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In Search of Ariadne's Thread in Digital Labyrinths

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"Times, they are 'a changin'"

Bob Dylan

Abstract

The aim of the following presentation is to provide a brief personal account of the results of some of the panels and sessions that took place at the Vienna Summit 2014 "The Information Society at the Crossroads" (June 3-7, 2015) in which I was involved as a participant and speaker. I will first summarize what I learned regarding some of the challenges in the fields of information ethics, dealing particularly with issues of social responsibility, critical theory, robotics, global brain, and philosophy of information. Secondly, I will relay the results of an email exchange that took place following the Vienna Summit conference between a number of colleagues and myself in which we explored our perceptions of the issues at hand and the stakes involved and whether or not we were able to trace to any length the myth of Ariadne's thread in digital labyrinths. I will clarify how even though such labyrinths and digital threads are a part of today's societies they are often confused with society and with our being-in-the-world itself. To signify my argument, and to show how such confusion can result in mortal consequences, I will conclude by outlining the case of the Chinese poet and migrant worker Xu Lizhi (aged 24) who committed suicide after three years' working for Foxconn.

Introduction

In 1994 a group of scholars and scientists started an initiative called "Foundations of Information Science" (FIS). The first conference was held in Madrid, followed by Vienna (1996), Paris (2005), Beijing (2010), Moscow (2013) and Vienna (2015). Focused on the concept of information the group was well aware that different disciplines interpret this concept within their fields and theories giving rise to controversies when it comes to an interdisciplinary approach. Having participated at the Vienna conference in 1996 and, almost twenty years later, at the Vienna conference in 2015, I have also followed the discussions of the FIS group in the mailing list coordinated by the Spanish biologist Pedro Marijuán and

have experienced firsthand the growing relevance of an interdisciplinary reflection on the concept of information. Information Science has several roots. One of them is its emergence in the late sixties in the context of librarianship in connection with the application of computer technology to the organization of knowledge as what was called *information retrieval*. With the rise of the Internet the concept of information addressed larger societal issues beyond the specific area of scientific communication. Although other disciplines have been using the concept of information since the 19th century, it became relevant in the engineering and telecommunication sciences, particularly since Claude Shannon's "A Mathematical Theory of Communication" was published in 1948 (Shannon 1948). It is not my aim to give an overview of this complex history and its present situation (Capurro 2009). I would like rather to discuss some of the issues dealt with in the panels and sessions in which I was involved during the Vienna conference dealing particularly with social responsibility, Critical Theory, Robotics, Global Brain, and Philosophy of Information and to summarize what I learned regarding the challenges in the field of information ethics. Secondly, I will relay the results of an email exchange that took place following the conference between a number of colleagues and myself in which we explored our perceptions of the issues at hand and the stakes involved and whether or not we were able to trace to any length the myth Ariadne's thread in digital labyrinths. I will clarify how even though digital labyrinths and threads are a part of today's societies they are often confused or even identified with society and with our being-in-the-world itself. To underline my argument, and to show how such confusion can result in mortal consequences, I will conclude by examining the case of the Chinese poet and migrant worker Xu Lizhi who committed suicide after working for Foxconn for just three years.

1. The ISIS Summit 2015

The ISIS Summit "The Information Society at the Crossroads. Response and Responsibility of the Sciences of Information" was organized by the now former president of the International Society for Information Studies (ISIS), Wolfgang Hofkirchner, at the Vienna University of Technology in June 3-7, 2015 (ISIS Summit 2015). It was the host of the 6th International Conference on the Foundations of Information Science (FIS 2015) as well as the 2nd International Conference on Philosophy of Information (ICPI 2015) and the 5th ICTs and Society Conference. The Summit hosted also several sections organized by the International Society for Biosemiotic Studies (ISBS), the International Association for Computing and Philosophy (IACAP) and the International Symmetry Association (ISA). The participants of

the Summit, some 350 persons, came from 36 countries from all continents but there were only two participants from Africa, namely the philosopher John Collier from the University of Kwa-Zulu-Natal (Durban, South Africa) and, *cum grano salis*, a researcher at the African Centre of Excellence for Information Ethics (ACEIE) at the University of Pretoria, namely myself. The participants could choose between nine tracks, namely: history of information, emancipation or disempowerment of man, empowering patients, information in the exact sciences and symmetry, informational warfare, multi-level semiosis, music, information and symmetry, searching to create a humanized civilization, and the global brain.

At the opening session there was a panel on 'Responsible Science? Meaningful Technology?' of which I had the honour to be a member together with Armin Grunwald, professor of Philosophy of Technology at the Karlsruhe Institute of Technology and Head of the Institute of Technology Assessment and System Analysis (ITAS), Gordana Dodig-Crnkovic, professor of Computer Science at the Chalmers Institute of Technology, Sweden and now new president of ISIS, Shahram Dustdar, professor of Computer Science at the Vienna University of Technology, and the moderator Chris Frauenberger, senior researcher, Institute for Design & Assessment of Technology at the Vienna University of Technology. Armin Grunwald made an introductory speech in which he stressed the limits of consequentialism and the need for a hermeneutic assessment when dealing with ethical issues of technology. This was a remarkable speech in this context where there was a lot of discussion on social and ethical aspects of information technology based, for instance, on semiotics, system theory and critical theory but none on hermeneutics. According to Armin Grunwald, ethical and legal discussions about the consequences of technologies are embedded, mostly implicitly, in narratives that need to be made explicit in order to understand the historical context in which decisions choosing among different alternatives or scenarios are taken. I quote:

"While the consequentialist idiom deals with assessing statements about possible futures in terms of their plausibility in order to evaluate their consequences, the hermeneutics of discourse on technological futures focuses on the meaning of these debates for contemporary attitudes towards new technologies. The 'hermeneutic turn' to view the lively and controversial debates about new fields of science or technology not as anticipatory, prophetic or quasi-prognostic talks of the future, but as expressions of our present day. The subject of investigation is not what is being said with more or

less justification about coming decades, but what is revealed about us by the fact that these debates are happening today." (Grunwald 2015)

I have been dealing with hermeneutics and information technology and Information Science since the seventies (Capurro 1978, 1986, 2010) but I have the impression that until recently it has been a dialogue of the deaf – with famous exceptions such as Hubert Dreyfus, Terry Winograd and Fernando Flores. Philosophical hermeneutics remains mostly ignorant of the issues raised by information technology and information technology does not understand what hermeneutics is about. Armin Grunwald opened the door for an interdisciplinary debate. This debate should include, also from a hermeneutic perspective, Systems Theory, Semiotics and Critical Theory. One of the major advocates of Systems Theory and the Sciences of Information is Wolfgang Hofkirchner, professor at the Institute of Design and Assessment of Technology at the Vienna University of Technology. Semiotics was represented by, for instance, Loet Leydesdorff, professor in the Dynamics of Scientific Communication and Technological Innovation at the University of Amsterdam, with his paper "Mutual Redundancies and Triple Contingencies among Perspectives", as well as by Søren Brier with contributions on "Cybersemiotics". Christian Fuchs, Director of the Communication and Media Research Institute, University of Westminster, UK and editor of the open access journal *tripleC: Communication, Capitalism & Critique*, talked about "Critical Theory of the Internet: The importance of Raymond Williams, Dallas Smythe and Herbert Marcuse."

On the second day I participated in a forum asking the question, "Are robots better than human? Ethics, limitations and promises of Artificial Intelligence." The objectives of this forum, co-organized and sponsored by the Catholic University Community Vienna and the Capurro-Fiek Foundation, were to analyze ethical questions arising from the spread of robots in everyday life. I quote from the announcement:

"Do we need to grant highly developed robots rights? Do we need to equip them with ethical norms as science fiction writers have proposed? Is it acceptable to use such machines to harm humans? Are hybrid systems, i.e., humans connected to computer systems acceptable? What is the *proprium humanum* that distinguishes us from highly skilled robots? Highly developed computer systems and robots are important to humans and can make the world a better place."

After short speeches by Tom Ziemke, Professor of Cognitive Science, Interaction Lab, School of Informatics, University of Skövde, Sweden on "The body of knowledge: Why robots aren't taking over the world – and why we are giving it to them anyway", Peter Purgathofer, Institute for Design and Assessment of Technology, Vienna University of

Technology on "Hard-to-see problems in social robots" and myself on "Agents, patients and robots. About Roboethics" (Capurro 2012) there was a debate at which Martin Rhonheimer, priest of the Catholic prelature Opus Dei and currently teaching at the Pontifical University of the Holy Cross in Rome, as well as Søren Brier, Department of International Business Communication, Copenhagen Business School, Denmark participated. The moderator was Marco Ragni, Center for Cognitive Science, Institute of Computer Science and Social Research, University of Freiburg, Germany. What struck me in this debate was the polarization between, on the one hand, a critical discourse warning about the impact of robots on society and, on the other hand, a neo-liberal position advocated paradoxically by Martin Rhonheimer who argued that in a free-market economy consumers should decide for themselves what they want without any legal regulation. During the discussion, I argued that in democratic societies the free decision of the consumers regarding the use of a technology takes place in an ethical and political context leading to the creation of a legal framework that should not be confused with a paternalistic view of the state in its relation to civil society. Freedom within rules means the possibility of changing rules on the basis of a critical dialogue not only in the parliament but also through media and in academia. Without sound academic research there is a slippery slope tendency towards polemics and lack of analysis about good and bad reasons for informed decisions. This is true not only with regard to technical but also to ethical, legal and societal issues. The field of robotics is expanding quickly into all kinds of human activities. A hermeneutic analysis about different narratives underlying the concepts of robot can help to better understand *as what* robots are being understood in different societies. Making explicit the norms and values embedded in such narratives lays the foundation for an ethical debate about the development and use of *online* robots beyond mere consequentialist reflections (Capurro 2015).

The invention and breath-taking widespread use of the Internet gave rise from the very beginning to different kinds of cyber utopias such as John Perry Barlow's "A Declaration of the Independence of Cyberspace" in 1996 (Barlow 1996). Twenty years later the Internet is a global reality no less than a source for new utopias. Some of them were discussed at the Vienna conference under the label "Global Brain". I would like to mention just two interventions, one by Francis Heylighen, research professor at the Vrije Universiteit Brussel, well known for the "Principia Cybernetica Project" developed together with Cliff Joslyn and Valentin Turchin since 1989/90. His presentation "The Global Brain, a self-organizing, distributed intelligence emerging from the web" was a summary of this project based on the combination of Cybernetics and Systems Theory. Similar ideas were presented by Dirk

Helbing, professor of Sociology at the ETH Zürich on "Creating a planetary nervous system as a citizen web." Without going into these cyber visions of humanity it is evident that they can turn and *de facto* have already turned into dystopian realities such as global surveillance and control, cyber espionage and cyber warfare, to mention just a few. Although these dystopian aspects were considered by Heylighen and discussed in other presentations, I had the impression, at least hearing these two presentations, of a kind of cyber idealism. In the case of Heylighen, his vision is related to theological predecessors such as Pierre Teilhard de Chardin's (1981-1955) "noosphère" as well as to the visions of a universal documentation system, the "Mundaneum Palais mondial," developed by Paul Otlet (1868-1944) and Henri La Fontaine (1854-1943), and to the older visions of the encyclopaedists of the Enlightenment. Today's global brain looks like Google. I asked both speakers: 'Why do you think so much about a global brain and say nothing about a global stomach?' It was a provocative question that remained unanswered.

I also had the opportunity of meeting a young Canadian anthropologist, Cadell Last, who looks for a "pathway" to the "Global brain" based "in an understanding of evolutionary anthropological evidence of our emergence as a species and cybernetic theory" (Last 2015).

One of the most significant features of the Vienna conference was, from my perspective, the number of Chinese participants and the quality of their presentations. I had the privilege to participate at the 2nd International Conference on Philosophy of Information (ICPI) organized by Wu Kun, professor at the Department of Philosophy of Xi'an Jiaotong University and Director of ICPI, and Joseph E. Brenner Corresponding Member, International Center for Transdisciplinary Research, Paris, Associate Director of ICPI and ISIS Vice-President for Inter- and Transdisciplinarity. The 1st ICPI was held in Xi'an in 2013, initiated by the International Center for Philosophy of Information at the Xi'an Jiaotong University with more than 100 participants. The following remarks about the ICPI conference within the ISIS conference are focused on some of the presentations by the Chinese colleagues (ICPI 2015). Wu Kun has been doing research on Philosophy of Information since the eighties advocating an "informational turn" in science and philosophy. In his paper "The Interaction and Convergence of the Philosophy and Science of Information" he writes:

"Generally speaking, the Philosophy of Being, as well as the theory of the compartmentalization of the extant domain is the major paradigm of philosophy and makes up the core of philosophical metatheory. Following tradition, we can

reasonably summarize "the existential = the material + the mental" as in the traditional Western ontological paradigm, except for few doctrines out of the ordinary.

Based on the latest progress in the science of information, the contemporary philosophy of information compartmentalizes the existential domain again. It puts forward a new ontological paradigm: "the existential = the material + the informational". In the light of it, information is constituted by two domains: the objective informational and the subjective informational (mental). Compared with the traditional ontological paradigm, this new one not only reveals a whole fresh existential domain - the objective informational world - but also stipulates the essence of mind as a form of an advanced state of informational activity." (Wu 2015)

Wu Kun obviously criticises the Cartesian split between *res cogitans* and *res extensa* or the mental and the material. To advocate a philosophical paradigm based on "the existential" equated with "the material and the informational" presupposes an interpretation of the concept of being or "existence" not only with regard to "the material" and "information" but also to our own way of being *as* being-in-the-world for whom beings become manifest *as* what they are, instead of *as* a worldless and isolated subjectivity separated from objects in the so-called outside world (Capurro 1986). A paper by Joseph Brenner supported Wu's concept of a convergence of science and philosophy under the influence of the philosophy of information. A contribution to this ontological debate was presented by Wu Qi Tian "A new way of thinking about being and non-being" (Wu, Qi Tian 2015). Wang Jian compared Wu Kun's philosophy of information with Gilbert Simondon's analysis of "the mode of existence of technical objects" as well as of the notions of form and information (Wang 2015). Li Ning Guai's "On Sign and Information - A comparison of Philosophy of Technology and Philosophy of Information" dealt with Wu Kun and Albert Borgmann (Li 2015). In my speech "Translating Information" I argued for an intercultural philosophical dialogue on the concept of information that includes not only its Latin and Greek roots but also the translations and interpretations into Arabic, Persian, and Hebrew (Capurro 2015, 2014a). During the discussions a Chinese colleague told me that in Chinese the sign for information has to do with breathing. This evoked for me Daoist thinking. I remarked that the concept of information might be a way of translating Dao in the 21st century. With this remark I was also thinking about what I once learnt from Carl Friedrich von Weiszäcker about the concept of information as being a way of translating, i.e., interpreting today the Greek concepts of *eidōs*, *idea* and *morphe*. This remark gave rise to my research on the etymology and the history of ideas of this concept in the seventies (Capurro 1978).

2. An Email Exchange After the Conference

After the conference an email exchange took place among a number of colleagues and myself in which we evaluated some of the philosophical and societal issues at hand and the stakes involved and whether or not we were able to trace to any length the myth of Ariadne's thread in digital labyrinths. For those who may not be familiar with this myth, I can first say briefly that it is a myth about a guide to freedom, which is not a myth at all but something we all have a need for. As for the concept of labyrinth itself, its design and initiatory function, I note that it is part of many cultural heritages throughout the world (Kern 1999). I use the concept of labyrinth in order to address issues of knowledge and power that might allow us — but who constitutes 'us' and who are we in the digital age? — to become agents of change and not just digital 'sub-jects', i.e., objects of private monopolies and state powers and unable to develop new shapes of freedom (Capurro 2014). In order to do this, we must be aware that our being-in-the-world with others is not identical with the reification of ourselves on the Internet. I call this the ethical difference.

Following the path of thought about considering the Dao *as* information, I sent an e-mail to Xueshan Yan from the Department of Information Management, Peking University, — who could not take part of the ISIS conference but who is a member of FIS — asking him about the Chinese sign for information and its relation with breathing and information. He answered me as follows:

"The expression of Information in Chinese is 信息 (pronunciation: xin xi). 信 in ancient Chinese has the meaning of "say something by mouth", "letter"; in modern Chinese it means message (informal or small information); only 息 has the meaning of breathing both in ancient and modern Chinese. If separated 信 or 息 do not have any relationship with Dao. Only when they are combined together the meaning of Dao can emerge."
(Xueshan Yan, e-mail from September 8, 2015)

Joseph Brenner found this issue being closely related to his research on "Logic in Reality" (Brenner 2008). We started a conversation about the book of the French philosopher and sinologist François Jullien: "La grande image n'a pas de forme" (Jullien 2005). The title is a quote from Chapter 41 of the Tao Te Ching: "The great form has no shape" (Laozi 2011). Jullien analyses the way or *Dao* of the indeterminate that is expressed in classical Chinese with words such as air, wind (*feng*) or atmosphere. Wind circulates or 'impregnates' what is and what is not: "The grass must bend, when the wind (*feng*) blows across it." (Confucius,

2005, xii,19). This differs from the Platonic and Aristotelian views that matter is 'in-formed' by forms. It goes, in fact, in the opposite direction to the Western *method* — *hodos* means 'way' in Greek — that starts with the indifferentiated, the mythical *chaos*, Aristotle's *hyle* (matter) or Plato's *chora* (receptacle or material substratum) being 'in-formed' by the *demiurge*, a kind of "artisan god" (Margel 1995). According to Jullien, the Chinese painter starts with form (*xing* 形) and goes through a dynamism or vitality (*shi*) or through wind or air (*qi-xiang* 氣象) in such a way that what is eventually depicted is *informis* or without form. This makes possible that the forms which are at the bottom and not at the top open themselves to the indeterminate. The pictorial result is the "great image that has no form." (Jullien 2005/2009) Joseph Brenner sent me the following quote in the English translation from François Jullien's *La grande image*. He found that the translator uses the form breath-energy, breath-image, breath-phenomenon, breath-resonance and breath-spirit for the words in French starting with *souffle*:

"The Chinese also conceived of atmosphere by means of another binomial linked to wind and explicitly associating the visible and invisible.[...] The energy of the undifferentiated foundation (of the world) actualizing itself and taking form, this image (phenomenon) spreads out as a 'breath-atmosphere'. Wang Wei indicates this as a principle: "When one contemplates the painting, one must look first at the breath-image; then the tonality – clear or confused, limpid or opaque; then the relation structuring (the structural relation of) the principal and secondary mountains." (Jullien 2009, Transl. Jane Marie Todd)

This understanding of information *as* no-form is the opposite to the results of my early research on the etymology and history of ideas of the Latin term *informatio* as a translation of the heavy Greek metaphysical terms *eidos*, *idea*, *morphe* and *typos* (Capurro 1978). I followed the track of *informatio* as documented in the "Thesaurus Linguae Latinae" (ThLL) where it is stated that *informatio* is composed of the particle 'in' meaning a reinforcing and not a negation of the forming process (*formatio*). Although the particle *in* means also 'no' — like the *alpha privativum* in Greek for instance in *a-letheia* (un-concealment, truth) — no use of this sense with regard to *informatio* is given, excepting related concepts such as *informabilis*, *informia*, *informitas*, and *informiter*. In my dissertation I mentioned this but did not follow the track further. This has been done now by Vinícios Souza de Menezes, a PhD student in Information Science at the Brazilian Research Center for Information (IBICT), and an expert in contemporary philosophy in his paper "Information, a critical-philological excursus" in which he critically analyzes my interpretation (Menezes 2015). What remained forgotten in

my analysis leads him to *informatio* as *aletheia* and to Aristotelian and Platonic metaphysics with the predominance of beings and not of being as a process of giving. This path of thinking makes possible a translation between *informatio* as no-form and the Chinese thinking of the Dao — as well as with the Japanese tradition *Musi* or 'denial of self' (Nakada and Tamura 2005; Capurro 2005) — through the mediation of Western thought on the abyss of existence by some philosophers quoted by Menezes such as Wittgenstein, Heidegger and Agamben. In my paper for the first Chinese conference on Information Ethics that took place at the Renmin University in Beijing in 2010 (Capurro 2010a), I quoted Chuang Tzu:

“Fishing-stakes are employed to catch fish; but when the fish are got, the men forget the stakes. Snares are employed to catch hares, but when the hares are got, men forget the snares. Words are employed to convey ideas; but when the ideas are apprehended, men forget the words. Fain would I talk with such a man who has forgot[en] the words!” (Chuang Tzu 26, 11)

A main issue in my presentation at the ICPI conference in Vienna dealt with the relation between language and information as analyzed by Carl Friedrich von Weizsäcker (Weizsäcker 1973) and Martin Heidegger (Heidegger 1959). This *hermeneutic* relation is also an *angeletic* one — from Greek *angelos* = messenger) — , dealing with the transmission and mutual exchange of messages and not only with their interpretation, Hermes being both, the messenger of the gods and their interpreter (Capurro and Holgate 2011, Capurro 1978, 263-266). Michael Eldred writes:

"Above all, the *mutual* exchange (*metabole*) of messages, the interplay of messaging in which an attentive listening to each other on the part of the interlocutors is essential. All exchange presupposes a mutuality of some kind, no matter how defective (Even subjugation to the other is a kind of exchange.). Mutual exchange is a kind of (at least) double or (complex multiple) movement resulting from the intertwining of the exercise of the powers of the exchangers." (Michael Eldred, e-mail from September 9, 2015)

Following the discussions on social and ethical issues during the Vienna conference, a group of colleagues — among them Rainer E. Zimmermann, professor of Philosophy at the University of Applied Sciences in Munich, and José María Díaz Nafría, engineer and philosopher, professor at the University of León (Spain) and creator of BITrum, a glossary of concepts, metaphors and theories dealing with information (BITrum 2015) — , came to the idea of creating a research group called SE 104. The acronym corresponded to the room where a session of the Vienna Summit on ethical issues of the information society took place

that had the particularity of being difficult for the participants to find! This was also a general issue for most participants searching for their session rooms in the labyrinthine building of the Technical University of Vienna. The title of this group was given with a good sense of humour but addressed also a serious issue, namely whether the theories proposed and discussed during the Summit were Ariadne's thread(s) in the digital labyrinths and/or labyrinth(s) in themselves. I suggest using also the plural form, since there are several possibilities for shaping freedom when facing digital labyrinths and threads and also because, as José María Díaz Nafría suggested in one of his mails, digital labyrinths seem to have no center with one Minotaur, one Ariadne, and one Theseus. According to the myth, Crete's King Minos was in opposition to the kings of Athens for whom his palace was a labyrinth, i.e., a centre of power and domination. The labyrinth was built by Daedalus, a famous craftsman, for King Minos to imprison the Minotaur. The Minotaur, half-man, half-bull is a symbol of evil since his only role in existence was to eat maidens sacrificed by Minos to his gods. Minos' daughter, Ariadne, was willing to help Theseus, the son of King Aegeus of Athens, in whom she fell in love, in his task to kill the Minotaur by giving him a sword and a ball of thread to find his way out of the labyrinth. Today, we are inside digital labyrinths guided by threads that look like Ariadne's but often make us unable to be aware of the labyrinth *as* a labyrinth, i.e. as a place of negative power and domination. They are threads of business, not of love.

In his "History of Philosophy" Hegel writes that to know that "a human being is free" makes an "incredible difference" ("ein ungeheurer Unterschied") in human history although such knowledge does not mean its realization (Hegel 1971, 40). It is not a question of looking for an outside to the digital labyrinth(s) in the sense of avoiding the historical challenges of the digital age. It is, instead, a question of how far we are able, again, to see the labyrinth *as* a labyrinth, i.e., to unveil knowledge and power in digital age as done, for instance, by Edward Snowden. I agree with Peter Fleissner, professor emeritus of Design and Assessment of New Technologies at the Vienna University of Technology, that any restriction by social, political and economic structures hindering the emancipatory development of people is an essential indicator for the transformation of the present information societies. Freedom is not a property of a worldless and isolated subjectivity, but a relation between human beings in a shared world that is concerned with their mutual respect and fairness also in their relation to the natural world to which we belong. Both relations, to ourselves and to the world, are today mediated by digital technologies. They give rise to the belief that *to be* means *to be digital* and, particularly, that I am a human being only as far as I am in the digital world reifying or 'in-forming' my self *as* digital data and believing that I *am* eventually a digital being. I call

this belief *digital metaphysics* that I distinguish from *digital ontology*, in which the digital *understanding* of being is acknowledged as a possible today predominating way of understanding ourselves and the world. The difference between 'is' and 'as' is not only an ontological but an ethical one (Capurro 2012a). The ethical difference between *who* and *what* we are, or between our selves and our data, is one of Ariadne's threads (Capurro, Eldred, Nagel 2013).

The task of *translating information* in the sense I proposed at the Vienna Summit can be understood as one of Ariadne's threads of emancipation from the knowledge and power structures of the digital labyrinth. Looking for a language of "mutuality" (Peter Fleissner), i.e., of mutual estimation and care for each other, in the digital age means looking for mediations that depend on our capacity to translate our concepts and values into other languages and *vice versa*, to be open to the messages coming from the other(s) particularly when they look *uncanny*, i.e., unusual or unfamiliar from a *normal* perspective, an issue that led Thomas Kuhn to his theory on the structure of scientific revolutions (Kuhn 1962; Capurro and Holgate 2011). This is not only a theoretical but also a practical task about different kinds of exercises of resistance and resilience at the macro- and micro-levels in order to transform ourselves and our societies into more free and fair ones in the digital age (Capurro 1995).

Conclusion: A poet's voice

In September 30, 2014, Xu Lizhi (aged 24), a Chinese poet and migrant worker, from a peasant family, committed suicide after three years' working for Foxconn, a Taiwanese multinational, manufacturing products such as iPad, iPhone — "Designed by Apple in California Assembled in China" — Kindle and PlayStation with plants in Shenzhen in mainland China. The German sinologist and journalist Kai Strittmatter published in June 2015 a long article "The Leap" ("Der Sprung") in the German newspaper *Süddeutsche Zeitung* telling the story of Xu Lizhi who tried to survive the strange coupling of communism and capitalism in the 'perfect city' of Shenzhen. Strittmatter writes:

"The workers come from China, the boss from Taiwan, the profits go to Apple and we all touch gently the tools. The Communist Party finds itself in a peculiar role: it came to power fighting for the proletarians, but now, suddenly, it is on the exploiters' side."
(Strittmatter 2015, my translation)

Xu Lizhi, Strittmatter tells us, was one of 300 Million workers who left the countryside searching for work in the city. Shenzhen was a small fishing village near Hong Kong of about

30.000 inhabitants thirty years ago. Today some ten million people live there. Xu Lizhi is a poet who hated serial production, the city, and the factory. When he was 19 years old, he discovered literature reading Yu Hua's (born 1960) novel "To Live." A year later he leaves the small town and goes to Shenzhen. February 17, 2011 is his first working day, a night shift, at Foxconn, with one day off a week. He is fascinated by the public library and by a bookshop called "Bookbar", open day and night. He meets a tour guide there. She is 38 and was born in the city. They talk about the growing gap between rich and poor in China. It is forbidden to speak on the conveyor belt. "It is like at the time of Charlie Chaplin's 'Modern Times'" writes an editor of a Shenzhen literary journal. Xu Lizhi's generation dreams of dignity, freedom and meaning. Xu Lizhi flees. He reads (Li Bai, Du Fu, Shakespeare, Baudelaire, Faulkner, Tagore, Rilke, Adonis) and writes:

"I swallowed an iron moon
They call it a screw
I swallowed the factory's sewage
The unemployment documents
Youth, bending over the machines
Dies before its time
I swallowed the drudgery [...]
I swallowed the rusty life
Now I can't swallow any more
Everything I swallowed
Gushes from my throat
Pours over the land of my ancestors
Into a shameful poem."

Xu Lizhi

(transl. from German by RC)

Ich schluckte einen eisernen Mond
Sie nennen es eine Schraube
Ich schluckte die Fabrikabwässer
Die Arbeitslosenpapiere
Die Jugend, vor die Maschinen gebückt
Stirbt vor ihrer Zeit
Ich schluckte die Schuferei [...]

Ich schluckte das verrostete Leben
Jetzt kriege ich nichts mehr runter
Alles, was ich geschluckt habe
Quillt aus meinem Rachen hervor
Ergießt sich über dem Land meiner Vorfahren
In ein schändliches Gedicht."
Xu Lizhi
(transl. from Chinese by Kai Strittmatter)

He meets like-minded persons on the Internet. The poet Yan Lian says that socialism talks about the people "but until now it is the dumb people." Now the poets come and give the proletarians a voice. Xu Lizhi tries to find a way out of a slave's work in the factory's library. No chance. At the beginning of 2014 he quits Foxconn. His microblog has no entries. In September 26 he comes back to the "place of execution" (Xu Lizhi, quote from Strittmatter , 2015: "Hinrichtungsstätte") and signs a new contract with Foxconn. Four days later, at 2pm, he jumps from the 17th floor of the AAA Bureau and Shopping Mall with a broad view of the Chinese dream and of a Kindergarten with the letters "Self Confidence." His last poem "My last moments" begins:

"I want to see the sea once more."

The last lines are:

"It was fine with me when I arrived

It is fine with me when I go."

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References

Barlow, John Perry (1996). A Declaration of the Independence of Cyberspace.
Online: <https://projects.eff.org/~barlow/Declaration-Final.html>

BITri (2010). Glossary

Online: <http://glossarium.bitrum.unileon.es/glossary>

Brenner, Joseph E. (2008). *Logic in Reality*. New York: Springer.

Capurro, Rafael (2015). *Living with Online Robots*.

Online: <http://www.capurro.de/onlinerobots.html>

Capurro, Rafael (2015a). *Translating Information*

Online: <http://sciforum.net/conference/isis-summit-vienna-2015/paper/2972>

Capurro, Rafael (2014). *Shapes of Freedom in the Digital Age*. In Hasan S. Keseroğlu, Güler Demir, Elsa Bitri und Ayşenur Güneş (Eds.): *1st International Symposium on Philosophy of Library and Information Science. Ethics: Theory and Practice*. Istanbul: hiperlink 2015, 1-13.

Online: <http://www.capurro.de/kastamonu.html>

Capurro, Rafael (2014a). *Apud Arabes. Notes on Greek, Latin, Arabic, and Persian Roots of the Concept of Information*.

Online: <http://www.capurro.de/iran.html>

Capurro, Rafael (2012). *Toward a Comparative Theory of Agents*. In: *AI & Society*, 27 (4), 479-488.

Online: <http://www.capurro.de/agents.html>

Capurro, Rafael (2012a). *Beyond Humanisms*. In Toru Nishigaki and Tadashi Takenouchi (eds.): *Information Ethics. The Future of the Humanities*, Nagoya City: V2 Solution Publisher 2012, 26-74.

Online: <http://www.capurro.de/humanism.html>

Capurro, Rafael (2010). *Digital hermeneutics: An outline*. In: *AI & Society* 35 (1), 35-42.

Online: <http://www.capurro.de/digitalhermeneutics.html>

Capurro, Rafael (2010a). *The Dao of the Information Society in China and the Task of Intercultural Information Ethics*.

Online: http://www.capurro.de/china_infoethics2010.html

Capurro, Rafael (2009). *Past, present and future of the concept of information*. In *tripleC*, 7 (2), 215-241.

Online: <http://www.capurro.de/infoconcept.pdf>

Capurro, Rafael (2005). *Privacy. An Intercultural Perspective*. In *Ethics and Information Technology* 7, 1, 37-47.

Online: <http://www.capurro.de/privacy.html>

Capurro, Rafael (1995). *Leben im Informationszeitalter*. Berlin: Akademie Verlag.

Online: <http://www.capurro.de/leben.html>

Capurro, Rafael (1986). *Hermeneutik der Fachinformation*. Munich/Freiburg: Alber.

Online: <http://www.capurro.de/hermeneu.html>

Capurro, Rafael (1985). Epistemology and Information Science. Report TRITA-LIB-6023 Royal Institute of Technology Library, Stockholm, Sweden.

Online: <http://www.capurro.de/trita.htm>

Capurro, Rafael (1978). Information. Ein Beitrag zur etymologischen und ideengeschichtlichen Begründung des Informationsbegriffs. München: Saur

Online: <http://www.capurro.de/info.html>

Capurro, Rafael and Holgate, John (2011). Messages and Messengers. Angeletics as an Approach to the Phenomenology of Communication. Munich: Fink.

Rafael Capurro, Eldred, Michael and Nagel, Daniel (2013). Digital Whoness: Identity, Privacy and Freedom in the Cyberworld. Frankfurt: Ontos (de Gruyter). See also: Johannes Buchmann (ed.): Internet Privacy. Berlin: Acatech (2012)

Online: http://www.acatech.de/fileadmin/user_upload/Baumstruktur_nach_Website/Acatech/root/de/Publikationen/Projektberichte/acatech_STUDIE_Internet_Privacy_WEB.pdf

Chuang Tzu (2001-2009). The Complete Chuang Tzu Based on James Legge's Translation

Online: <http://oaks.nvg.org/zhuangzi25-.html#26>

Confucius (2005). Analects (Transl. James Legge)

Online: <http://www.gutenberg.org/cache/epub/3330/pg3330-images.html>

FIS (Foundations of Information Science).

Online: <http://fis.sciforum.net/about-fis/>

Grunwald, Armin (2015). Responsible Research and Innovation - Limits of consequentialism and the need for hermeneutic assessment.

Online: <http://summit.is4is.org/programme/schedule/day-one-wednesday-3-june-2015>

Hegel, Georg Wilhelm Friedrich (1971). Vorlesungen über die Geschichte der Philosophie. Frankfurt: Suhrkamp, Vol. 18.

Heidegger, Martin (1959). Der Weg zur Sprache. In: *ibid.*: Unterwegs zur Sprache. Pfullingen: Neske, 83-155.

ICPI (2015). International Conference on Philosophy of Information.

Online: <http://sciforum.net/conference/isis-summit-vienna-2015/stream-icpi>

ISIS Summit (2015)

Online: <http://summit.is4is.org/programme>

ISIS Summit (2015). All contributions.

Online: <http://sciforum.net/conference/isis-summit-vienna-2015/page/allcontributions>

Jullien, François (2005/2009): La grande image n'a pas de forme ou du non-objet par la peinture. In *ibid.*: La philosophie inquiétée par la pensée chinoise. Paris: Seuil, 263-573 (Engl. transl. Jane Marie Todd: The Great Image Has No Form, or On the Nonobject Through Painting, Univ. of Chicago Press 2009).

- Kern, Hermann (1999). *Labyrinth. Erscheinungsformen und Deutungen. 5000 Jahre Gegenwart eines Urbilds*. München: Prestel 4th ed.
- Kuhn, Thomas (1962). *The Structure of Scientific Revolutions*. The University of Chicago Press.
- Last, Cadell (2015). *The Advanced Apes. Evolutionary Science for a Changing World*.
Online: <http://theadvancedapes.com/pathway-to-the-global-brain-a-lecture/>
- Laozi (2011). *Daode Jing* (transl. Charles Muller)
Online: <http://www.acmuller.net/con-dao/daodejing.html#div-42>
- Li, Ning Guai (2015). *On Sign and Information - a Comparison of Philosophy of Technology and Philosophy of Information*.
Online: <http://sciforum.net/conference/isis-summit-vienna-2015/paper/2961>
- Margel, Serge (1995). *Le tombeau du dieu artisan, précédé de "Avances" par Jacques Derrida*. Paris: Minuit.
- Menezes, Vinícios Souza de (2015). *Informação, um excursão crítico-filológico*. In: *Perspectivas em Ciência da Informação*, 20 (1), 3-18.
Online: <http://portaldeperiodicos.eci.ufmg.br/index.php/pci/article/view/2074>
- Nakada, Makoto and Tamura, Takanori (2005). *Japanese conceptions of privacy: An intercultural perspective*. In *Ethics and Information Technology* 7, 1, 27-36.
- Shannon, Claude E. (1948). *A Mathematical Theory of Communication*. In *The Bell System Technical Journal*, Vol. 27, pp. 379–423, 623–656.
Online: <http://worrydream.com/refs/Shannon%20-%20A%20Mathematical%20Theory%20of%20Communication.pdf>
- Strittmatter, Kai (2015). *Der Sprung*. In: *Süddeutsche Zeitung*, Nr. 139, June 20-21, 11-13.
- Wang, Jian (2015). *The Constructive Approach of Informational Ontology and the Transform of Philosophical Notion - the Comparison to the Philosophy of Information of Simondon and Wu Kun*.
Online: <http://sciforum.net/conference/isis-summit-vienna-2015/paper/2960>
- Weizsäcker, Carl Friedrich von (1974). *Sprache als Information*. In: *ibid.: Die Einheit der Natur*. Munich: dtv, 39-60.
- Wu, Kun (2015). *The Interaction and Convergence of the Philosophy and Science of Information*.
Online: <http://sciforum.net/conference/isis-summit-vienna-2015/paper/2943>
- Wu, Qi Tian (2015). *A New Thinking Way About the Being and Non-Being*.
Online: <http://sciforum.net/conference/isis-summit-vienna-2015/paper/2880>
- Yan, Xue-Shan (2011). *Information Science: Its Past, Present and Future*. In: *Information*, 2, 510-527.
Online: <http://www.mdpi.com/2078-2489/2/3/510>

Ariadne's ambition of course, is not just being the go-to interface for optimizing transfer costs and pull some liquidity off single chain DeFi aggregators, but to enable a truly frictionless multi-blockchain experience. \$ARDN token will exist in both native (cross-blockchain) and wrapped version for every blockchain we support. This will mean that the user can mostly stop worrying about native currency tx costs and multi-steps operations for things like getting funds from LP positions from one blockchain and onto another one. All it will take is approve the transaction steps (that can span multiple blockchains) and a total cost will be calculated in the native currencies of all the blockchains involved and converted to the para-token.

Ariadne's thread. Posted on Sunday, 12 January, 2014 Tuesday, 30 June, 2015 by phillipkay. This is an exploration of the myth of Ariadne, daughter of King Minos of Crete. In the story of Medea, for instance, the hero Jason comes to the remote kingdom of Colchis in search of the Golden Fleece. He pretends to fall in love with the king's daughter Medea, who is a priestess (a witch). She helps him slay the dragon who guards the treasure, and he escapes Colchis with Medea, only to abandon her for another woman.

Brain Barrier, Lymphatic Clearance, and Recovery: Ariadne's Thread in Labyrinths of Hypotheses. by. Oxana Semyachkina-Glushkovskaya. Dermatopathology Designs Diabetology Diagnostics Digital Disabilities Diseases Diversity DNA Drones Dynamics Earth Ecologies Econometrics Economies Education Sciences Electricity Electrochem Electronic Materials Electronics Encyclopedia Endocrines Energies Eng Engineering Proceedings Entropy Environmental Sciences Proceedings Environments Epidemiologia Epigenomes European Burn Journal European Journal of Investigation in Health, Psychology and Education Fermentation Fibers Fire Fishes Fluids Foods Forecasting Forensic Sciences Forests Foundations Fractal and Fractional Fuels Future. Minos' daughter, Ariadne, was willing to help. An email exchange a Roman mosaic picturing Theseus and the Minotaur, Rhaetia, An email exchange a Today, we are inside digital labyrinths guided by threads that look like Ariadne's but often make us unable to be aware of them. An email exchange a In his "History of Philosophy" Hegel writes that to know that "a human being is free" makes an "incredible difference. An email exchange a It is not a question of looking for an outside to the digital labyrinth(s) in the sense of avoiding the historical challenges of the digital age. It is, instead, a question of...