Foreword by Anthony Patch June 22, 2018

https://www.researchgate.net/publication/313460055_The_occurrence_of_technological_triad_descriptive_concept_of_today's_totality_of_reality

This paper is sourced through the member site; Research Gate. I have copied and provided it to you as Patrons. While detailed, I consider it to be an overview of what is transpiring in the realms of transhumanism, enclosing quantum physics, computing, AI, genetic modification and, robotics.

I encourage you to read this while bearing in mind the foundational information provided through Entangled magazine, as well as my radio program with regard to the quadrant of companies; D-Wave, Quadrant, Kindred and Sanctuary.

The July issue of Entangled highlights these companies and statements made by their researchers openly revealing their spirit-lead agendas.

I suggest reading this in stages. It is a lot to take in. While scientific, it folds in man's philosophical perspectives of man him/herself.

This is about the 'birthing of a new race of beings'. Not hyperbole, nor conjecture. Rather, it reveals the spirit within computing and all that it spawns upon our reality.

As well, bear in mind my presentations regarding Purdue University's 2006 White paper regarding the production of a Sentient World Simulation.

https://www.krannert.purdue.edu/academics/mis/workshop/ac2_100606.pdf

https://en.wikipedia.org/wiki/Synthetic_Environment_for_Analysis_and_Simulations

Not only is a 'birthing of a new race of beings' underway, but moving humans into a new, simulated reality, where, as avatars, humans are uploaded, coexisting with this new race of Kindred Robots.

In summary, this is the scientific world's blueprint for mankind.

Please, I encourage you to read about this in their own words. Typically, I would translate and summarize their arcane language and statements for you. However, in this case, their words need be evidenced to you.

Thank you,

Anthony Patch

The occurrence of technological triad: descriptive concept of today’s totality of reality

- July 2016

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Abstract

Scientific discourse refers to triads as conceptual structures whose purpose is to emphasize the connection between concepts included in the description of a certain phenomenon. The famous Popper's triad is comprised of the world of physical objects and processes (World 1), the world of mental objects, i.e. subjective human experience (World 2) and the world of objective knowledge (World 3), which can be thought of as all the products of thought -- the world of information, knowledge, scientific theories, literature, etc. During the past half-century, Information and Communication Technology (ICT) and new media began to change our reality on all three levels. Using a comparative analysis, this paper will examine the impact ICT and new media have on the Popper's World 1, 2 and 3. As it will be shown, the modern age offers a new conceptual triad the aim of which is not to stand against the Popper's triad but to introduce new integral elements that intersect and interact with it. In this new triad the world of physical objects is being replaced by the world of virtual reality (i.e. the Virtual World), the world of mental objects is replaced by transmental objects (i.e. the Transmental World) and the world of objective knowledge is being replaced by the world of digitized data/information/knowledge in the context of developing AI (i.e. the Digital World). These new architectonic elements build new conceptual structure the aim of which is to define, describe and represent new interrelated concepts essential for better understanding of today's totality of reality. They form new ontology of the world which describes reality as inseparable from the concepts of information and technology. http://knjiznica.zbds-zveza.si/index.php/knjiznica/article/view/569/538

1 Describing reality: Popper's three worlds

The totality of reality has long been a question that has interested many philosophers. Can reality, which surrounds us and which we belong to, be described by some inner insight? What is it ultimately made of? Is there a reality independent of our mental states and language? These and other questions hide the outlines of something we represent to ourselves using the outer and inner worlds. On the one hand, there is the outside world; the reality itself as an objective space, and on the other, there is the mind with our consciousness, the self, our language and other meaningful components of our subjective inner space. Thus, philosophers di-vided themselves into two camps: realists and anti-realists. Realists who believe that the reality is objective and independent of our beliefs, linguistic practices, conceptual schemes, etc. and that our goal is to discover it. And anti-realists who believe that there is a reality but that is it not independent of us; it is something we construct, not discover. However, if we ask ourselves what is reality really made of, one answer in particular stands out: the attempt of Austrian philosopher Karl Popper (Popper, 1978) to present the reality through its own existential triad constructed of three worlds.

Karl R. Popper (Popper, 1978) formed his own ontology of the world, which consists of three parts/worlds (Figure 1):

World 1: physical objects and processes
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World 2: consciousness or psychical states
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World 3: products of the human mind (the intellectual contents of books, documents, scientific theories, etc.)

In this triad, the Physical (material) World is interpreted as the physical reality studied by natural sciences. In the Physical World, there are real tables and chairs, the sun and stars, stones, flowers, butterflies, space and time, molecules and atoms, electrons and photons.
The Mental World includes the social conscience. In the Mental World, there are real "things" and "phenomena". For example, there are happiness and

pain, smell and colour, love and understanding, impression and images (of stars, tables, chairs, etc.). In addition, the Popper's World 3 includes the products of human mind in the form of knowledge or information, such as the intellectual contents of books, documents, scientific theories, etc.

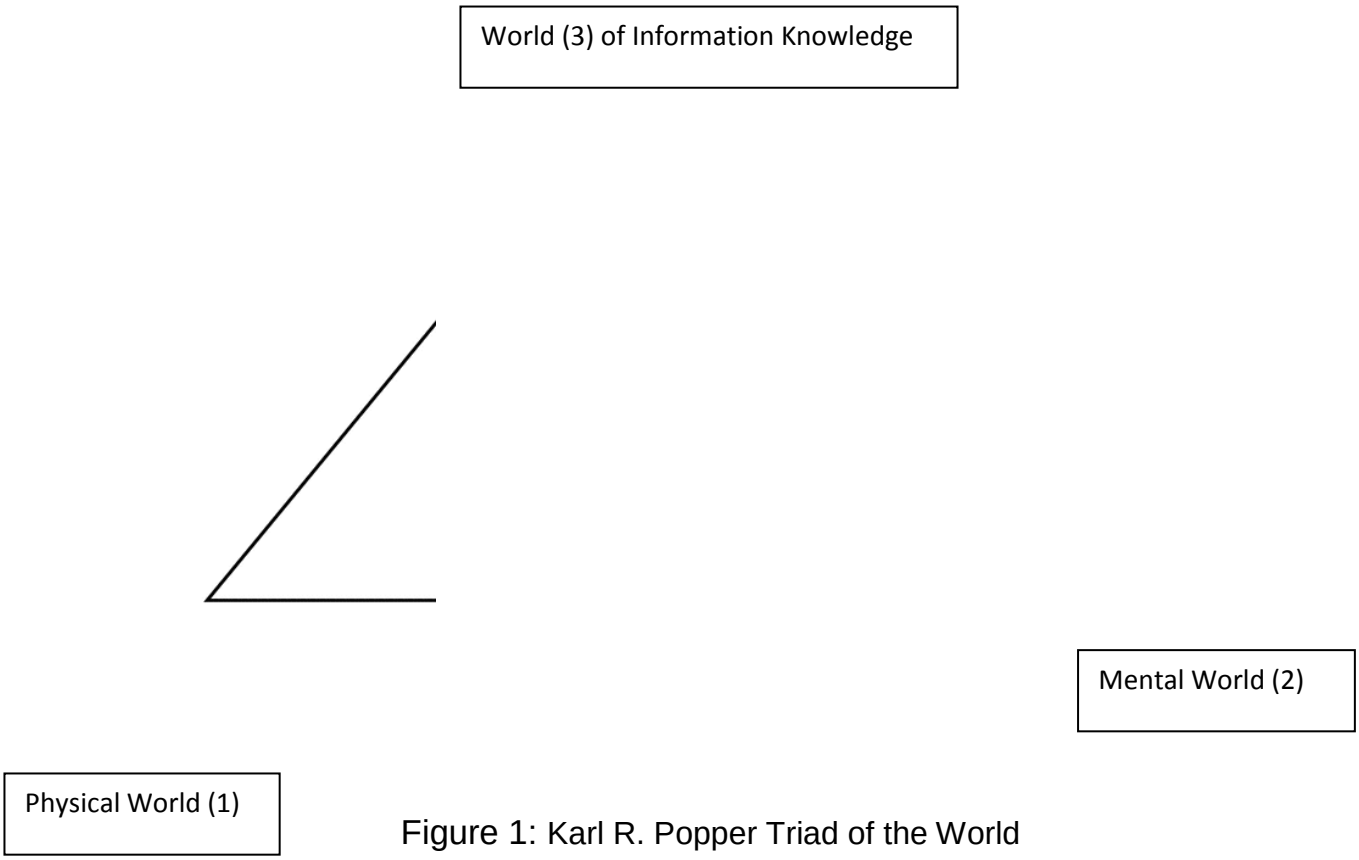


Figure 1: Karl R. Popper Triad of the World

It is necessary to understand that these three worlds are not separate realities, they interact and intersect. Thus, individual mentality, as a subjective and extended point of view, is based on the brain which is a physical, material entity. On the other hand, physicists discuss a possibility that mentality influences the physical world by changing and shaping it (Herbert, 1987), while our knowledge of the physical world and existence depends to a great extent on the connection and interaction between the subjective mental world and objective physical world. That is, our view of reality and its existence is determined by and relative to the existence of the human mind, which is part of our reality. Current technological developments in digital technology and computing imbricate our everyday existence (Gere, 2008) and determine the positioning of the Three Worlds.

2 Popper's three worlds and library and information science (LIS)

The Popper's triad has already been mentioned and discussed in some of the papers and articles in the field of library and information science where the Three Worlds have been used to describe the concept of information, as well as other concepts and processes concerning library and information science. First we have Cornelius who, while rethinking the construction of information, refers to Bates (2010) and her attempt to define the information both as a term and as a concept while calling upon the works of Claude Shannon, Norbert Wiener and Karl Popper. He also refers to Brookes' claim (1980) about information inputs changing the knowledge structure of a recipient's mind. Eventually, Cornelius proposes a normative theory of information which doesn't identify information as necessarily a real thing and a final object in the world or a mind-independent objective fact, i.e. he defines information as the logic that determines what type of statement would constitute an answer to the enquiry
(Cornelius, 2014, p. 202). There is also an attempt of Robinson (2015a, 2015b) to describe the influence of new technologies on information itself and on how we experience it. The technology of virtual and augmented reality hasn't only created new spaces but it has also opened up a space for the emergence of a new type of digital and virtual objects amongst which quite different type of information appears – information in the form of immersive, multisensory and pervasive document. Technologies like multisensory interfaces and mobile, pervasive, interactive and participatory computing technologies do not only support the emergence of these new documents but they also provide a context for the emergence of a new type of interaction with digital information, a new type of information behaviour and information literacy. As unreal becomes more real and "readers" get more and more immersed in this striking new type of document
(Robinson, 2015a, p. 120) information experience changes dramatically.
In her explanation of the meaning of "information" Ma (2012) combines the three models, i.e. the Shannon-Weaver model, the Brookes' interpretation of the
Popper's World 3 and the Data-Information-Knowledge-Wisdom model. It is particularly interesting how she connects the Popper's World 2 and 3 through the concept of information that, embodied in the physical form, can go

through a change and thus modify knowledge structures in human mind. This means that information, in a way, becomes a quantitative entity or event that has caused effects upon human beings
(Ma, 2012, p. 723). And last there is Bawden (2002) who argues the applicability, validity and usefulness of the Popper's Three Worlds in order to better describe and understand the concept of the health-care information and knowledge. World 1 is represented by health-care information products, World 2 by the tacit dimension of the health-care knowledge mostly referred to as personal knowledge which is the result of a reflective practice, and World 3 is represented by the objective health-care knowledge base distinct from any physical manifestations. All the three worlds interact, while World 2 remains central to the interactions.
These examples prove that the idea of technological development and its influence on our totality of reality goes beyond the creation of virtual reality and rise of artificial intelligence and that it can be used to describe new phenomena and processes concerning information itself as a foundation and building block of the modern information society.

3 The rise of ICT and new media

The rise of Information and Communication Technology (ICT) and global media culture challenges and often surpasses traditional forms of human existence and socialization (Youth and information and communication technologies, 2003).
Technology is both a tool and a process through which humans and machines interact and, therefore, create culture. New manufacturing, automation, disruptive, networking and smart technologies do not only blur the conceptual nodes of cybercultural architecture (Matrix, 2006, p. 28), they support technological dependence and the politics of constant upgrading, permanent instability and boundary implosion.
As men in the past used technica, meaning various tools and electro-mechanical techniques, to alter the nature and create and adjust their physical reality, today we use ICT and new digital media to create the virtual reality as an alternative reality with all its constituent elements, to alter our mental states and transform our experience and the perception of physical reality and existence, to code our human connections generating ever connected

ecosystems and to create new cultural artefacts and form new knowledge in the context of connective media and techno culture. If we were to follow a more utopian approach, then we could perceive ICT and digital media as more of a "revolutionary force that can fundamentally transform societies and individual lives" (Hamelink, 1997, p. 23). However, as "realists", we can fairly say that our physical world is rapidly changing under the influence of technica and technology. And not only changing via their influence but also via their presence – they are extending all over the physical world, including our bodies and brains and thus, even our minds. If we ask the question about the life source, the essence of the technology and media that we use, the answer is quite evident – it is bitized, i.e., digitized data and information. Because of that, from now on everything will have its own (digital) boundaries.

The analogue endlessness is being replaced by the digital boundedness. Bitized data, information and knowledge stand as digital products of disembodied human mind who are prone to automatization, mechanical manipulation and interpretation which changes not only their own form but also their nature and meaning. However, as ICT and digital media change and intervene with the Popper's worlds, making them more adjustable and understandable to machines, humans may encounter difficulties in distinguishing between the truth and the representation of the truth, in determining which images and which experience to believe as true and in determining which parts of our identity are really us.

When discussing the issue of identity and reality, the assumption must be made that ICT and its informational culture often presume the values of western culture, which cannot be directly applied to other cultures and traditions (Youth and information and communication technologies, 2003). Still, more often do all of us, as members of digital society and cyber culture, transform ourselves into organisms represented in the virtual environment by receiving, processing and transmitting information.

Furthermore, the digitization and expansion of communication are changing the nature of our society and improving many of its aspects (Hamelink, 1997). We are now faced with principles of convergence and multi-functionality (i.e. there are new modes of information handling and multifunctional applications of information and technology), the rise of machine intelligence (the occurrence of smart technologies and robotics) and ubiquity (digital technologies become pervasive).

Not only do ICT and digital technology influence human society but there is also a mutual constitution of technology and society as a whole (Cockburn, 1983).
It is not only a question of engagement between the technology and the physical world or between the technology and the human mind and identity but also a question of engagement between the technology and intellectual products of the human mind. Current technological developments in digital technology and computing imbricate our everyday existence (Gere, 2008) and determine the positioning of the Three Worlds

3.1 ICT's Impact on World 1 of Popper's Triad

If we consider ICT and digital media and World 1, or the Physical World, the first thing that probably comes to mind, apart from ICT and media infrastructure which exists in the physical world, is virtual worlds and virtual realities. The virtual reality, or virtual environment or synthetic environment, refers to technologically created artificial and/or imaginary worlds that would be either indistinguishable from the real world as its simulation (e.g. Second Life) or would serve as a parallel imaginary existence with completely different type of (virtual) existence and experience (e.g. World of Warcraft). The term "virtual" itself is often used with various meanings, usually referring to something that is "not real", artificial or simulated. If we go a few decades back, the Oxford Dictionary from 1985 defines "virtual" as "being in fact, acting as, what is described, but not accepted openly or in name as such" (Oxford advanced learner's dictionary of current English,
1985). By that definition, virtual reality is in fact a reality. The next question thus emerges: how can we define what reality is? That is, of course, a philosophical question much larger than the scope of this paper, but we can propose a kind of an answer. Something can be considered real if it has measurable consequences. In that sense, if a person spends time in a virtual world and whatever happens there has consequences for that person, then that virtual world is real, at least to that person. Now that we have mentioned time, in the physical world there is no space without time, they are interconnected. The same can be said for the virtual world. If the time stops, the virtual world stops existing. Why is this important? If we consider the virtual space of a single-player computer game, for example, that virtual space exists while the player is playing, and while we can argue that this

virtual space is real to the player, it does not exist independently of that player. On the other hand, in the case of the virtual world of a Massively Multiplayer Online Role-Playing Game (MMORPG), we have a time flow that is independent of the player. The time in the game flows whether an individual player is playing or not. Here, we can say that the virtual world exists independently of the player, and we thus have a virtual reality that really exists, just not in a physical form. Now, let's return to the forms of virtual reality we have today. Almost every new technology starts by imitating an old one before it develops its own niche. Printed books began by imitating handwritten ones; the first automobiles imitated a carriage and so on. We might say that virtual reality, as a new technology, does not have an old one to imitate. Instead of imitating an old technology, it began by imitating the physical reality. That created a large amount of hype around virtual reality and gave many people unrealistic expectations of what virtual reality technologies could really do. As people slowly realized that virtual reality was not yet as sophisticated as they had been lead to believe, their interest declined. Maybe, the best example of this is the Second Life, a virtual world with a sole purpose of existing as a virtual world. In the ten years since its creation, it has never gained a large amount of popularity. We might say that it merely simulates the reality with little added value. MMORPGs are much more popular, and the most popular of all is World of Warcraft (WoW). All of them gained their popularity not by simulating physical reality but by being different from it. And some of those worlds are true simulacrums occurring as pure eternalizations of human mind. Socializing and gaming elements are backed up by the ability to do things that are difficult or impossible in the physical world. Moreover, Constance Steinkuehler argues that

MMOGs can be seen as a third place, as defined by Rey Oldenburg (Steinkuehler,

2005). Oldenburg defines a third place as a place that is different from the home or workplace; it is a sort of community-building place vital for the whole community as well as individuals in it (Oldenburg, 1999). Steinkuehler argues that

MMOGs satisfy all the seven criteria of a third place and they, in fact, function as such, especially for young people.

However, this phenomenon does not stop at online games. The virtual worlds of social media add yet another dimension. Today social media are deeply

intertwined with the physical reality, so people often do not perceive them as virtual worlds. Nevertheless, they are virtual, and they often create "additional" realities. Maybe, the best proof of this is its use in identity creation. It is well-known that people use anonymous virtual environments to present themselves as being something they cannot be in the physical world (Turkle, 1995), and something similar happens in anonymous virtual environments like Facebook. On Facebook, people tend to construct socially desirable identities that are often different from their offline identities (Zhao, Grasmuck & Martin, 2008), which suggests that the virtual world of Facebook functions like a different reality, one that is often deeply connected to the offline reality but still different from it. 20 years ago, Mark Poster said the following: ... there is every reason to think that virtual reality technologies will develop rapidly and will eventually enable participation through the Internet. Con-nected to one's home computer, one will experience an audiovisual "world" generated from a node somewhere in the Internet, and this will include other participants in the same way that today, one can communicate with others on bulletin boards in videotext. If such experiences become commonplace, just as viewing television is today, then surely reality will have been multiplied (Poster, 1995).

Today, we see that virtual realities have evolved a little differently than it was predicted. They do not always appear as separate simulated worlds but often as additional realities that are so close to us that we do not always perceive them as different but as parts of one large multiple reality. They can never be seen as completely inseparable for there is a constant permeation between them through the transfer of experiences, sensations, behaviour and thoughts. In contrast to the physical reality the virtual reality has a different degree of reproduction fidelity, presence and interactivity (Milgram, Takemura, Utsumi & Kishino, 1994), but through feeling of immersion, interactivity, presence and information intensity which can lead to involvement, different behavioural modes and emotional reactions; it can change our emotional state and behaviour providing us with true physical and metaphysical experience. Also, as digital age brought new kinds of worlds, virtual worlds and cyber worlds, people nowadays become true digital citizens. This metaphysical citizenship is based on free cosmopolitan communication and the exchange of information where each piece of information, digital and bitized is prone to mining, automatization, commercialization and manipulation. The automatization of our physical and virtual world reflects in both transmitting

the information and interpreting it, while commercialization slowly devours once free and open web space. Thus, possibly commercially dependent, a medium becomes the interpreter, which Capurro (2014) sees as a huge problem. So, even now we could agree with Heim (1998) who argues that we should not become too idealistic and enthusiastic about computer generated realities, i.e. we should become and stay virtual realists – grounded in our primary reality, but also sensible artists who can balance computers, technology and digital media with their human spirit. But still, as these engineered realities of virtual worlds and social media slowly become our primary spaces of work and leisure, spaces in which we immerse daily, where we feel present, spaces that we feel as coherent environments in which we perform activities and interact and communicate
(Gutiérrez, Vexo & Thalmann, 2008, p. 3) and spaces we are able to genuinely experience as a mimetic world of natural, physical traits (Capurro, Eldred & Nagel,
2013, p. 117), we cannot but agree that they're literally becoming a new dimension for living our lives, a new World 1.

3.2 ICT's Impact on World 2 of Popper's Triad

The biotechnological appropriation of the human changes and redefines the concept of its identity, its body and its conscience (mind and mental states). The self becomes disembodied and then symbolically represented in the virtual world, to reproduce some of the complex features of the mind (Terranova, 2004, p. 101).
Apart from the area of artificial intelligence, connectionism is most associated with areas of cognitive psychology, cognitive science in general and even neuroscience, brain theory and philosophy of mind. In recent times, the most famous applications of connectionism have been the models of neural networks. Perceptron was one of the first attempts to create a "thinking machine" (Rojas, 1996, p. 55). It is nothing but a learning algorithm, and neural networks are nothing but applications that will be able to perform a machine learning process through the so-called artificial neurons, the constitutive units of artificial neural networks. The premise of most of these projects is quite simple – the brain is quite a mechanical piece of hardware and the mind is quite an exceptional piece of software. And we could understand them better by building them and replicating them in other

artificial inorganic organisms. But it turned out that the hardware is easier to engineer and replicate than the software, i.e. the mind is still too big an enigma. It is easier to ground AI in big data, information and accumulated knowledge than in thoughts, ideas, creativity and mind's conscious and subconscious layers. Complex human emotions and communication processes were thus reduced to imitation, simulation, functionality and automatization and the question remains if artificial intelligence will ever reach human intelligence. Instead of worrying about whether machines will attain human levels of intelligence by 2040, 2050 or later, we should ask the question "What Is intelligence?" The problem with the Turing test is that it is not a test of universal intelligence; it is based on human intelligence, and so using this test, if machines want to prove us that they are intelligent, they have to prove they think as the humans. This paper asks the question why human intelligence should be the measure of intelligence in general. We should allow machines to think in their own way. Building AI on the basis of human intelligence is actually just a matter of following a pattern – the technology always tends to imitate the previous technology, as we have already mentioned: printed books first imitated manuscripts, e-books imitate printed books, humanoid robots imitate humans and the technology of artificial intelligence imitates "the technology" of human intelligence. However, sometimes, the patterns of the familiar and old must be abandoned. Maybe the answer lies in the "debiologization of intelligence" (Esfendiary, 1981) by defining it as a set of digital information, data and knowledge which can be re-materialized in the form of expert systems, smart technologies, assistive technologies and robots. McCarthy (2007) also thinks there is a problem with the fact that we still "don't have a solid definition of intelligence that doesn't depend on relating it to human intelligence because we cannot characterize in general what kinds of computational procedures we want to call intelligent". Even if the time of complete AI dominance comes and humans are completely replaced by an inorganic digital consciousness, it will think in its own digital way, and as long as it is capable of balancing between the other two worlds and sustaining its existence, we can say it passes the Turing test and that it is truly intelligent.

So why is AI important for the Popper's World 3? Through his philosophy of information Floridi reinvented the term "infosphere" as a global system that includes any belief, data, idea, information, knowledge or any other mental creation encoded in both computerized physical environment and digitally

constructed synthetic worlds (Van der Veer Martens, 2015, p. 324). This infosphere is filled with inforgs, information-processing organisms and mechanism, including the most advanced supercomputers. Though Floridi mainly focused on humans as self-conscious and self-determining inforgs, lately we witness the rise of non-humans like different bots, smart agents and robots that stand equal with the rest of inforgs, including humans, and slowly start to participate in creating the products of synthetic mind. As AI becomes more prone to planning, learning, perception and developing other aspects of its intelligence, and as we witness the rise of robots who can compose songs, write stories, detect and recognize patterns, etc., we can freely say that we no longer have only machine-readable data/information/knowledge, but machine-made. It is obvious that AI constantly tries to reproduce the outcome of human intelligent behaviour by non-biological means and to produce the non-biological equivalent of human intelligence, i.e. information, data and knowledge (Floridi, 2011, p. 227). They do this using their own intelligence and logic – mathematical codes, speech recognition, natural language processing, machine learning and interaction with their environment, as well as humans. Thus, the products of thought can be processed, presented, today even produced, by robots and large scale systems (LSS). As Kile (2013) suggests, today's society and social systems are slowly falling behind the capabilities of smart technologies, AI and large scale systems that are evolving much faster than social systems can adapt. In the Popper's World 3 this may seem as a machine-enabled and a machine-driven simplification of our daily lives and a complexity of humanness and as our ever increasing dependence to technology and the system. But in the World 3 of the Technological Triad the "nature" of artificial intelligence and capabilities of thinking and learning machines may just be the most effective, most economic, most robust way to answer the challenges of information and the postmodern society.

3.2.1 Leaving the body

With new ways of expanding man's mental and physical abilities with technology, nanotechnology, biotechnology, cybernetics, neuroscience and

pharmaceutical, the new paradigm of the corporeal and mental has emerged. Bodies have become the "final frontiers" of post-evolution. We now live in times in which the technological transformation of human body and mind and the improvement of body and its mental abilities are no longer merely the subject of sci-fi movies and literature. In this regard, the greatest motivation of all may be the fear of death. After all, when we finish colonizing the nature and society, what is left for the bio-techno-scientific system to "colonize" and improve but the human (Nikodem, 2004).

What happens to the body? The human body becomes a body of data scattered throughout countless "digital mirrors". This new enhanced databody becomes the future space of media (Kroker & Kroker, 2004), a collection of machine-readable digital information that validates our existence. As technology attempts to enhance, perfect and "save" our bodies, they will slowly stop being works of nature and become symbols of techno-culture and postmodernism. Every step of man's improvement in a technological sense leads to the man's decrement in a human sense because every prosthetic modification that man undergoes signifies the distance between him and his core, his essence; whatever the essence for him is – his body, mind or consciousness. The lack of the body (Hayles, 1999) and it being slowly replaced by disembodied data/information/knowledge is crucial to the posthuman existence which gives birth to the further development of the concept of cyborgs and other forms of being (e.g. avatars) which have not only different "bodies", but different mentalities. Informational pathways connecting organic body to its prosthetic or virtual extension, change the nature of one's mind for it is no longer instantiated in material medium, but in material-information amalgam which constantly (re)constructs the body and the mind and can thus (re)construct one's identity. In cybernetic and virtual reality entity's mindset changes as much as his mechanism.

How, I asked myself, was it possible for someone of Moravec's obvious intelligence to believe that mind could be separated from body? Even assuming such a separation was possible, how could anyone think that consciousness in an entirely different medium would remain unchanged, as if it had no connection with embodiment? (Hayles, 1999, p. 1)

All these transformations lead to self-defining, which then enables the self-realization. Thus, the self-transformation of the body becomes the greatest tool to use in achieving oneself in the postmodern society. But our data

bodies aren't the only sets of identifying informational bits (Matrix, 2006, p. 30) – our minds slowly become sets of information virtually networked by multiplying databases and online identities.

3.2.2 New virtual identities

Technology is not simply changing our bodies, enabling them to expand through space and time and, eventually, disappear. It also changes and alters our identities, especially under the circumstances of constant technological change and its influence on the human brain. If we take this to be true, as well as the fact that our sense of self arises from our need to map the relationships between the self and others, then how can emotions and relationships "produced" in a virtual environment be of no value to our self, our consciousness? As one builds his identity in social and biological terms of physical world, one also constructs his identity in technological terms of the virtual world. What happens to identity in a virtual world? How can people have multiple roles or be of opposite sex in a virtual game? This new world enforces the creation and projection of constructed personae – the body is represented by avatars, which ensures relative anonymity, and anonymity can help people express sometimes unexplored or even multiple aspects of the self, something Turkle (1999) calls "cycling through identities". Here, the question of what are the multiple aspects of the self must be asked. The identity of multiplicity first appeared in the 1960s and 1970s as a thesis stating that there is no such thing as an autonomous ego and that we are all multiplicities of parts, thus challenging the idea of a unitary self and supporting the notion of the fluid ego, which transitions between various aspects of the self. Someone could argue that people with personality disorders also change "roles" and live through different self-states. However, the difference between disorders and healthy online and virtual experiences of our parallel lives is that the healthy individual knows how to be many things but also knows how to smooth out the moments of transition. Health is when you're multiple but feel a unity. Health is when different aspects of the self can get to know each other and reflect upon each other. ... Health is being one while being many (Bromberg, 1993, p. 166).

Many in the field of social psychology identify individual and social identity not as stable characteristics of individuals but as dynamic phenomena. There

is a constant estimation and assessment of each other during the virtual presentation of our powers and abilities (Capurro et al., 2013, p. 23). This opens the door to the concept of positioning (Harrè & Van Lagenhove, 1991; Hermans, 1996), in which a person, based on his or her perception of a certain social situation, decides what features of his or her identity are more relevant and more effective under the given circumstances. Identities are negotiated through the interaction with the virtual environment and other virtual identities. In the physical world, the embodied person is positioned in a particular time and space (Hermans, Kempen & Van Loon, 1992). What a virtual world and cyberbodies (avatars) offer is a very easy way of transitioning, "flying over" space, time and objects and thus having a chance to shape one's self-representation differently and position oneself accordingly (Talamo & Ligorio, 2001). These identities may feel displaced, distracted, fragmented, but in connected and networked virtual environments they become open to diversity and contingency that invite us to comprehend our identities in newly responsible, less ordained, less focused, more intricate and more open-minded ways (Borgman, 2013, p. 15). We are no longer destined to certain identities for choices come from all sides of cyberspace.
Haraway also embraces this distance between the multiple self states, comparing it to the knowing self – "[The] knowing self is partial in all its guises, never finished, whole, simply there and original; it is always constructed and stitched together imperfectly, and therefore able to join with another, to see together with out claiming to be another" (Haraway, 1991, p. 193). Haraway does not describe the death of subjectivity but its splitting and multiplicity as a possible way of obtaining better lines of sight and better worlds (Schneider, 2005). These expanding human subjects build various social relationships, which may now include nonhumans and machines as partners. Here, perhaps, lies the reason why virtual worlds are so popular. Our everyday lives demand that we behave and act as unitary actors (we lead more-or-less determined lives), but this discrepancy between life/experience (the unitary self is the most basic reality) and the theory of the essentially decentred self (the unitary self is illusory) can become difficult for us to understand. Virtual worlds offer a place in which to express these multiple aspects as a healthy, diverse person. Different avatars and roles can explore different aspects of the self. People can use their virtual identities to grasp their own personal identities which are much broader than what is represented through a partial narrative of the self communi-cated in digitally

constructed realities (Capurro et al., 2013). Virtual worlds have certainly provoked the questions of the multiplicity, complexity, fluctuation and inconclusiveness of our identities, as well as questions regarding the meanings of our virtual lives. Fluid space and time of virtuality have determined the fluidity of identity and our mental states. But how do slowly "disappearing" body and virtual fluid identities fit in the World of mental states and social conscience?

3.2.3 From mental to transmental

The connection between body and mind, i.e. brain and mind is well known. Mind is the personalization of the brain. No two brains are the same, and our brains are different now than they were few seconds or minutes or hours ago. Brains have a great ability, called neuroplasticity, to change their neural pathways and synapses due to changes in behaviour, environment and neural processes. Thus, if the environment is changing, then the brain and the mind are changing as well. What actually happens to the brain and mind is a question asked by a number of studies (Bavelier, Green & Dye, 2010; Yuan et al., 2011) in neuroscience, neurophysiology and psychology. What we know today is that the human mind has four major characteristics: 1) the ability to combine and recombine information and knowledge in order to develop new understandings, 2) the ability to apply the same solution to various problems and situations, 3) the ability to create and understand symbolic representations and 4) the ability to separate modes of thought from the input we perceive through our senses (Hauser, 2000).
Our modes of thought and our environment, full of sensory stimuli, are interlinked. Thus, when our brains and minds interact with technology and digital information and become immersed in new virtual and networked environments, our modes of thought change. They transcend the cognitive "boundaries" of the physical world and become both symbolic representations of the new worlds as well as abstract devices that construct them. This new mind broadens and grows from the mental self into the new transmental self. Our new transhuman virtual "bodies" represented in the form of cyber entities, online identities and avatar, are now endowed with a transmental state of being – mental state that is no longer primarily connected to our bodies and their biological processes but to stimuli and information in virtual environment. A solely metaphysical distinction between the bodily

and the digital identity dissolves the richer view of existential identity. Online existence involves a bodily abstraction which implies abstraction from bodily identity and individuality. Online existence also entails abstraction from our situational orientation, an orientation which includes sharing time and space with others. And online existence is presence – a well as globally-oriented (Kokswijk, 2007, p. 92). On the other hand, the connection between our identity and mind is best explained through John Locke's theory of identity (1689). Locke's view on personal identity (the self) is based on the idea of psychological continuity, i.e. the self is founded on consciousness, memory and mind, not on body or soul. He was convinced that consciousness (mind) can be transferred from one soul to another which is essential for the theory of mind-uploading and transhumanist approach to immortality. Another interesting view on identity is that proposed by Capurro and Pingel who differentiate two kinds of identity: 1) identity as a metaphysical concept which remains steadily in its appearance and is granted by substance, and 2) identity as an ontological concept which can relate to different existential possibilities without levelling them out (Kokswijk, 2007, p. 92). This second identity becomes important in the context of virtual and cyber realities where the mentality of the creator and the mentality of its avatar may be different. Identity of one's avatar may just be the extension of one's own bodily (physical) mentality, but it may also be different – it stays a part of bodily identity, but it doesn't have to be identical, only partially related to the bodily existence (Capurro & Pingel,
2002). To truly explain the rise of transmental as informational organism that stores our memories, emotions, thoughts, feelings and opinions and thus represents us, few issues need to be addressed: informational turn, information idealism, functionalism and mind-uploading. Together they build the foundation for the coming of transmental entities. Informational turn (Floridi, 2011) is the fourth step in the process of reassessment of fundamental human nature which introduces the idea that humans are just another type of inforg, informational organism that can interact with biological agents as well as engineered artefacts. Since technology has made it possible to record and store almost every piece of information futurist predict that soon we could use this information to form a complete picture of an individual. The information frontier (Mowshowitz, 2013) is no longer present – the Internet has become an all-knowing system of recorded information and social conscience and memory. Information idealism is

quite a similar idea. Virtual reality is built by information, not by matter or energy and humans are agents for preservation and transmission of information (Hayles, 1996, p. 112). Everything is determined by information. As much as it sounds as pure metaphysical statement, in the context of digital environments and synthetic life forms we can't but ask ourselves if we are really just walking and breathing algorithms or lines of code? (Hauskeller, 2012) In the philosophy of mind functionalism stands as basic idea that mind is based on the functional relations between certain elements and not on those elements, their architecture or material structure. As Minsky (1986, p. 287) would say "Minds are what brains do." This means that the mind can be recreated in any substrate as long as functional relations are kept. The mind is determined by a functional role and it doesn't matter who or what performs the function, it can be a form of the virtual existence (e.g. avatar run by bots) or some form of the artificial intelligence. And since information processing functions of the biological brain are the essential feature of every human being, replicating these functions in some non-corporeal lifeform becomes the fundamental idea of the existence of cyber entities and other transhuman and posthuman lifeforms. Some even suggest the idea of merging various identities into one collective consciousness (Sims, 2009) or collective intelligence (Nguyen & Katarzyniak, 2008). Informational turn, information idealism and functionalism are prerequisites for the theory and practice of mind-uploading and its ultimate goal of creating transmental lifeforms. Mind-uploading is a process that involves activities like scanning brains and recording information with the purpose of transferring the gathered information into other lifeforms, organic or synthetic or bitized. Though many claim that a human being cannot be reduced to information or algorithm and that our minds are more than mere content the idea of uploading our minds into some virtual environments or artificial intelligence becomes more and more popular. Modern mind-uploading theories describe the process as transferring not only information such as memories and thoughts, but also consciousness. The reasons to do that may be various, from achieving enhanced cognition (Agar, 2012) and finding a substrate that will best facilitate entity's need to finding a more durable substrate and freedom that knows no physical constraints or time limits (Hauskeller, 2012). Mind-uploading is still not possible, but many projects and advances in neuroscience, cybernetics and computer technology could change that in the near future. Until then, three overlapping revolutions (Hefner, 2009) –

genetics (G), nanotechnology (N) and robotics (R) – stay crucial for the manifestation of transhumanistic and posthumanistic ideas and utopian future. And until some posthuman species emerge enhanced beyond human frailty and finitude, we need to find way how to enhance human mental and physical abilities and remove undesirable characteristics. As the second basic belief of Lower Case transhumanism (LCTH) states: "we need to accept as our destiny the human nature – the body and psyche – with which we grew in our mother's womb and which we brought with us as we emerged from that womb. Our body-psyche-nature is eminently capable of being edited, re-vised, and improved." (Hefner, 2009, p. 160). One way of editing and improving is certainly mind-uploading and creation of transmental states of being. Today, we are not merely trying to enhance our own mental powers and processes but we're trying to build synthetic systems that will act as a human brain, as consciousness – what we are doing is building a simulacrum in the form of artificial
intelligence.

3.3 ICT's impact on World 3 of Popper's Triad

In addition to creating transmental states of existence, ICT also influences the rapid development of creating smarter data, information and knowledge in the area of artificial intelligence (AI). As John McCarthy says:
AI is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable. Intelligence is the computational part of the ability to achieve goals in the world. Varying kinds and degrees of intelligence occur in people, many animals and some machines (McCarthy, 2007).
The history of artificial intelligence began in the second half of the 20th century.
Very soon, the field was divided into the "strong" and the "weak" AI, thus defining two general approaches to the AI concept. Advocates of the Strong AI believe that machines will one day be able to reach the level of human intelligence in both manner and in thinking, feeling and everything else. On the other hand, proponents of the Weak AI hypothesis believe that this will

be possible only in terms of behaviour. Examples of the Weak AI include intelligent activities such as playing chess, speech recognition, robot-motion dolls, etc. Unlike advocates of the Weak AI, advocates of the Strong AI place their hopes in developing machines that will be able to do things currently associated with the human brain, mind and cognition and may even exceed humans one day.The test for the Strong AI hypothesis was designed by Alan Turing (Turing, 1950), after whom it was named. A demonstration of the Weak AI hypothesis is presented by John R. Searle (Searle, 1980), a sceptic in terms of the scope of strong. He developed the Chinese room thought experiment more than thirty years ago. The Strong AI advocates believe in the possibility of producing machines with an intelligence that matches or exceeds that of human beings, with minds that understand in the same sense people do. What is happening in the field of the Strong AI is nothing but an effort to equalize the inorganic matter (computers and information) with the organic matter (brain and mind) using digital technology, which will become the bridge between the organic and inorganic worlds. Among the many AI applications developed in the past sixty years, for purposes of this paper, it is worth pointing out to two types: expert systems, or "thinking machines", and neural networks, or "learning machines". A notable example of a typical "thinking machine" is a system developed within the framework of the Cyc project. Cyc is an ambitious project with the main aim of developing an ontological/knowledge base of common-sense knowledge, with a powerful reasoning engine running in the background (OpenCyc, 2014). Many neural network projects and initiatives of building brain-like machines were based on designing and building cortex-like memory systems and imitating human intelligence. The idea of a learning machine is also based on the idea of connectionism. The concept of the parallel processing of information that is distributed across small units or a linked network of simple components is at the core of connectionism. Recent AI research attempts to model the behaviour of central nervous system hoping to reproduce some of the complex features of the mind (Terranova, 2004, p. 101). Apart from the area of artificial intelligence, connectionism is most associated with areas of cognitive psychology, cognitive science in general and even neuroscience, brain theory and philosophy of mind. In recent times, the most famous applications of connectionism have been the models of neural networks. Perceptron was one of the first attempts to create a "thinking machine" (Rojas, 1996, p. 55). It is nothing but a learning algorithm, and neural

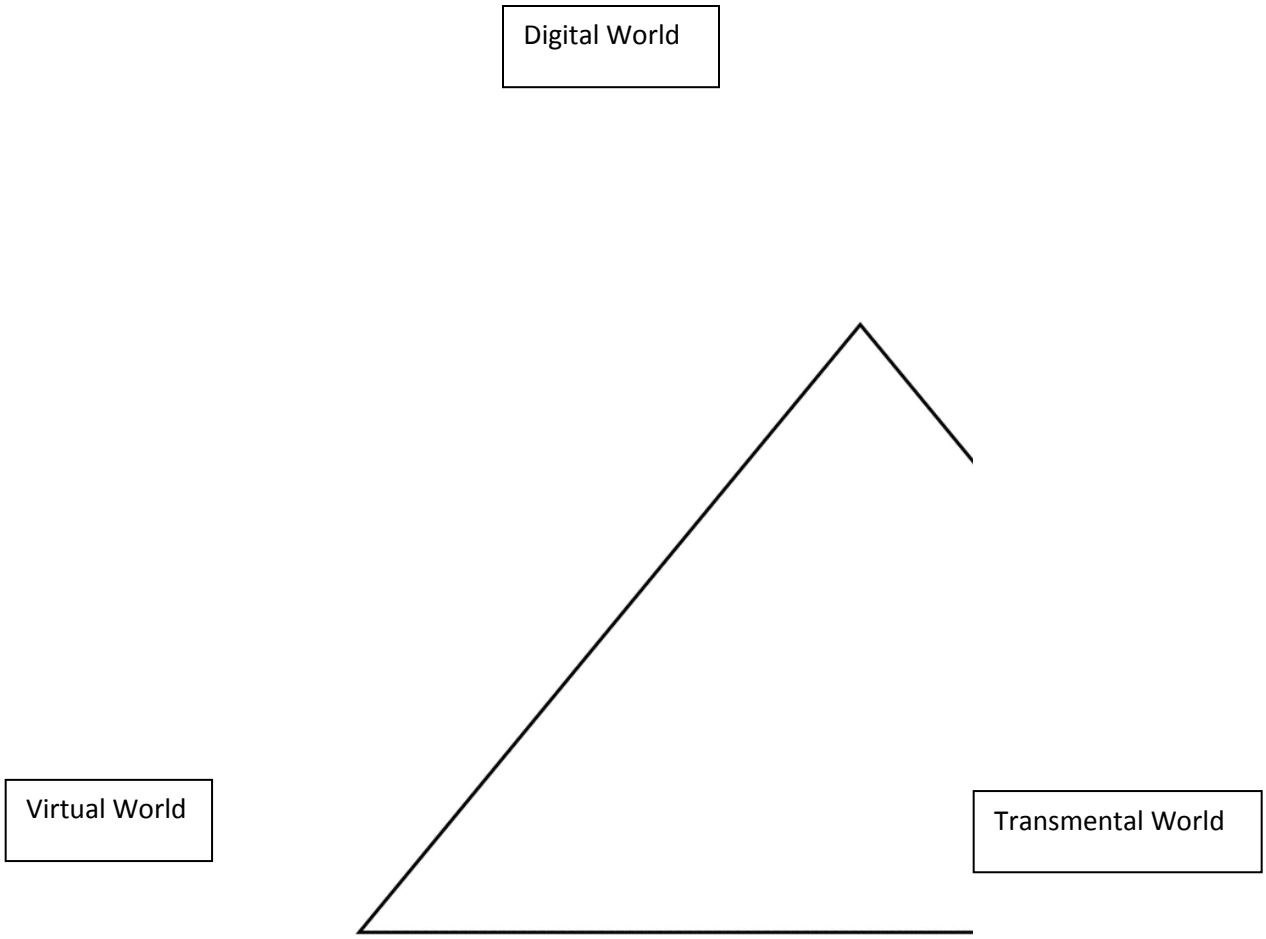
networks are nothing but applications that will be able to perform a machine learning process through the so-called artificial neurons, the constitutive units of artificial neural networks. The premise of most of these projects is quite simple – the brain is quite a mechanical piece of hardware and the mind is quite an exceptional piece of software. And we could understand them better by building them and replicating them in other artificial inorganic organisms. But it turned out that the hardware is easier to engineer and replicate than the software, i.e. the mind is still too big an enigma. It is easier to ground AI in big data, information and accumulated knowledge than in thoughts, ideas, creativity and mind's conscious and subconscious layers. Complex human emotions and communication processes were thus reduced to imitation, simulation, functionality and automatization and the question remains if artificial intelligence will ever reach human intelligence. Instead of worrying about whether machines will attain human levels of intelligence by 2040, 2050 or later, we should ask the question "What isintelligence?" The problem with the Turing test is that it is not a test of universal intelligence; it is based on human intelligence, and so using this test, if machines want to prove us that they are intelligent, they have to prove they think as the humans. This paper asks the question why human intelligence should be the measure of intelligence in general. We should allow machines to think in their own way. Building AI on the basis of human intelligence is actually just a matter of following a pattern – the technology always tends to imitate the previous technology, as we have already mentioned: printed books first imitated manuscripts, e-books imitate printed books, humanoid robots imitate humans and the technology of artificial intelligence imitates "the technology" of human intelligence. However, sometimes, the patterns of the familiar and old must be abandoned. Maybe the answer lies in the "debiologization of intelligence" (Esfendiary, 1981) by defining it as a set of digital information, data and knowledge which can be re-materialized in the form of expert systems, smart technologies, assistive technologies and robots.

McCarthy (2007) also thinks there is a problem with the fact that we still "don't have a solid definition of intelligence that doesn't depend on relating it to human intelligence because we cannot characterize in general what kinds of computational procedures we want to call intelligent". Even if the time of complete AI dominance comes and humans are completely replaced by an inorganic digital consciousness, it will think in its own digital way, and as long as it is capable of balancing between the other two worlds and sustaining

its existence, we can say it passes the Turing test and that it is truly intelligent. So why is AI important for the Popper's World 3? Through his philosophy of information Floridi reinvented the term "infosphere" as a global system that includes any belief, data, idea, information, knowledge or any other mental creation encoded in both computerised physical environment and digitally constructed synthetic worlds (Van der Veer Martens, 2015, p. 324). This infosphere is filled with inforgs, information-processing organisms and mechanism, including the most advanced supercomputers. Though Floridi mainly focused on humans as self-conscious and self-determining inforgs, lately we witness the rise of non-humans like different bots, smart agents and robots that stand equal with the rest of inforgs, including humans, and slowly start to participate in creating the products of synthetic mind. As AI becomes more prone to planning, learning, perception and developing other aspects of its intelligence, and as we witness the rise of robots who can compose songs, write stories, detect and recognize patterns, etc., we can freely say that we no longer have only machine-readable data/information/knowledge, but machine-made. It is obvious that AI constantly tries to reproduce the outcome of human intelligent behaviour by non-biological means and to produce the non-biological equivalent of human intelligence, i.e. information, data and knowledge (Floridi, 2011, p. 227). They do this using their own intelligence and logic – mathematical codes, speech recognition, natural language processing, machine learning and interaction with their environment, as well as humans. Thus, the products of thought can be processed, presented, today even produced, by robots and large scale systems (LSS). As Kile (2013) suggests, today's society and social systems are slowly falling behind the capabilities of smart technologies, AI and large scale systems that are evolving much faster than social systems can adapt. In the Popper's World 3 this may seem as a machine-enabled and a machine-driven simplification of our daily lives and a complexity of humanness and as our ever increasing dependence to technology and the system. But in the World 3 of the Technological Triad the "nature" of artificial intelligence and capabilities of thinking and learning machines may just be the most effective, most economic, most robust way to answer the challenges of information and the postmodern society.

4 Conclusion

Technology increasingly dominates both nature and human beings. Initially, we had a large amount of techno-optimism: every new technology was met with sheer delight. Every problem would be solved – from transportation, education and social equality to famine, sickness and death. But then, as dehumanizing aspects of the computerization became evident, slowly came "pessimism" and disappointment that the technology is not going to solve all our problems as predicted, at least not as soon as Hans Moravec thought (Moravec, 1998). What we need is optimistic technological realism and a healthy approach to technology, which views it as something that will assist us on our way to the future but not replace us, as something that will enhance and upgrade our world and ourselves. We must be aware of sometimes distorted or oversimplified ideas about the future of technology and its impact on the society. However, we must also be aware that we already have the technology that helps us transcend our natural bodily and mental limits and change or broaden our reality. This does not mean that the technology erases all that was before it. Rather, it builds upon the past and stands beside it. In the same way, our new technological triad is not here to replace the Popper's or any other triad. It is here to exist along with them, to broaden them and to augment them. Modern times offer new integral elements in the conceptual triad – the world of physical objects and events, including biological entities, is being replaced by the world of virtual reality (i.e. the Virtual World) with virtual entities and identities such as avatars and social media profiles; the world of mental objects and events is being replaced by the transmental in the form of the transhuman or posthuman informational organism (i.e. the Transmental World) and the world of objective knowledge is being replaced by the world of digitized data/information/knowledge in the form of super-machines and AI (i.e. the Digital World). The three worlds are connected: on the one side transmental entities abide and act in virtual environments and cyberspace where they continue to form and grow, and on the other side, in the context of transhumanist theory, these entities are nothing but a set of gathered information, data and knowledge (information, memories, emotions, attitudes, etc.) accessible to and readable by machines.



As technological changes arrive (with many of them already being here), we can only ask what will become of the physical, intellectual and mental/human in this process of integration with technology. Will they stand aside, find a new place within the changes or disappear, thus opening space for new

realities and new forms of mentality and cognition? What we do see is that slowly, the world of physical things is taken over by technology, while the world of ideas and knowledge is being replaced by the world of digital data/information/knowledge. What will happen to the world of mental states is more difficult to predict. We cannot help but think that because the world of mental states uses the technology to transcend the current mental states thus creating the Transmental World, it will maybe succumb to the process of formalization by slowly adjusting itself to the world of data and technological processes; maybe it will slowly cease to exist in its present endless form endowed with the power of contemplation, imagination and reasoning and merge with the world of digital data/information/knowledge in some special but unimaginable post-transhumanistic vision where everything is bounded by the digital information itself and thus subjected to instrumentalization. Or as Leckie and Buschman (2008, p. 38) would say "Technological systems impose technical management on human beings" and illusion becomes the basic structure of human experience. Whether we see our technological future as a promised one or as an escape from the human condition and all that stands for human, it is certain that we are faced with the new ideal of humanity – the information quality which defines not only our culture, society, relations and distribution of knowledge and power, it defines us, our identity and our mentality making everything so definable, measurable, controllable and representable. In the context of the Popper's worlds these attributes might be seen as unwelcome, but in the context of the new technological triad they become essential for creating and sustaining the new parallel reality.