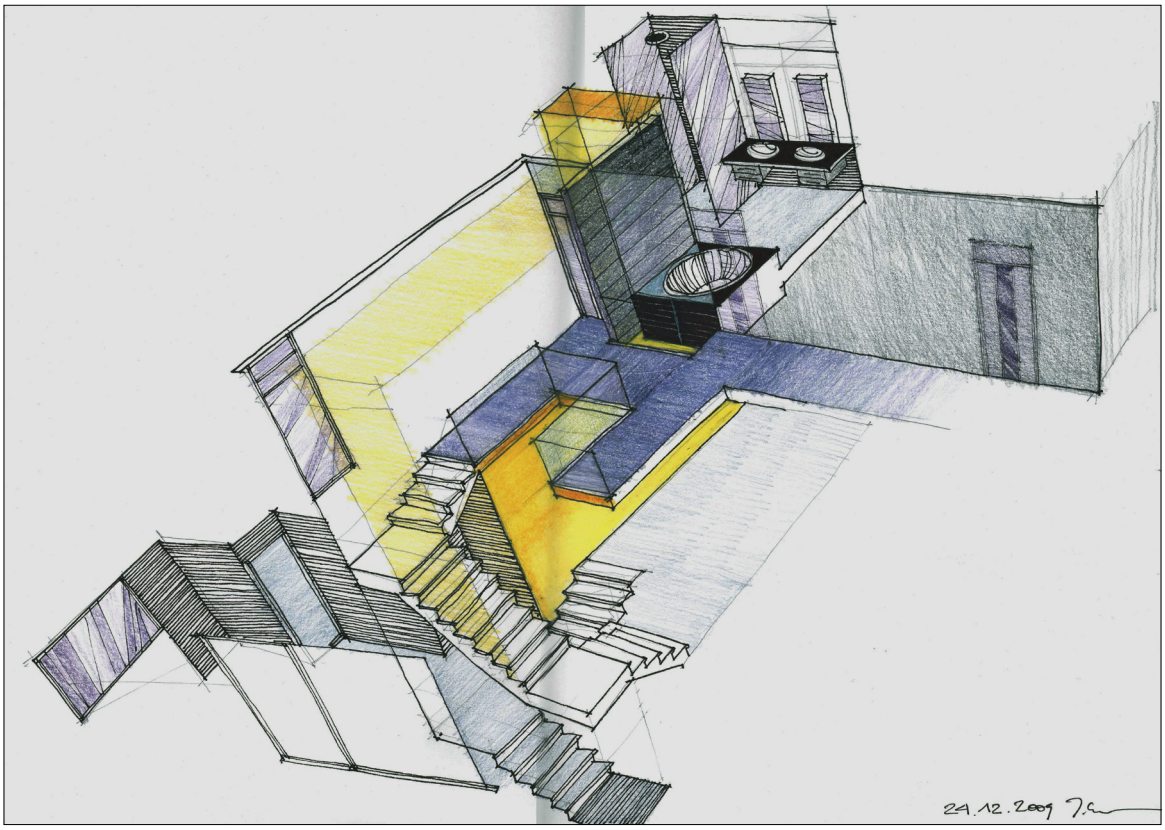
Screenshots from film *Tim's Vermeer*, directed by Teller.



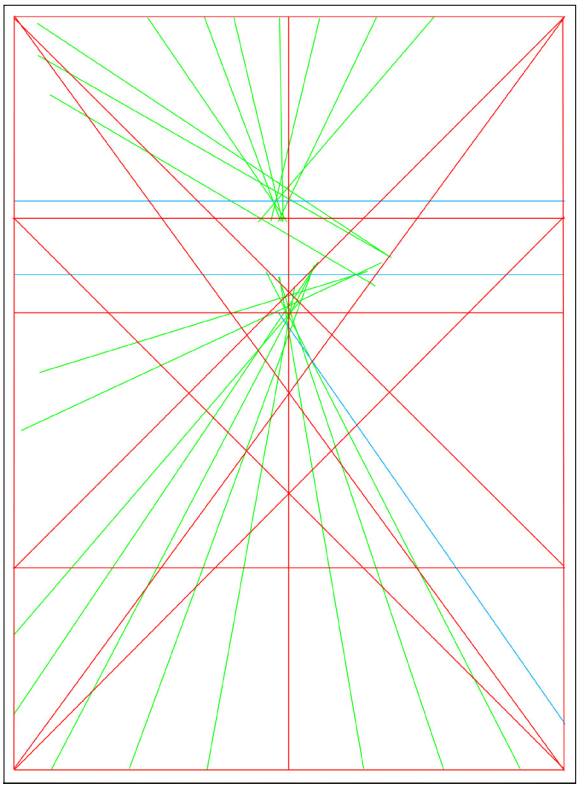


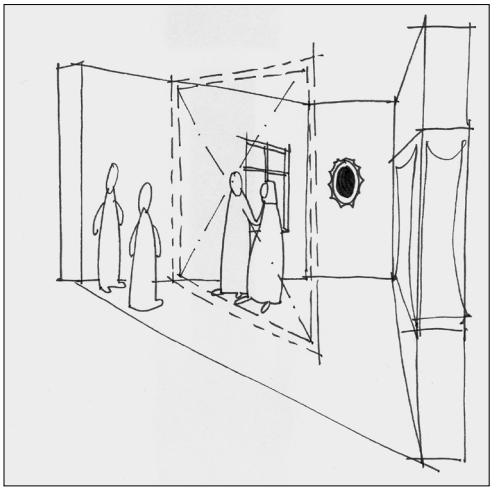
8.1 Mummy portrait. A thin-faced bearded man. AD 160-180. Metropolitan Museum of Art. Copyright: Wikimedia Commons. Mummy portrait. A young woman in red. AD 90-120. Metropolitan Museum of Art. Copyright: Wikimedia Commons.
8.2 Controversy of 50 Shades of Grey.
8.3 – 8.4 Brunelleschi developed the linear perspective with mirror and painting of Baptistery of San Giovanni in Florence.



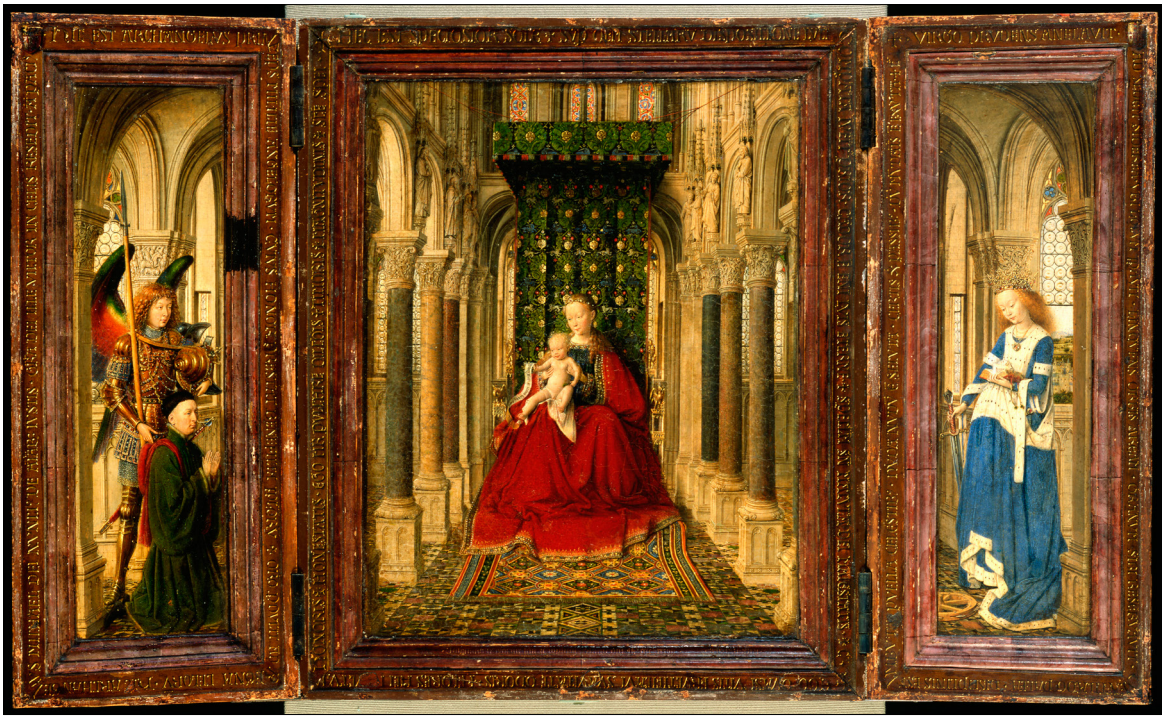
8.5 Conceptual perspective drawing of interior by educated architect. The drawing is intuitive without geometrical construction and exhibits spherical distortion at the edges of the drawing.
8.6 Conceptual perspective drawing of a farm by client of architectural studio. The person was not educated in perspective drawing, but nevertheless the picture includes intuitive depiction of space from elevated position. One can see how different buildings are drawn in elevation and axonometric view simultaneously. The vehicles as complex spatial forms are only depicted in elevation.

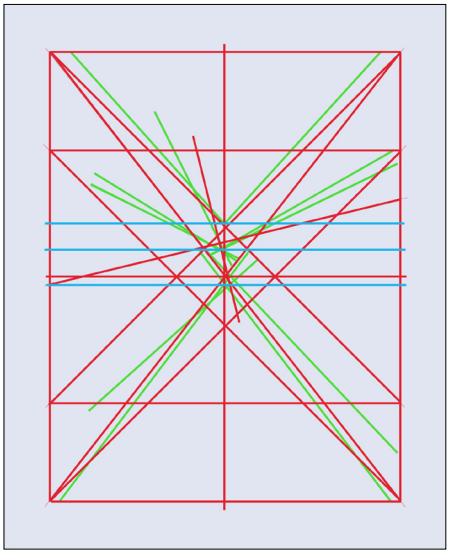
8.7The Arnolfini Portrait by Jan van Eyck 1434. The National Gallery, London. Published with the permission of the Gallery

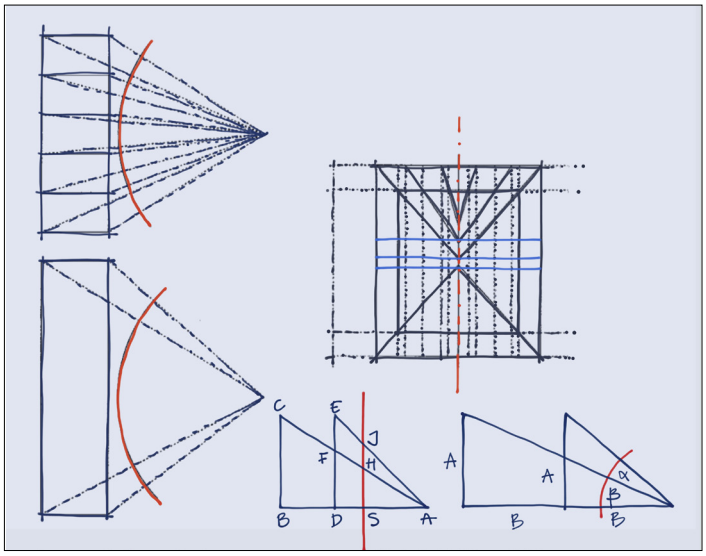




8.8 The Arnolfini Portrait. Full geometrical matrix of the picture plane.
8.9 The Arnolfini Portrait. The foci of vanishing points represent "angle-perspective". According to Erwin Panofsky this was used before central perspective. The "angle-perspective allows to imagine the picture plane as curved surface. This adds spatial experience to the image, as natural perspective of seeing compensates in moving different foci closer to each other on the vertical axis.
8.10 Spatial schema of the Arnolfini Portrait. Due to the spherical mirror the space of the painting exceeds the picture plane.
8.11 Detail of the Arnolfini Portrait by Jan van Eyck 1434. The National Gallery, London.







8.12 Virgin and Child with St. Michael and St. Catherine and a Donor by Jan van Eyck 1437. Gemäldegalerie Alte Meister, Dresden. Published with the permission of Gemäldegalerie Alte Meister, Dresden.
8.13 Virgin and Child with St. Michael and St. Catherine and a Donor. Full geometrical matrix of the picture plane.
8.14 Angular perspective of Antiquity by Erwin Panofsky (Perspective as Symbolic Form). The perspective is combined from the projections on spherical surface. There is no single vanishing point, instead we see the common axis and "fish-bone" effect that constitutes several visual horizons, marked in blue.
8.15 Detail of the Virgin and Child with St. Michael and St. Catherine and a Donor. Published with the permission of Gemäldegalerie Alte Meister, Dresden.

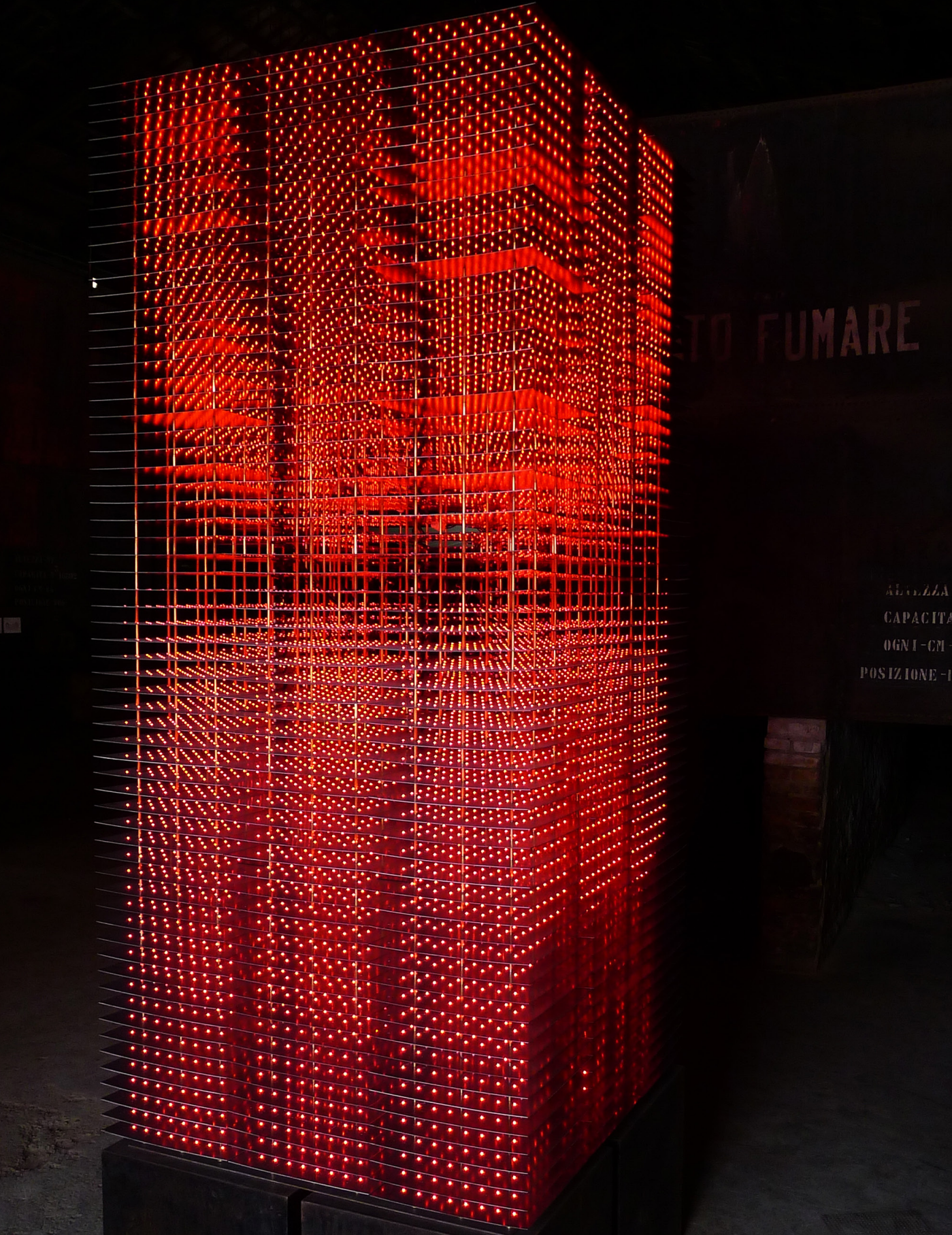
8.16 Screenshots from *Tim's Vermeer.* Inventor Tim Jenison tested if Johannes Vermeer might have used optical devices to do his famous "illuminated" paintings. Jenison proposed Vermeer used two technical devices: small mirror to pixelate the visible form as a "human copy machine" and advanced camera obscura consisting of a big lens and concave magnifying mirror. This also reminds us of the van Eyck convex mirror at the back end of the picture plane of Arnolfini portrait in the "negative" form. If van Eyck was using similar device for his paintings, then the seeming curvature of Dresden Madonna picture plane, multitude of visual horizons and minuscule textile details on his paintings become more understandable.

8.17 Johannes Vermeer(1632-1675). Young Woman with a Water Pitcher (1660-1662). Metropolitan Museum of Art. Copyright: Wikimedia Commons.

8.18 Distorted or dynamic perspective of Google street view.
8.19 – 8.22 Distorted reverse perspective in Google Earth, Umea. Note we approach the cubic building from south, the perspective is traditional, though slightly distorted, but then we see the opposite – northern side of the building.

8.23 – 8.25 Distorted proportions of the Google Earth, Stockholm. Note how the proportions change depending whether the building is in the middle or at the edges of the picture plane.

8.26 – 8.28 “Cubist” stills of the Google street view.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Tower of Bologna or Labyrinth of Brussels: On European Architectural Education 2016 AD

This article is a reworked edition of the one that was originally prepared for the NeST research environment and was published in the newspaper for "Salon Suisse 2016" at the 15th International Architecture Exhibition, La Biennale. Valuable comments were made by Johan de Walsche.

1. Intro to research background

Since the middle of the 20th century educational landscape in Europe, including the architectural education, has been reshaped by key factors such as new policy regulations, internationalization and digitalisation. There are several trends that can be described in this process. For the current presentation we believe it is important to examine the following:

- massification and globalisation of higher education,
- legislation of the European Union for comparability of several profes sions,
- new systems of accreditation, validation, evaluation and ranking,
- Bologna process and the resulting applications and decisions,
- possible future changes resulting from the development of communica tion and information technologies (ICT).

2. Massive and global higher education

The phenomenon of education massification started to appear in the second half of the 20th century. In some advanced countries, 40% of the population aged from 30 to 36 have a higher education (http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/tertiary_education_statistics). It has grown in the age group of 18-24 from 13 million in 1960 to 79 million in 2000 and is expected to reach 125 million by 2020 (Grauberg 2013, 1783). The massification has been influenced by the organic elements of globalization: increasingly integrated world economy, new forms of ICT, emergence of a new international network of knowledge and the privileged role of English language (Altbach, Reisberg, Rumbley 2009).

Higher education is regarded in the knowledge-based economy as an intellectual resource that has gradually taken over some weight of the material resources and physical labour. This will only be enhanced and fastened by the Third Industrial Revolution. We can already say that the higher education has been transformed into a segment of world economy, which has its own mass product: knowledge that is created, gathered, transferred and sold.

> Within this choice, in which human mind becomes means for the highest goal – economic profit and progress, can we see the particular identity of current consumer society and mass education. In the consumer society it was quickly clear that for efficiency of "producing knowledge" one needs huge financial support. It is clear that scientists, technology and apparatus were not needed so much for grasping

> the truth but as means for fast development of productivity. /.../ Science became the productive force (Grauberg 2013, 1789).

The temple university of Fichte, Schleiermacher and Humboldt was based on the myth of university as an institutional place for "auto-motion of universalizing speculative spirit"(Grauberg 2013: 1792). It was built on the authority of the institution, which was dependent on the authority of its professors, who were part of the institution: a self-supporting and self-legitimizing whole. After the WW II, this myth lost its trustworthiness and positivistic science paved the way for the new massification.

> Post-modern science does not legitimize itself through such ideological schemas, but supports itself through experts and consensus on the usage of its new forms; for instance, through flexible pragmatism of different axiomatic systems, through the might of relationships between political and economic efficiency or through replacing the truth by criteria of efficiency. For the sciences and faculties this results in changing the hierarchical pyramid into horizontal research networks, the borders of which are not fixed (Grauberg 2013, 1793).

The position of experts and horizontal institutional build-up of universities as well as the question of usage of public money has often brought forward for massified university a totally new and increasing burden: the requirement to prove its quality through self-appraisals, accreditations, validations and quality assurance processes. In the worst-case scenario it is also influenced by more or less populist university rankings. One can see the Bologna Process and Lisbon Strategy with more than 40 countries participating in the European Higher Education Area as a task of creating comparable and coherent higher education for Europe.

Some medical professions, and architecture have been in the scrutiny of comparable learning outcomes earlier than the other professions in Europe. It can probably be explained on the basis of an assumption that these professions were difficult to be formalized in the institutional evaluation system, because of their "existential" nature, due to which they are studied for a relatively long time with a "master", who had to teach how to apply general and expert knowledge, skills and abilities into professional practice. The most productive study method in architecture is still the studio teaching.

3. Legislation of the European Union for comparability

The European Council Directive was accepted in 1985 (*COUNCIL DIRECTIVE of 10 June 1985 on the mutual recognition of diplomas, certificates and other evidence of formal qualifications in architecture, including measures to facilitate the effective exercise of the right of establishment and freedom to provide services(85|384|EEC)*. It was called in architects' circles "Architects Directive"[1] but it was part of the same process that included mostly the medical professions: doctors of medicine, nurses, dental practitioners, veterinary surgeons, midwives, pharmacists. In 2005 they were synthesised into more general Qualifications Directive (*DIRECTIVE 2005|36|EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 September 2005 on the recognition of professional qualifications. PQD)*. The Qualifications Directive incorporated most of the criteria of previous directives but also added quite a number of professions that should be registered in member states.

1. Sometimes this group of Directives was unofficially referred to as "blood directive", as it included all the medical professions. The Directives became unified in 2005.

In 1997 the European Commission reviewed in its report the 1985 Directive experience. It was to be submitted already in 1990 but legislation in several countries took much more time than believed. In 1994 the Agreement on the European Economic Area was made and in 1995 Austria, Finland and Sweden joined the European Community[2].

The work for negotiating the 1985 Directive was difficult and took almost 18 years. In private discussions the officials of the Advisory Committee on Education and Training in the Field of Architecture admitted that no such taunting job would ever be taken up again. The Report says:

> Unlike the Directives recognizing medical qualifications, Directive 85/384/EEC does not lay down minimum training requirements for architecture but merely provides for qualitative and quantitative criteria (Articles 3 and 4 respectively) whereby a diploma can be recognized at Community level (Articles 7 and 8 contain the relevant procedural rules).
> The length of the negotiations which culminated in the adoption of Directive 85/384/EEC and its distinctive character in relation to the Directives recognizing the qualifications of certain medical professions reflect the fact that architecture is a complex, sensitive and problematic area. The main reason for these difficulties was the sometimes very pronounced differences between regulations in the field in the Member States. The enlargements of 1973 and 1981 meant that, four additional legal structures had to be taken into account, and this initially made the negotiations even more complex (Council Directive 1985).

The 1985 Directive very clearly set certain criteria for the education of architects. These are known as "11 points" and all the following directives and amendments have so far included these criteria. These "11 points" are abilities, knowledge, skills and understandings that refer to the generic learning outcomes of a person, who has the right to "pursue activities under the professional title of architect" in all the member states.

The wording of the first three paragraphs shows the complexity of the negotiations and legal philosophy behind it. Firstly, "architect" and "architecture" are defined in a tautological and self-referential way:

1. This Directive shall apply to activities in the field of architecture.
2. For the purposes of this Directive, activities in the field of architecture shall be those activities usually pursued under the professional title of architect (Council Directive 1985).

Secondly, the Directive lists several different documents: the diplomas, certificates and other evidence of formal qualifications, which witness of the diversity of even formal approaches.

Thirdly, the directive did not provide for complete harmonisation of the training in the member states. It clearly allowed that the training courses in architecture that did not comply with the directive were lawful within the jurisdiction of the member state. The Directive referred only those formal documents, which were to be used for free movement of labour between the member states.

2. Report from the Commission - Review, on the basis of experience, of Council Directive 85/384/EEC of 10 June 1985 pursuant to Article 30 thereof (http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:51997DC0350)

Fourthly, the 11 criteria to describe the education were in very broad limits. For instance the first acquisition is: "an ability to create architectural designs that satisfy both aesthetic and technical requirements" does not specify nearly anything. The Advisory Committee on Education and Training in the Field of Architecture was set up to ensure the comparability of high educational and training standards of education throughout the Community. It was to carry out several tasks:

- comprehensive exchange of information as to the education and train ing methods and the content, level and structure of theoretical and practical courses provided in the member states;
- discussion and consultation with the object of developing common approaches to the standard to be attained in the education and training of architects and, as appropriate, to the structure and content of such education and training including criteria relating to practical experience;
- keeping under review the adaptation of the education and training of architects to developments in teaching methods and to new problems arising for architects as a result of social, scientific and technical developments and to the protection of the environment (Council Decision 1985).

The build-up of the Committee was broad and democratic: it had 3 experts from each member state, including an expert form the practicing profession, from the universities or equivalent teaching institutions, and from competent authorities of the member state.

This set-up of very general but essential criteria and wide reference group largely explain why the Directive and "11 points" have been so stable and operational. The Advisory Committee on Education and Training in the Field of Architecture gradually changed and with it changed the interpretation of "11 points". Even when the matters of sustainability became widely debated, the directive needed no adjustment as generically the issues of environment were emphasised already in 1985. All the new architectural curricula to be included in the Directive appendix were monitored by the reference group and in case of doubt discussed (sometimes in details) in the Committee meetings.

For 20 years the system worked quite fluently. In the period from 2005 to 2007 under the new directive the reference group was changed to consist of the officials from the member states. Nevertheless, the experts from academia and professionals still participated as deputies to the officials or as members of delegations in the process of decision-making. The meetings have ceased roughly in the last 3 years. The power of decision making has moved in practical terms to the European Network of Architectural Competent Authorities (ENACA). This forum consist of "contact points" of the each member state, responsible for supervising the free movement of architects and solving the problems that might occur.

4. New systems of accreditation, validation, evaluation

The first process of European evaluation of education began already with the 1985 Directive: the Directive set the criteria and established a process of evaluating diplomas, certificates and other evidence of formal qualifications on the basis of curriculum of the particular school of architecture. This

created a context of comparability between the architectural educations in the member states. Different evaluations and quality assessment has been taking place for quite some time on the national basis. The RIBA Guide to its Archive and History (1986) has a section on the "Statutory registration of architects" with a bibliography extending from a draft bill of 1887 to the one from 1969. The Guide's section on "Education" records the setting up of the RIBA Board of Architectural Education in 1904, and the system by which any school which applied for recognition, whose syllabus was approved by the Board and whose examinations were conducted by an approved external examiner, and whose standard of attainment was guaranteed by periodical inspections by a "Visiting Board" from the BAE, could be placed on the list of "recognized schools" and its successful students could qualify for exemption from RIBA examinations (Wiki).

The US accreditation in architecture began in Illinois, where legislation regulating the practice of architecture was first passed in 1897 based on the state's recently enacted regulation of medicine and law. Dankmar Adler, a principal in the eminent Chicago architecture firm of Adler and Sullivan, and Nathan Ricker, head of the architecture program at the University of Illinois, are credited with moving the law through the Illinois State Legislature[3].

The first attempt to establish national standards in architecture education came with the founding of the Association of Collegiate Schools of Architecture (ACSA) in 1912 and its adoption two years later of "standard minima," which schools had to meet to be granted membership. For eighteen years, while the standard minima were in place, membership in the ACSA was the tacit equivalent to accreditation, a practice common among other professions at that time and still in use today Both RIBA and NAAB evaluations/ accreditations of architectural education have become international as the study programs outside the UK, USA and Canada seek distinction through these processes.

For architectural education both the massification of education on the global level as well as the creation of directive legislation on European level has resulted in increasing layers of accreditation.

We can look at on the background of Architects' Council of Europe (ACE) report Access to the Profession Accreditation and Validation (2009).

The first task for the working group was to understand how the different procedures and actions within the domain, that is often called as accreditation, *prescription* and *validation* (ACE WG AV. Final report of 19.10.2009. Coordinator: Sarah Lupton. Annex 2), work. The definitions used in English by the ACE WG AV were:

Accreditation (also used in the UK and Ireland as *prescription*):
The process by which a competent authority or other body determines whether a qualification fulfils the requirements of the EU Directive PQD (The body may also determine whether it meets local requirements such as those set out in national law).

Validation:
The process by which a professional body determines whether a qualification should give the holder the right to join that body [4]. (The profession-

3. The Illinois Board of Examiners and Regulators of Architects gave its first exam in 1898 and, by 1902, had established a rule restricting the exam to graduates of the state's approved four-year architecture curriculum. In 1903, the board expanded this policy to include graduates from Cornell, Columbia, and Harvard Universities, the Massachusetts Institute of Technology, and the University of Pennsylvania, an action that brought to light the need for a system of equivalency among programs nationally. (http://www.naab.org/about/naab_history).

4. Sometimes this is a process (for instance in the UK) by which an Institution or University carries out a detailed examination of a programme document, its content and learning outcomes, and examines the quality of its graduate to ensure that the programme continuously reaches the standard that the Institution or University prescribes for the degree or the diploma that is awarded. This is a process that is usually conducted by the academic institution itself who sets up its own board, albeit that Board may contain external expert(s) to participate or advise on the validation process.

al body may have a wider role, for example encouraging high standards in the qualifications).

Quality Assurance:
The process or system of processes by which educational bodies determine whether qualifications are meeting their own benchmark standards, or any other standards set by the educational system

ACE WG AV agreed on these definitions of accreditation, validation etc., but after the pilot run of the questionnaire, it decided not to use them within the questionnaire. Even with the definitions it was clear that the terms will be understood differently by different countries, which would cause misunderstanding in the response. Instead, the questionnaire adopted the following definitions:

Approval for EU directive listing: The process by which a Competent Authority or other body determines whether a qualification fulfils the requirements of the EU Directive, for the purposes of notification to the European Commission.

Approval for meeting national educational standards: The process by which a national or other body determines whether a qualification fulfils national educational requirements.

Approval for joining professional bodies: The process by which a professional body determines whether a qualification should give the holder the right to join that body. (The professional body may have a wider role, for example encouraging high standards in the qualifications or access to the market).

Approval for access to market: The process by which a national or other body determines whether a qualification fulfils standards set for access to the national market.

The outcome was very diverse and quite unexpected: out of 18 EU member countries, who answered: 5 had no formalised system for approving the Professional Qualifications Directive, 4 did not have a system in relation to meeting national educational standards or professional bodies, 4 did not have a system for approving access to market requirements, and 3 did not have a university Quality Assurance process.

Under the pressure of different accreditations and evaluations Nordic Architecture Academy (an umbrella organisation for most architecture schools of Nordic and Baltic countries) schools started to look for a common procedure that could substitute some parallel processes with unified effort and mutual trust. So a work group was set up to study the process and come up with solutions. The result was an experimental manual for accreditation and quality assurance processes (Soolep 2013: 92).

5. Bologna process

After the 1985 Directive, several political steps brought forward reshaping of higher education in Europe, which had a decisive effect on architectural education and its institutional forms. In 1988 *Magna Charta Universitatum* was

proclaimed by the rectors of European universities. It referred to the abolition of boundaries of the European Community in the next four years. The first fundamental principle of the document deals with autonomy, diversity and culture of universities. It also demands moral and intellectual independence of all political authority and economic power. The fourth principle promoted exchange of ideas and as means to it the mobility of teachers and students. In 1999 the *Joint Declaration of the European Ministers of Education* was signed in Bologna, which became known as *Bologna Declaration*. On the basis of this declaration the whole EU policy, called *Bologna Process* and the *European Higher Education Area* (http://ec.europa.eu/education/policy/higher-education/bologna-process_en.htm), has been developed. The Bologna Declaration was signed by the ministers responsible for research and education. It lined with the Magna Charta but already indicated other goals besides autonomy and diversity of universities. It promoted the following objectives (http://www.magna-charta.org/resources/files/text-of-the-bologna-declaration):

1. System of easily readable and comparable degrees;
2. Application of European Credit Transfer System;
3. System of two cycles: graduate and undergraduate (which was later generally recognized as three cycles. In the original text the second cycle included the doctoral studies.)
4. Mobility for students and teachers;
5. European co-operation in quality assurance;
6. Promotion of European dimension in higher education.

The last objective was paraphrased in the next paragraph in a balanced equilibrium of diversity and homogenisation: "/.../– within the framework of our institutional competences and taking full respect of the diversity of cultures, languages, national education systems and of University autonomy - to consolidate the European area of higher education". It also made a very practical demand from the point of view of single market and unified labour supply: "The degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification".

The change of language is even clearer when looking at the introductory page of the European Commission on th Education and Training. It says under the Bologna Process and European Higher Education Area: "The Bologna Process is a collective effort of public authorities, universities, teachers, and students, together with stakeholder associations, employers, quality assurance agencies, international organisations, and institutions, including the European Commission. The main focus is:

- the introduction of the three cycle system (bachelor/master/doctorate)
- strengthened quality assurance and
- easier recognition of qualifications and periods of study.

Widely differing education and training systems in Europe have traditionally made it hard for Europeans to use qualifications from one country to apply for a job or a course in another. Increased compatibility between education systems makes it easier for students and job seekers to move within Europe. At the same time, the Bologna reforms help to make European universities and colleges more competitive and attractive to the rest of the world.

The Bologna Process also supports the modernisation of education and training systems to make sure these meet the needs of a changing labour market. This is important as the proportion of jobs requiring high skills grows, and the demand for innovation and entrepreneurship increases.
This change from culture and exchange was further developed in next meetings towards institutional and practical goals. For instance:

> The third challenge for us in Brussels, which, in my opinion, is very important for the future life of the thematic networks and hence for your future cycle of three years, is the quality challenge. Quality in higher education is no longer a given. We think that the fact that a professor was appointed ten or fifteen years ago and has regularly published articles in scholarly journals is no longer enough. Not for the European Commission, of course, but, first of all, for students, parents and employers, because this kind of audience wants to know which institution delivers the best results in a given field of study. We can define this as a sort of consumer protection. They want to know which institution really can deliver the best education in a specific field of study. Secondly, it is not enough for the Ministries and for private sponsors, because they want to know more precisely what they are financing; this is a problem of accountability. And, in Brussels, we think that it is not enough for the universities themselves, because a self-respecting university wants and needs to know about the quality of its own teaching. The thematic network will have a crucial role in this issue of quality assessment (Deodato, Ettore. 2004. The Future Role of the Thematic Networks in the Context of the Bologna Process. Shaping Architectural Curricula for the European Higher Education Area. Transactions on Architectural Education no 24).

The communiqué *Towards the European Higher Education Area* (Prague 2001) established the higher educational area as a political and territorial concept, as well as "enhanced the attractiveness and competitiveness of higher education institutions". Existing organisations like ENIC, NARIC were engaged to verify different educational certificates. ECTS system and Diploma Supplement were established. Mobility Action Plan was endorsed. European Network of Quality Assurance in Higher Education (ENQA) and national quality agencies were encouraged to collaborate. Life-long-learning concept was developed further.

These institutional developments and changes in European higher education had a profound impact on architectural education. This can be followed through such networks as European Association of Architectural Education (EAAE) and European Network of Heads of Schools of Architecture (ENHSA).

We can summarise that when 1985 Directive made recommendations about the content of architectural education and kept the institutional recommendations minimal (four years of predominantly architectural education in the university or comparable institution) then Bologna Declaration made mostly institutional recommendations. **For architectural education these two developments intertwined.** In the beginning of the 2000s majority of the architecture schools of EAAE rejected the two-cycle education and wanted to keep the continuous five-year education (four years in some occasions), but already in a decade the situation changed – most schools adopted the three +

two model. This happened due to institutional and political influence filtered down to schools from ministries and other institutions of EU Member States.

The result of the adoption of two-cycle model and ECTS points was not only formal or institutional – it influenced the whole system of contact hours and teaching methods. The ECTS system was based on study hours, but as the historical systems of education were very diverse in different countries, also the amount of hours varied (EU recommended 25-30 hours). In some cases this new system severely shortened the education. The author, when dean in the Estonian Academy of Arts, Faculty of Architecture, witnessed the change from 5000 study hours to 3700 and further even less. The ECTS points did not allow to transform the existing curriculum into comparable system as the value of 1 ECTS point was 40, in cases of design teaching 45 hours within the 300 ECTS credits for 5 years – nearly twice the recommendation. The result diminished the traditional study lenght and changed the existing system of lectures and tutorials.

Soon the task of comparability also transformed into content influencing tool. On the basis of projects like Socrates-Erasmus Thematic Networks and ECTS pilot projects a new initiative was developed called *Tuning Educational Structures in Europe* (Gonzales, wagenaar 2004). The key words for this initiative became mapping and sectorial competences. It led to defining the competences sector by sector. These again became part of universities defining the learning outcomes.

> In the beginning, the thematic networks were created on a vertical basis; that means that our idea in 1995-6 was to have thematic networks covering the vertical disciplines, in Europe: medicine, engineering, architecture, law, political science, and other faculties. But we discovered that there was also value in having transversal thematic networks: "humanitarian studies", for example, would cover economics, politics, the medical field and a lot of other fields. So we decided to create a number of transversal thematic networks as well, although most of the 38 thematic networks we have at the moment are vertical (Deodato, Ettore. 2004. The Future Role of the Thematic Networks in the Context of the Bologna Process. Shaping Architectural Curricula for the European Higher Education Area. Transactions on Architectural Education no 24).

The Tuning project also added two more target areas: firstly, the link with education and research. It was decided that the future thematic networks would have to be financed by the General Directorate for Education and General Directorate for Research. Secondly, it was the link between education and society[5]. The last one took the form of involving non-academic partners.

The Tuning project also developed its institutional framework consisting of European Tuning Information and Counselling Centres (Universities of Deusto and Groningen) and Tuning Information points with 32 countries participating. The Tuning project promoted two major instruments that influenced the homogenisation of European higher education: learning outcomes and competences[6].

> "Most of the partners of our thematic network consider that learning outcomes and competences are the most relevant elements in the

5. /.../ now we warmly recommend that the thematic networks include a really considerable number of nonacademic partners. I understand that in certain fields this is easier than in others – it might be easier in architecture than in political science; but we would like to have thematic networks that are open to society, with the participation of local government, with the participation of foundations, with the participation of non-governmental associations, and all the galaxy of the non-academic world (Deodato, Ettore. 2004. The Future Role of the Thematic Networks in the Context of the Bologna Process. Shaping Architectural Curricula for the European Higher Education Area. Transactions on Architectural Education no 24).

6. In the framework of the Tuning project a methodology has been designed to understand curricula and to make them comparable. Five lines of approach have been distinguished to organize the discussions in the subject areas:
-generic (general academic) competences,
- subject-specific competences,
- the role of ECTS as an accumulation system
- approaches to learning, teaching, and assessment and
- the role of quality enhancement in the educational process (emphasizing systems based on internal institutional quality culture).
In the first phase of the Tuning project the emphasis was on the first three lines. The fourth and fifth lines received less attention due to time constraints, but they had a central place in the second phase of the project (2003-2004). (http://www.unideusto.org/tuningeu/tuning-methodology.html)

> design, construction and assessment of qualifications ensured by schools of architecture, as they constitute the reference points to be met. We all consider that it is of vital importance to discuss and agree upon a kind of rank order of competences, which will be offered to schools as a tool to structure their curricula. This way each school will be able to articulate their educational objectives as well as their reference points for quality assessment." "The involvement of our network into the Tuning program and the approach it indicated to restructure education resulted from our above-mentioned needs and demands. To better grasp the school curricula and to create the conditions for their comparability and innovative development, we found that it is extremely useful, and for this reason more than necessary, to redirect the focus of our initiatives over a competences-based platform. To rethink the education of the architects in terms of competences was not conceived only as a technical issue emerged by a certain strategic decision to assure comparability and transparency in educational structures. On the contrary, we consider this approach as a new paradigm in understanding education in all its levels, from the curriculum design to the pedagogy and to the teaching methods applied to the education of every specific domain of architectural knowledge. " (http://www.unideusto.org/tuningeu/subject-areas/architecture.html)

One can assume that by the end of first decade of the 21st century most of the subject areas[7] within the Tuning project adopted the established competences through rewriting the programs in a comparable way. Surely the precaution was taken not to unify or prescribe the content of the curricula. Yet how much was achieved is a question still to be examined.

> In our effort to avoid any sort of unified, prescriptive, or definitive European curriculum and stay away from any rigid set of subject area specifications to restrict or direct educational content in a way which will damage the rich diversity of European higher architectural education, the competences based approach is an appropriate strategy. (http://www.unideusto.org/tuningeu/subject-areas/architecture.html)

The report of the Tuning project in architectural education was published in November 2007. It established for the architectural education within three cycles the following instruments: generic competences, subject-specific competences on profession and subject-specific competences of architectural research. Altogether 183 competences divided into 3 types in 3 cycles.

The described intertwined processes that began in the 1980s contain strong preconditions for homogenisation of the higher education, particularly the architectural education, in Europe. These processes have received their full development and maturity today. Learning outcomes, subject-specific competences, institutional evaluations, professional accreditations/prescriptions, research assessments etc., have developed a strong grip on architectural education. How much this process has homogenised our education and if there are any new thoughts for emerging school remains a question to be asked.

The building of different layers of quality assurance was an integral part of Bologna Process and was partly covered by the Tuning project. It also had its own parallel and complementary stems of development[8] which are too much to describe here. Nevertheless, for the purpose of criticality of this paper we would like to conclude with the hesitation presented by Jürgen Mittelstrass:

7. During phase 1 and 2 (2000 - 2004), Tuning worked with 9 subject areas (Business, Chemistry, Earth Sciences, Education, European Studies, History, Mathematics, Nursing and Physics). In phase 3 (2005 - 2006) Tuning aims to encourage the use of the Tuning methodology and related tools and products (for example the model for determining student workload, the model for designing curricula and the model for organising and applying quality enhancement and assurance) in existing and new thematic Socrates networks as well as in other existing international networks and associations of subject areas.

8. The European framework for quality assurance was developed and established by the main stakeholder organisations in the field, gathered in the E4 Group: European Association for Quality Assurance in Higher Education (ENQA), European Students Union (ESU), European University Association (EUA) and European Association of Institutions in Higher Education (EURASHE). The E4 Group organisations launched the European Quality Assurance Register for Higher Education (EQAR) in 2008 at the request of European ministers of education in Bergen (2005) and London (2007) and in a move designed to improve the quality of European higher education and to promote greater student mobility. The EQAR is the first legal entity created in the context of the Bologna Process and, in addition to the E4, has a number of signatory countries, BUSINESSEUROPE and Education International as members.

Quality assessment procedures for higher education institutions in Europe were first developed in the mid-1980s. Most European countries have systems of quality assessment or quality assurance at their disposal. This development has been spurred by the desire to give more autonomy to higher education institutions and to ask for efficient accountability. This is a noble aim, but the methods chosen to attain it are wrong. The danger is that by attempting to subject the academic practice to standardised criteria, it may lose its essential capacity. In the case of science, this essence is in the discovery of what is new. This may come in many ways, well-known and new. Therefore, optimal methods are not easy to lay down from the start and cannot be restricted by rules to be followed and controlled, for example in terms of quality. This is related to the fact that in science – as in many other social areas – people are the essential factor, not the routines they follow (in which people are viewed as interchangeable commodities). It is the researcher who is at the centre of successful research, not the research system, be it assessed or not.[9]

9. European Review, Vol. 18, Supplement no. 1, S181–S189 r Academia Europæa 2010. The online version of this article is published within an Open Access environment subject to the conditions of the Creative Commons Attribution-NonCommercial-ShareAlike licence hhttp:// creativecommons.org/licenses/by-nc-sa/2.5/ i. The written permission of Cambridge University Press must be obtained for commercial reuse. doi:10.1017/S106279870999038X

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Inventory of Emerging Digital Reality

The world economy and culture have entered the era of the Third Industrial Revolution . This revolution is based on digital domain and rapid advances in computing algorithms and autonomous robotics . In 25 years it has totally changed the information, communication, entertainment and surveillance technologies – both in their form as well as content. A totally new reality has emerged with its own sovereign substantiality, structure and will. It can be called the Digital Reality. It consists of informational and communicative networks, complex hierarchy of computational algorithms and the meaning system of its projections on screen, often simply called the content. It is fuelled by formal and informal online users; visible through multiple public and personal screens; and dominated by digital production giants like Amazone, Alphabet, Google and Facebook. The Digital Reality with its possibilities has shaken the political and public institutions of Modernist liberal democracies. One can speculate that we have arrived at the collapse of the paradigm called Modernism and its final stage called Post-Modernism.

The Modernist media has transmuted along with the development of technology. Different types of media, as well as genres have hybridised together. We use our phones to read books and emails, make videos and photos, check-in airlines, send messages as well as occasionally make some phone calls. The same can be done with other devices having a screen and access to our personal cloud domain. Current changes, however, go deeper: the genres of documentary and fiction, public and private, text and video, advertising and news have all became one hybrid personal environment of the Digital Reality.

Information can create, interpret, mutate and copy itself limitlessly. The process is or tends
to become instant – the means of communication distribute it immediately to all the receivers who can be on-line. It is increasingly difficult to keep the plenitude of information in the constraints of property rights, including the intellectual property rights. The Digital Reality has partly broken out of the previous legal system already. Some believe it threatens the traditional concepts of Modernist paradigm – labour, market, value and price.

Background considerations

Framework 1: From imagospheric condition to Digital Reality.

Several new directions in everyday life that predict loosening of the previous paradigm and supporting the forthcoming of a new one can easily be noticed. The first visible stage of collapse was the banking crises of 2008, which grad-

ually developed into a long economic crisis. Now new trends like the unprecedented rise of populism and nationalism (Grexit, Brexit and the result of the US presidential elections were unimaginable scenarios some years ago) have emerged. Europe has witnessed a massive migration movement and military activity with violent changes of its borders unseen since the WW II.

Artificial Intelligence has developed to the level, where humans are no match to it in complex games like chess, go and now in poker. Very soon Artificial Intelligence is expected to be better than humans in planning economy and military actions. All these indications of the disintegration of the previous paradigm do not show any signs of slowing down yet.

There is one phenomenon that surfaced between 2008 - 2014. It can be called imagospheric condition. Very soon every text, call, message, image, film, or any other phenomenon ever made or occurred in the world could be digitally and instantly accessible. We have used the term imagosphere as a metaphor for the state of current development, dominated by the supremacy of image. Every new carrier of information added or created will become potentially available in Digital Reality in the format of a screen – it becomes visual. The world today is mediated through an interface or membrane of specific kind and it is full of saturated images that surround us like an atmosphere.

We believe the image-based culture has enforced its own epistemological settings to the screen dominated media. The imagospheric condition of the current world can be described by several generalisations:

Firstly, the plenitude of information is quite different compared to the state of culture and economy that existed before the Digital Reality. Plenitude of information deals with an infinite abundance. Information can create, interpret, mutate and copy itself limitlessly. The process is instant – the means of communication distribute it immediately to all the receivers who are or would be on-line. It is increasingly difficult to keep the plenitude of information in the constraints of intellectual property rights.

Secondly, digital platform has transformed documents, fiction, advertisement and news into a unified field undermining public broadcasting and printed media. The previous typology of genres disappears or merges. At first, the public and private divisions in politics, culture and space disappear. Then the knowledge of reality and imagination of fictive become intertwined. One can witness a strong amalgamation of public and private, but also of reality and fiction.

Thirdly, the hybridisation of former clear genres has produced confusion in valuating Modernist science. It has lost its credibility. This condition has been recently described as era of post-truth, post-statistics, post-facts and post-public media. Social networks and messenger apps have taken over the news and information outlets of public media, thus amplifying the amalgamations in "echo chambers" producing perfect conditions for massive public opinion manipulations.

Fourthly, the Third Industrial Revolution has advanced the idea of the Internet of Things (IoT, Web of Things, Internet of Food). It is based on the possibility of embedded digital devices and automated communication between physical objects. This has created a parallel digital universe, which gradually

stops being parallel, as it becomes an integral part of material beings. Thus, one can witness a strong hybridisation of material and digital.

Fifthly, biocular human vision and awareness of space allow us to sense the surrounding world in a stereoscopic way – the way we apprehend the space. This can be called perspectiva naturalis as compared to perspectiva artificialis – an analytical-geometrical construct to present or simulate the spatial qualities on a 2D surface as an image. Today due to digital possibilities the difference between natural vision and visible representations on 2D surfaces is gradually disappearing. So far the Digital Reality was interfaced mostly through screens, but now we see digital/hybrid image production with immersive virtual reality devices facilitating massive usage – the Virtual Presence. These amalgamate together the existential reality and the wildest imagination. Both can be approached in the minute detail through digital simulation. This means that the screen so far separating the digital and material worlds as a recognisable membrane with its own frame will disappear into a new kind of 3D human vision of augmented reality, sometimes also referred to as full immersion. The amalgamations in the digital domain become more direct and closer to human experience. Thus one can witness a strong hybridisation of informational, imaginable and existential.

Sixthly, the development of neuro-sciences and digital bionics/prosthetics may lead to direct links between digital and conscious in not so distant future.

Framework 2: The autonomy of image in Digital Reality

The way we personally communicate, use and, to some extent, even alter the Digital Reality is mostly in the form of using screens. We use a multitude of screens with visual projections on them to be able to access in the Digital Reality. An image on the screen has become the favourite access device for the Digital Reality and even in its most simplistic form it obtains the four dimensions of space-time continuum: up and down, left and right, front and back, as well as the temporal duration in the form of moving images.

The image of screen projections is also transforming into a new form. New simulation platforms of the Virtual Reality (VR) and Augmented Reality (AR) have become available in massive quantities. With stereoscopic projection, these devices are able to create fully immersive images, very soon close to the existential visual experience of human being. So the existentialisation and partial internalisation of an image are approaching. This means the differentiation between depiction and depicted, the fundamental differentiation of the meaning structure of an image, is disappearing. In terms of simplified realism: we do not know where the frame between the world and the representation is fixed. The representation and conscious presence amalgamate in visual form, creating Virtual Presence. That means the wildest imagination becomes real and realistic and the other way round.

This new existentiality, full immersion, comes so fast in the moment when people have not fully managed to get hold of the imagospheric condition and the supremacy of image yet. Within this supremacy one can point out several integral qualities of the image that do not appear usually in text, speech, tactility, sounds and music. These qualities make images highly autonomous and potential vehicles of different meanings. The image has existed for 60 000

years within the human cognitive history, but now new technological possibilities make its massive presence without frames much more powerful than ever before.

Firstly, the image in the current state of plenitude of visual projections launches an explosion of entangled meanings. When one and the same image is instantly shared around the world it gathers diverse meaning contexts attached to it by different viewers. The different experiential, cultural and archetypal ways of understanding the image become embodied in its form simultaneously and become the part of its presence like "comets tail".

Secondly, the image can establish its own value system. The value-system of an image is embodied within the entangled meanings, usually created by the author or dependent on the author. Depending on the intensity or creativity of the image the value-system can overrun the explosion of diverse meanings and incorporate them into the premeditated or predesigned value direction. At the same time the image can have its own visual genesis of becoming what is unknown to the author and operates independently of author's will. This can also happen to the autonomous image production like automatic or security cameras, as the entangled meaning is induced by the context.

Thirdly, the presence of the image between past and future. Every image has a specific and universal space-time meaning attached to it. When created it has its own fabrication and design history (in case of a deliberate creation and a mechanical or automated timeline in case of accidental image production) as well as a proposed or imagined future usage. This presence of the past is parallel to the universal viewing presence of the image in general. It brings into the diverse meaning system a particular past and imagined future of the created image as a hidden value-system.

Fourthly, the image becomes a small project of its own kind. Within the context of hybridisation of material and digital as well as of hybridisation of informational, imaginable and existential – an image becomes (or has the directionality of being treated as) a design object. The information attached to the object becoming an image or the information analysis of the image describing the object, transforms the viewing process into a simulation in the Digital Reality. Thus making the field of cognition also a possible designing horizon of the object. So the images become treated as projects of the future or memories of the future.

Fifthly, a system of proportions and composition that usually elude the visual apprehension is embedded in the image . This system can play an important part in making the images more intense and creative and thus enhance or masque the entangled meanings including the main value system. The proportional and compositional build-up can also accidentally obtain non premeditated entangled meanings or value directions due to the underlying layer, which might have stronger connections to other phenomena.

Sixthly, a geometrico-dimensional system of framed projection is embedded in the images of spatial or seemingly spatial nature.. The geometrico-dimensional system can also play an important part in making the images more intense and thus enhance or masque the entangled meanings. Perspectiva artificialis or other types of projection (isometry, axonometry etc.) can be mentioned here. The epistemology of the spatial build-up of the image certainly brings into the meaning system its own specificity.

All these autonomous qualities of an image add a layer of complexity and transformability in the Virtual Presence, when the surface and the frame of an image disappear.

Framework 3: Fluid perspective as a fundamental epistemological challenge for immersive virtual reality devices.

The epistemological layers, embedded in the different methods of construct-ing representational systems in design professions, are uneven and partly contradictory among themselves, but as different historical "slices" of de-velopment (perspectiva naturalis, isometry, axonometry, perspective, reverse perspective etc.), they also embody the different a priori settings in different mental and representational constructs. We have considered that the per-spectiva naturalis as the experience of the lifeworld is an adequate presenta-tion of the shared human reality. Until recently we have assumed that the de-velopment of perspectiva artificialis, camera obscura, later also photography and film/video, in their final development, are the true and sufficient objective representations of that reality. Film and video were considered in some cases also to surpass, as a form of knowledge, the experiences of the lifeworld.

Today we can see the eroding function of "traditional reality", when we continue with the perspective structure of its representations. It occurs for instance in current positioning and map tools for phones, pads and computers.

Especially odd and distorted for a conservative eye are the spaces described in Google Earth, where depending on the angle of satellite and the stitching algorithms, the aerial photos exhibit reverse perspective and other distortions. The street-view function also allows build-up of a "cubist vision" of represented space. Thus the reality becomes shielded from the observer with totally new representational format. In representations of the Digital Reality the descriptive geometry has fully collapsed into a new dynamic and fluid representation of space. It remains to be investigated and imagined what kind of epistemological shifts this new fluid perspective will impose to our understanding of space and images in general.

Very soon the wildest imaginations can be presented with exceptional clarity and life-likeness to existential reality. They do appear in the life-like modes of space and time for the consciousness of the viewer. It will be a major change for film, game and entertainment industry, as well as for architectural and other design professions. Within the three-dimensional space of Virtual Presence, the techniques and concepts like design, analysis, montage, shots, cuts and viewing angels are going to lose their current meaning. Instead in the Digital Reality we will have fully designed or scanned sets, characters, instrumentarium and other ingredients of the "reality".

Framework 4: The Digital Reality and design professions.

The Digital Reality has shaken the previous economic, political and public institutions, but within it new forms of discovery, integration, sharing and applying of knowledge have emerged. It has been mostly gaming industry and design professions that have taken advantage of the hybridisation of informational and existential in the form of digital/hybrid image production and immersive virtual reality devices.

In the gaming industry the scope has been rather narrow, catering for the specific entertainment segment of visualisation. In design professions visualisation has a long tradition, but on massive level the development of immersive Virtual Presence has only started. For design professions the complication is that the Digital Reality has undermined traditional workflows, particularly in architecture, which is closest to the utilisation of Virtual Presence as a spatial simulation.

In historical perspective it seems that several fundamental elements of design documentation (representations of design process) that have been taken for granted for quite a long time – nearly six hundred years - are changing now. Among them the three most obvious ones are:

- the representational system of design,
- the means of producing artefacts designed and
- the authorship of the design.

The representational system of design is still fully used in the form of working drawings (projections in the form of plans, sections, elevations and perspective), which epistemologically constitute different sections of ideal imagination of parallel vision in the Cartesian space, which is governed by coordinates and mathematically describable to the smallest detail. The current system of design representations is nevertheless rapidly changing in two directions: becoming an algorithm of the parametric solution or becoming a virtual reality supported by BIM. The traditional working drawings on paper are becoming obsolete. Instead of a drawing, there will be algorithms ready for CAM, cutting or printing.

The means of producing artefacts of design are still fully used in the form of traditional building or manufacturing techniques. Current new composite structures and materials have changed the work processes. The algorithmic design and BIM already enable fully automated flow of materials and construction of the final product autonomously in CAM. Further development promises both small as well as large-scale composite objects materialised through 3D printing or other additive technologies.

The authorship of design is still used in the form of intellectual property rights and in some countries by protection of the title (in architectural profession). Today the system based on the intellectual rights of an author is undergoing a change. The position of the author in general is being questioned within the digital platform. The Digital Reality bringing up new methods of creation in some areas already rejects the author entirely – within the parametric development of design and user participation, the authorship becomes questioned both from the theoretical and legal point of view.

We believe that for the design professions the two changes of paradigm - one in the longer period as the form of retooling the representational system of design, and the other in the shorter period as Modernist era re-orientation of the whole profession towards the Digital Reality – are perfect catalysts in the research of digital/hybrid image production and immersive virtual reality devices. This is supported by the fact that design professions have always been conscious of the geometrical-analytical build-up of their processes of designing within visualisation constraints.

Framework 5: The Digital Reality and design horizon

Some parts of the Digital Reality are already so well organised, presented and exact that they can be used as a parallel reality. Most of our everyday work cannot even be done without this new layer of Digital Reality. The simulating capacity of the Digital Reality has transformed itself into a specific design horizon. Most of the work done within the Digital Reality has become more or less a design work.

If we allow this speculation that work is design mostly, we also need to reconsider discovery, integration, sharing and applying of knowledge. Knowledge production has become a design work of its own kind. Digital Reality has already undermined the traditional forms of knowledge reproduction like public printed and broadcasted media but also systems of higher education. With the personalised approach to knowledge and knowledge discovery this process becomes knowledge design – personally aimed and produced knowledge for that particular person.

The being of the Digital Reality so far makes it clear that all human knowledge, information and creation can very soon be in digital format. This means it is by default instant and online. This also means it can be referred to not as Big Data but Full Data. Today the important parts of Digital Reality, referred as Big Data, are accessible only for powerful states or corporations. With open source and open knowledge networks this will change. Instant knowledge becomes part of the Digital Reality and contributes to the design horizon embedded in it.

The specific and exact knowledge is going to be especially needed in interdisciplinary networks due to the simulation capacity of the Digital Reality. Without the simulation capacity and strong knowledgeable design applications' innovative and efficient custom-made production in whatever sphere cannot be produced. This promotes the belief that somewhere there is an equilibrium between private corporate interests and open knowledge networks. In all professions the work moves closer to collective or user participation in the form of design work.

Instead of Summary: A Belief

The shift in the methodologies of education from the "knowledge taught" as static and shallow information, to the more dynamic "knowledge acquired" and "knowledge applied" is clearly seen since the 90s of the last century. Continuous professional development (CPD) and life-long learning are the visible attributes of that shift in Europe and North America. These educational systems clearly treat knowledge as something rapidly changing and developing.

Ernest L. Boyer and Lee D. Mitgang suggest in their review of architectural education in the US, that the definitions in the accreditation of the architectural curriculum should be changed so that "fundamental knowledge", "design", "communication" and "practice" become newly interpreted as:

- "discovery of knowledge",
- "integration of knowledge",
- "sharing of knowledge" and
- "application of knowledge" (Boyer, Mitgang 1996).

Architectural education can thus be seen as the collection, revision, interpretation, transformation and creation of architectural knowledge. I also believe it transforms through its capacity of being meta-knowledge into existential ontology of its own specific kind – the courage of letting go and becoming an architect.

The recommendation of Boyer and Mitgang seems very appropriate to describe the being of any knowledge in the new circumstances of current developments of the Third Industrial Revolution.

The development of current technologies mostly within digital applications and computational algorithms has brought forward a new Digital Reality. This Digital Reality is shaped by computer and phone networks, fuelled by formal and informal users and dominated by digital production giants like Facebook, Google and Amazon.

The Digital Reality with its possibilities has shaken the political and public institutions of Modernist and Post-Modernist eras of the liberal democracies. This new condition of mankind has been described as post-science, post-statistics and post-truth society. Paradoxically large parts of world population whose actions are exposed to the Digital Reality can be instantly tracked, analysed and described with unprecedented speed and accuracy with math-

ematical and statistical means. The problem being that this analysis and the analysts are covered by anonymity and secrecy of big companies and intelligence services of powerful states. The ability to develop, refine and use psychological and several other profiles of large segments of populations allows the social media and networks to manipulate substantial number of people on personal level of their preferences. This is the situation that Jean-Francois Lyotard predicted already in 1979 (The Postmodern Condition).

The new forms of discovery, integration, sharing and applying of knowledge within the Digital Reality have already undermined the traditional forms of knowledge reproduction like public printed and broadcasted media but also systems of education and especially higher education. Thus the reference to the post-truth society.

Traditional knowledge creation and distribution within the formal educational systems faces hardships. In the age of massive higher education, the main hardships are the lack of resources and the necessity to justify ones being through continuous expert legitimisation in the form of quality assurance and accreditation.

Practice-based knowledge is hidden from general public as commercial interests prevail. The knowledge has become a productive force, directly connected to the economic system. Powerful companies have developed their own research and education resources and we do not really know what happens behind the company walls.

Open-source knowledge has become an ethical choice, but in the Digital Reality it is not moderated and is diluted by quantity of its different representations. The important problem is how to find information that is relevant and of high quality.

The being of the Digital Reality so far makes it clear that all human knowledge, information and creation can very soon be in digital format. This means it is by default instant and online. This also means it can be referred to not as Big Data but Full Data. Today the important parts of Digital Reality, referred as Big Data, are accessible only for powerful states or corporations.

Some parts of the Digital Reality are already so well organised and exact that they can be used as a design horizon for different purposes. Especially the specific and exact knowledge is needed in interdisciplinary networks due to the simulation capacity of digital platform. Without the simulation capacity and strong knowledgeable design applications innovative and efficient custom-made production cannot be produced. This promotes the belief that somewhere is the equilibrium between private corporate interests and open knowledge networks.

The imagospheric condition that has emerged with the Digital Reality adds another layer of complexity to all knowledge networks. It masques and colours the different forms of discovery, integration, sharing and applying of knowledge, but it also predicts the new forms of knowledge creation, where image and imagination will have even a substantially bigger role than now.

We look forward to the new Era of Imagination.

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