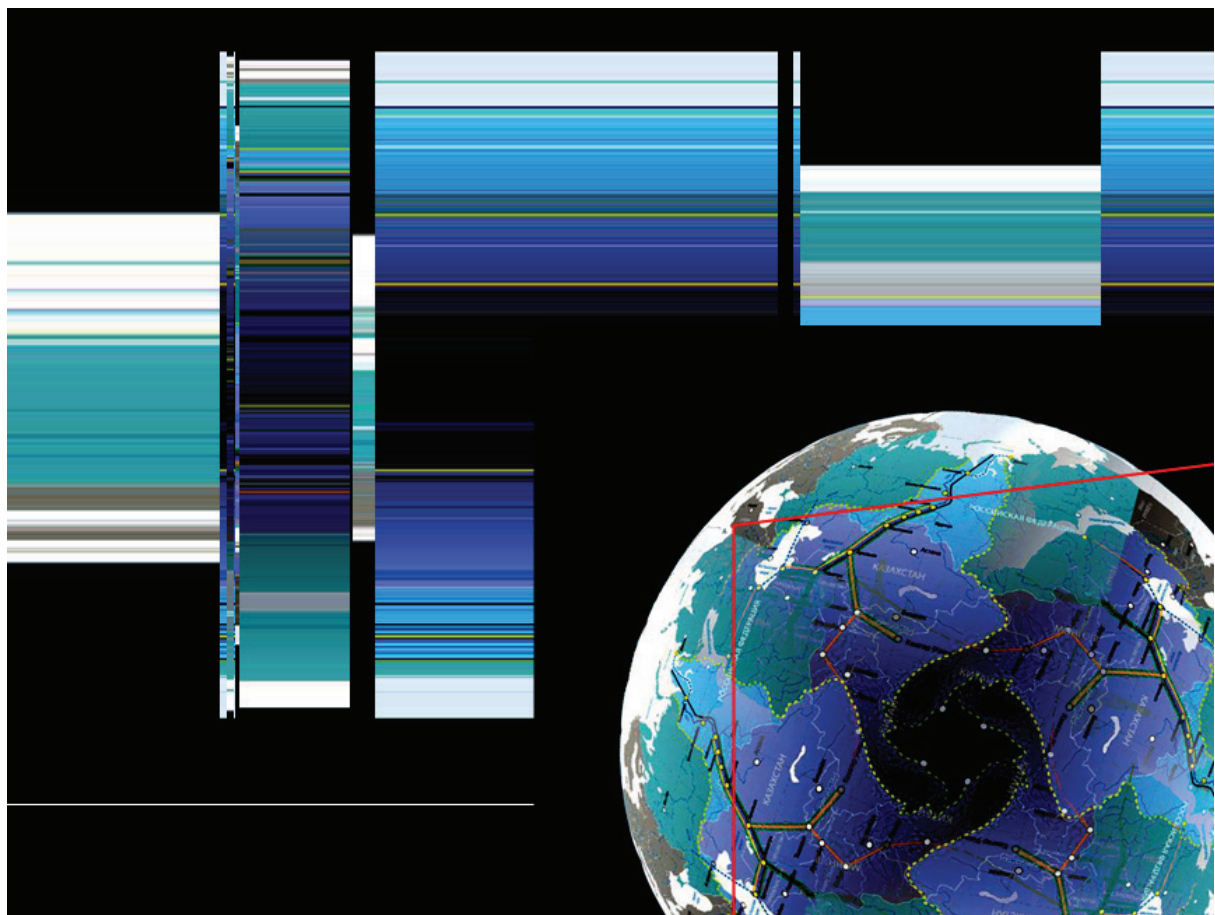


# Archive as cyborg: imagining archaeologies of the future



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# Abstract

Contemporary art has borrowed from the archive's organisational structure, critiqued its hegemonic influence on the construction of cultural narratives, and reconfigured its contents to reimagine the past. However, 'archival art practice' has not yet extensively explored issues of Big Data, or examined its effects. Big Data promises to help us better understand the world and build models that try to predict the future. Data collecting devices are inserting their sensors into our lives on an increasingly intimate scale, permeating boundaries between human and computer, the analogue and the digital, reality and fiction. How might practice based research, combined with an investigative approach, reimagine the political spaces and power structures that influence the production, organisation, and propagation of knowledge?

This research poses a tentative response to the preceding question through theoretical and practical lines of enquiry, in order to explore relationships between emerging technologies, myth-building, and geopolitics. It takes the academic paper, "Capitalisation of the Future," as a point of departure. The paper was written by Anton Vaino, Kremlin's Chief of Staff, though both its origins and validity are disputed. In it, Vaino's alleged invention, the Nooscope, is described as a spatial scanning device, formed from a network of data collecting sensors and satellites designed to intercept interactions between humans and electronic devices. The wording of the paper has been ridiculed as unscientific and mystical. Throughout Russian history, distinctions between the spheres of politics and religion, science and mysticism, are not as sharp as in the West. This thesis takes the Nooscope as a vessel and experimental playground for the exploration of these ideas.

The thesis articulates a theoretical framework, contextualises the research-based art practice, and presents a case study of the ways in which discourses around planetary-scale Big Data projects, such as the Nooscope, are presented. The artwork provoked by the Nooscope has been designed to be viewed in parallel to the ideas discussed in the written thesis.

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# Attestation of authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

A handwritten signature in black ink, appearing to be 'M. Park', written over a horizontal line.

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# Introduction

Archives are traditionally held by centralised state institutions, such as libraries and museums. They can be seen as authoritative sources of objective knowledge, when in reality they are defined by their gaps and absences as much as by what is included. Contemporary art has borrowed from the archive's organisational structure, critiqued its hegemonic influence on the construction of cultural narratives, and reconfigured its contents to reimagine the past. However, 'archival art practice' has not yet extensively explored the conflation of Big Data with traditional archival approaches, or examined its effects. Data collecting devices are inserting their sensors into our lives on an increasingly intimate scale, permeating boundaries between human and computer, the analogue and the digital, reality and fiction. How might practice based research, combined with an investigative approach, reimagine the political spaces and power structures that influence the production, organisation, and propagation of knowledge? This research poses a tentative response to this question through theoretical and practical lines of enquiry.

Archives are assembled from selected documents and artefacts; their interrelationships form patterns of meaning. The archetypal image of the archive brings to mind filing cabinets heaped with official papers and ephemera, never to be brought to light: rows of shelves stacked with boxed documents and curiosities, cached far behind the portals of public access. The sheer volume of this information can lend the archive an aura of authority. As Jacques Derrida explains in his seminal text on the archive, *Archive Fever: A Freudian Impression*, even the origin of the word itself denotes power and control. In ancient Greek, *archē*, refers to a place of commencement, but also of command (Derrida 9). By extension, the *arkheion* was the ancient Greek residence of *archons*, senior magistrates who shaped the laws and conserved official documents (Derrida 9-10).

While preservation of the past may appear to be the archive's primary function, its true purpose is arguably the creation of futures (Groys 9). Archives are erected with the coming generations in mind; they can be used to construct tomorrow's vision of history, today. An archivist's approach can therefore provide both structure and fictional possibilities to creative research. Art practice, specifically, offers a space of freedom for more poetic and abstract methods of dealing with source material, unhampered by the need for functional results, as the archivist profession may be. There are no claims to objectivity here. As academic and archaeologist Rodney Harrison observes, "it is only when we adopt an approach that acknowledges the past as contingent, fragmentary and open to interpretation that we allow for a present which is not closed, but open to many possible futures" (336).

The emergence of so-called ‘archival art’ in contemporary times was identified by Hal Foster in his essay “An Archival Impulse” in 2004. He describes archival art as work that . . . not only draws on informal archives but produces them as well, and does so in a way that underscores the nature of all archival materials as found yet constructed, factual yet fictive, public, yet private. Further, it often arranges these materials according to a quasi-archival logic, a matrix of citation and juxtaposition, and presents them in a quasi-archival architecture, a complex of texts and objects . . . (5)

Foster highlighted a corner of the contemporary art world preoccupied with the archive as a utopian notion: the archive as the reconfiguring of existing societal narratives; the archive as a publicly accessible makeshift library of a particular ideology; the creation of fictive archives as speculations on what could have been, but never came to pass. Archival art is often concerned with gaps in memory and is suspicious of dominant historical narratives, questioning institutional hegemony over the ownership and distribution of knowledge.

Today, there is a shift from traditional archival formats, and analogue material is being gradually digitised in libraries, galleries, and museums around the world. Different kinds of digital archives are accumulating in the nebulous form of Big Data. The term denotes huge data sets that necessitate the development of new ways of processing data. As with archives, databases can be used to draw certain sets of conclusions, or to build narratives that explain apparent correlations between findings. Big Data can be derived from online activity, tracking sensors, or Radio-frequency identification (RFID) chips, for example. And though there is concurrent discussion about the value of ‘open data,’ much of Big Data is owned by private companies, governments, or national security agencies. The power still lies with those who hold the information. The ownership of these new, ever-growing archives still belongs to the same state actors as those who have dictated the contents of museums and libraries. These days, the corporate sector is also heavily entangled in this messy configuration of power. The collected data is largely obscured from the users who generate it: as with archives in museums where selected artefacts surface for exhibition, while others are stored in the deep, dark underground catacombs, never to emerge into public view.

Digital devices, such as laptops and smartphones have firmly taken their place in the lives of the majority of adults in wealthy societies. These devices act as portals between the individual citizen and organisations that seek to collect data on any person’s trajectory through both online and physical spaces. The rising popularity of personal fitness trackers, such as the Fitbit, Garmin, or the Apple Watch, is normalising the experience of self-imposed corporeal surveillance. As more of our lives are spent online, we leave behind digital artefacts as well as physical objects. Every move adds to a growing profile. This archive of data can be accessed and utilised by institutions of power. For example, the Internet of Things (IoT) promises to infiltrate the fabric of our homes, turning objects into

data-collection touch-points (McGuirk 5). Such networks of sensory devices embed physical objects into infrastructures that analyse and store the generated data, placing them in an intermediary space between ‘traditional’ and web-based archives. The tensions between physical artefacts and immaterial data flows, fact and fiction, the real and the imagined, have informed the relationships I have established between individual objects and archival structures in my research.

My research began with an examination of the archive as a knowledge-power configuration that generates historical and cultural narratives from its collected contents. Official national archives project an authoritative voice that demands trust. An archive aims to present a topic, a person’s life, or a collection of artefacts that are grouped under a shared theme as a complete set. Even when it does not explicitly claim to be definitive, a certain sense of authority is implicit in its very existence. We easily place trust in ‘official’ sources of information, even as we eye politicians and governmental agencies with suspicion. My initial intention was to produce a series of artworks and design prototypes that would speculate on the implications of a decentralised archive. Such an archive might have a democratising effect, offsetting unbalanced power relations.

I was struck by the synergy between Hal Foster’s description of archival art and Donna Haraway’s definition of the cyborg in “The Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century.” She explains that a cyborg is: “. . . a cybernetic organism, a hybrid of machine and organism, creature of social reality as well as a creature of fiction” (291). A cyborg, is also, she adds: “. . . a condensed image of both imagination and material reality, the joined centres structuring any possibility of historical transformation” (292). Haraway goes on to give examples of cyborgs in science fiction, medicine, industrial production, and warfare, asserting that we have all become cyborgs through the entanglements of human bodies and computation in these varied contexts. “The Cyborg Manifesto” was first published in 1985 in the *Socialist Review* under a slightly different title. This means that this kind of thinking was already prevalent 30 years ago, and we’ve been accelerating in this direction since. Donna Haraway’s text provided me with a lens through which to envision new cyborgian archives that might embody the complexity of our networked world. The archive as cyborg would allow for the inclusion of a plurality of viewpoints to coexist in “a powerful infidel heteroglossia” without being flattened by a totalising narrative (Haraway 316).

My research focus has since shifted from the investigation of new decentralised archival structures, to deeper engagement with a particular mega archive of sorts, a depository of Big Data on global activity between humans, devices, and the Earth itself. I have retained a relationship to “The Cyborg Manifesto” in borrowing Haraway’s metaphor of the cyborg to frame my engagement with the material I am investigating through my practice. Her description opens up space for encounters with both planetary and minute scales, bridging themes and disciplines as diverse as techno-science, modern warfare,

geopolitics, feminism, sociology, geography, and mythology. Her playful, at times far-fetched and obfuscatory, writing may be flawed. But it piques the potentiality of tackling existing structures and willing their dominant mythologies into newly politicised narratives. Central to both Foster's and Haraway's texts are sets of opposing terms that undulate and shimmer between dualities. Reality and fiction, machine and organism, found artefact and constructed assemblage. Haraway's cyborg and Foster's archival artist both occupy an elusive space in-between. They sit in the slippage between two delineated terms, hovering in fissures between opposing territories. These gaps can be seized as spaces of resistance.

In August 2016, the Western media exploded with coverage of the Nooscope, a mysterious device supposedly invented by Putin's newly appointed Chief of Staff, Anton Vaino. An academic article, "Capitalisation of the Future" [translation mine]<sup>1</sup> by A. E. Vaino, published in Russian journal *Questions of Economics and Law* in 2012, is the culprit referenced by most journalists. The author is widely assumed to be Anton Vaino, however, it has been speculated that the article was written by a ghost writer (Lyanin; Litvinova; Zhartun). Most of the commentary from Russian academics has dismissed the article as utopian and unscientific (Ivshina). Masha Gessen, a journalist known for her vocal critique of Vladimir Putin, went so far as to posit this was evidence that World War III was on the cards (Gessen). Is the Nooscope's existence as fantastical as ascertained by the media? And where did this device originate? Patrick Reeve of ABC News sums up the dissonance presented in "Capitalisation of the Future": "the vague title sets up the strange pseudo-scientific text that follows in an almost impenetrable blend of quasi-mystical language and academic jargon, mish-mashing contemporary economic concerns with transcendental philosophy" (Reeve).

This thesis takes the "Capitalisation of the Future" as a point of departure. It becomes a case study for the ways in which discourse around planetary-scale Big Data projects, such as the Nooscope, is presented. The Nooscope is described as a spatial scanning device, formed from a network of data collecting sensors and satellites, and designed to intercept interactions between humans and electronic devices. Its ultimate purpose is to develop a comprehensive surveillance network that tracks economic transactions, giving its owners the edge in understanding the status quo of the market at any given time. In Vaino's view, this would bring them closer to "capitalising the future," and gaining control over economic transactions world-wide (Vaino, "Capitalisation").

"Capitalisation of the Future" reveals incongruities that are also present in similar Western projects, such as Planetary Skin Institute (a collaboration between NASA and Cisco) and FuturICT (a European Union funded project). But they are more easily concealed in these contexts due to a long history of rationalism, and the separation of science, religion, and mysticism in the Western world. This separation is assumed, but not necessarily adhered to in the straight and narrow ways expected. Blurrings, glitches, and slippages

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<sup>1</sup> All translations of Russian material mine, unless otherwise indicated.

dislocate tidy distinctions. Throughout Russian history, including Soviet times, these distinctions are not so sharp. Politics and religion, science and mysticism — these pairings are ever present, frequently lurking beneath the surface of an orderly categorisation of relationships. This thesis takes the Nooscope as a vessel and experimental playground for the exploration of these ideas.

The research is conducted through both theoretical and practical lines of enquiry. The practice-based component of the thesis re-contextualises the content of “The Capitalisation of the Future,” along with an associated PowerPoint slide deck, in a series of speculative artworks that explore relationships between emerging technologies, myth-building, and geopolitics. The artwork takes an investigative approach, adopting archiving methods of gathering material, which reflect on the accumulation of information that characterises Big Data driven computational platforms. The practical work exists in parallel to the ideas discussed in the written thesis. While an exegesis is a common format to accompany practice-based research, this piece of writing sits in the middle ground between a thesis and an exegesis — it is not intended to be an explanatory text for the artwork. Rather, it outlines a theoretical framework, contextualising the practice-based research, and acting as springboard for the artwork.

The written component of the thesis begins with an overview of the relationship between art and the archive. A short literature review of three practitioners, who also engage with archiving as method, maps out the field of practice the thesis is situated in. Morehshin Allahyari, Suzanne Treister, and Simon Denny are three very different artists. However, they share an investigative approach to art making that is enmeshed with political concerns. All three decode various mythologies present in their particular topics of interest, reworking them into new visual forms.

The next section focuses on the Nooscope, the subject matter central to this thesis and research-based art practice. I trace the origins of the Nooscope from Vladimir Vernadsky’s geological concept of the noosphere, following with an analysis of the “Capitalisation of the Future,” highlighting the quasi-mystical anomalies of what is supposed to be a scientifically sound piece of research. The accompanying PowerPoint slide deck, “The Basic Units of Technological Revolutions,” is subjected to a similar treatment, but with a focus on its design.

The Nooscope is not the first large-scale networking project to originate from Russia. I continue with a historical background of similar projects that predated it: the failed Soviet information network OGAS (All-State Automated System) and the recent example of the Internet of Things. I will then analyse contemporary variants of the Nooscope: Planetary Skin Institute and FuturICT. In the last section, I turn to the artwork, unfolding the practical methods and processes that I have engaged with in this project. A series of images excerpted from my practical work are interspersed throughout the thesis as a work in progress, and in anticipation of the final installation.



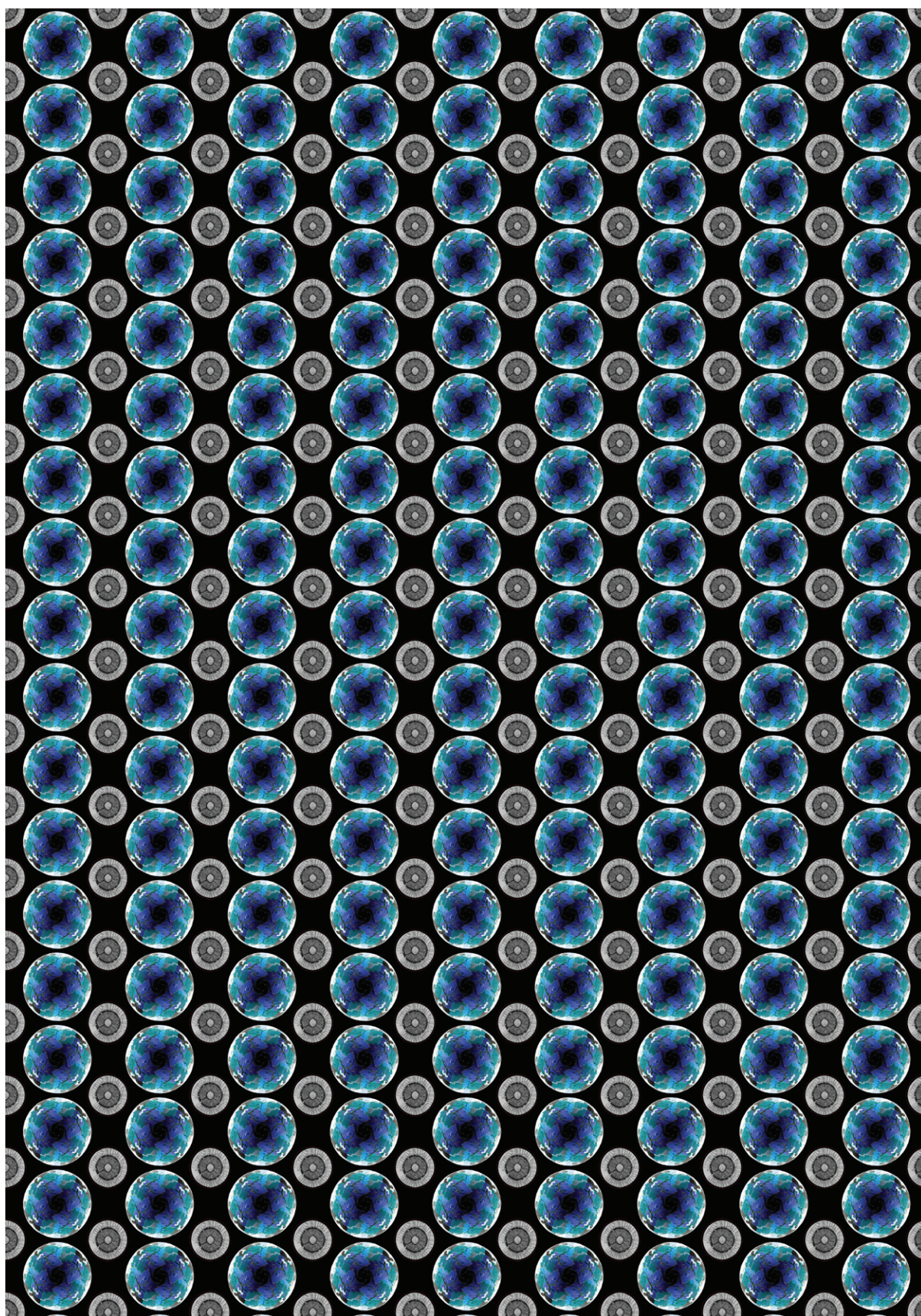


Fig. 1



# Art and the archive

Art rooted in the archive has had a firm foothold in the contemporary art world for a number of years. The first wave of contemporary ‘archivist art’ was identified by art critic and historian Hal Foster in his essay “An Archival Impulse,” published in the academic journal *October* in 2004. Foster described archival art as work that adopts an archival structure or logic in the creation or installation of the artwork, uses existing archival materials, or produces their own<sup>2</sup>. Though the archive is a politicised space, and much archival art deals with what may be deemed political issues, it is seldom didactic. Foster explains that

... although the contents of this art are hardly indiscriminate, they remain indeterminate like the contents of any archive, and often they are presented in this fashion—as so many promissory notes for further elaboration or enigmatic prompts for future scenarios. (5)

Though Foster duly mentions the web and its influence on art discourse (4), he overlooks internet art, new media art, and art involved with digital archiving. The artists he chooses to highlight tend to work with analogue materials and well-established mediums, primarily: sculpture, installation, drawing, photography, and video.

More than a decade has passed since this seminal text was written, yet archive fever continues to afflict practitioners from various disciplines. The term “archival art” throws a net over a group of artists who utilise archiving as a central mode of inquiry in their work. Some select an existing archive as their starting point, and make works in response to its contents. They might rearrange it, add to it, or re-present it in a new configuration. Others create their own archives. Three contemporary artists have been of particular interest to my research. They share a common engagement with the archive, either treating it as a collection of documents to draw from, or adopting the archiving process as a method for creating the artwork. At times, both approaches are evident in one body of work.

Whether using traditional archival documents as the basis for the artwork, as Morehshin Allahyari does in *Material Speculation: ISIS*, creating an archive of work based on research into governmental programmes of cybernetics and mass control, as in the case of Suzanne Treister’s *HEXEN 2.0*, or approaching leaked classified material from the NSA as an archive to re-present in alternative mediums, as Simon Denny does in *Secret Power*, all three artists use external documents as a source of content for their work. Their artistic practices take, as a point of departure, an initial inquiry into subject matter abundant in existing material. The artist assumes the role of investigator, while circumventing the factual accuracy and methodological rigidity required in scientific disciplines.

Art practice can investigate, educate, and shed light upon particular issues, but it has the licence to do so in inventive ways that are more free, and might communicate via more abstract means than journalism or the sciences, for example (Bratton, “On Speculative

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<sup>2</sup> See also: *The Big Archive – Art from Bureaucracy* by Sven Spieker (MIT Press 2008)

Design”). It is also privy to an added interdisciplinary freedom. Here, chemistry can mix with the occult, mathematics might influence painting, and anthropology combines with relational aesthetics. Allahyari, Treister, and Denny all interweave their respective inquiries into emerging technologies, fiction, and politics in unique ways. By devoting close attention to the work of these artists, I carve a space for my own work in the midst of ongoing conversations, entering into a dialogue with other practitioners. This allows me to elucidate my own position, and to learn from the methodological techniques, visual devices, and modes of presentation others have developed within research-based art practices.

### **Morehshin Allahyari: *Material Speculation: ISIS***

Morehshin Allahyari is an artist who was born in Iran, but has been based in the United States for almost a decade. Iran’s turbulent political background has been formative to her work; she has grappled with the uneasy relationship between art and activism throughout her practice. Allahyari’s earlier work focused on life in exile, on the bridging of gaps between her homeland and her present life. Works like *The Romantic Self-Exiles I* (2012) and *In Mere Spaces All Things Are Side By Side I* (2014–present) deal with memory, addressing relationships of scale between personal experience, and politically and geographically determined distance. *The Romantic Self-Exiles I* is a personal perspective on the experience of exile. *In Mere Spaces All Things Are Side By Side I* is, once again, a work based on the artist’s personal experience; here the focus is on a romantic online relationship she maintained while living in Iran.

Both are time-based media works dominated by computer generated 3D imagery. They make use of a recurring visual language of transparency, layers, obfuscation, and entanglement, the different cultural and political realities clashing, intertwining, coming closer, pulling apart. The videos employ similar techniques to create a space that flickers with a sense of insecurity. Constant motion makes it more difficult to grasp onto the layered scenes of interiors, buildings, cables, and barriers, as they continue slipping by. The pitch-black void of the background bleeds into the luminescent walls of digital structures Allahyari has erected as provisional, and ultimately ineffective, spaces of refuge. The virtual world proves a poor substitute for the real thing; the frustration is palpable. These are merely gestures towards an elusive whole.

I am interested in the ways in which Allahyari uses these visual devices to disorient. A sensation of irreparable loss experienced by the artist is imparted onto the viewer via the visuals: a sense of separation that cannot be bridged. I aim to evoke a similar sensation of dissonance in my own practice. Though the medium and subject matter are substantially different, the impression of sensory envelopment can be translated in a different format via comparable methods. Tensions between the visible and invisible, the overt and ambiguous, speak to the nature of the information the project deals with.

Language plays an important role in both *The Romantic Self-Exiles I* and *In Mere Spaces All Things Are Side By Side I*. In the latter, subtitles are used to illustrate the online chat-based conversations between Allahyari and her lover, a mode of communication analogous to that of the couple. The text is integral to the work: it lends a grounding logic to the drifting animations. Its structured, syntactically correct language permits the visuals to dissolve into a symbolic reflection of the couple's physical and emotional experience.

*The Romantic Self-Exiles I* uses language in a different way. The artist reads out a lyrical monologue over an intermittent soundtrack of suspenseful, hollow sound effects. The imagery, combined with the work's title, appear to be adequate signposts of the work's intent. In this case, the language seems to be used to elicit an empathetic response from the viewer. It infuses the cold, smooth, computer generated spaces of the video with a human presence, while simultaneously alluding to the absence of human bodies. Allahyari creates a kind of nostalgic purgatory, a heterotopia of exile. The integration of spoken words adds distinctive textures to each of the two video works. In my own practice, sound work is a potential treatment for the text-heavy content that feeds into the artwork. The inclusion of human voice in a sterile space inhabited by the spawn of mechanistic processes can provide respite, or unease, if used to that effect.

Morehshin Allahyari's project *Material Speculation: ISIS* (2015–2016) is most relevant in the context of my practice due to its relationship to archival matter and emerging technologies. The artist continues to deal with memory, its significance, legitimacy, and failures. However, this time she examines relics that hold memories of entire civilisations. Instead of creating a personal archive of virtual representations of artefacts and memories gathered from her own past, she mines traditional archives held by cultural institutions. *Material Speculation: ISIS* involves the reconstruction of twelve artefacts destroyed by ISIS<sup>3</sup> in 2015. Videos of ISIS militants destroying the ancient city of Hatra, and ancient Assyrian and Akkadian artefacts in Mosul's central museum surfaced in 2015 (Shaheen, "Isis Video" and "Isis Fighters"). The extermination of perceived idolatry by ISIS destroys important historic artefacts, which erases material links to the past. In this way, they assault the wider cultural identity of the countries they target, in addition to murdering their individual citizens.

Allahyari worked with a team of historians, museum workers, and archaeologists to compile enough data to recreate the destroyed artefacts as computer-rendered 3D models. The models were then 3D printed in transparent resin, leaving a small compartment to hold a USB loaded with the full extent of the research Allahyari gathered in the duration of the project ("Material Speculation"). She combines aspects of traditional archival methods with the more experimental approach of 3D printing, a medium rarely explored by artists. 3D printing is still an emerging technology predominantly utilised for either the creation of knick-knacks and small 'hacks' for fixing everyday objects on the one

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<sup>3</sup> The acronym of the extremist group's self-designated title, Islamist State of Iraq and Syria.

hand, or expensive and complex projects, such as replacement parts for spacecraft, at the other extreme.

In *Material Speculation: ISIS*, documents, such as maps, images, and historical information — including footage of the artefacts' destruction, and their subsequent resurrection in 3D — are stored on a small USB storage device, instead of archival shelves and drawers. Digital information exists in networked flows, it is in constant motion, shifting in-between points, unlike the static documents of the past. Allahyari has frozen this movement, trapping it inside a time capsule. The artefact becomes a vessel for itself. The layers of historic material encased in these symbolic sculptures are further accentuated by the additive medium of 3D printing — the machine traces a set of pre-programmed steps to build up a form, the physical materialisation of data emerges in liquid plastic layer by layer.

Allahyari has merged the digital and physical into a new archival model in *Material Speculation: ISIS*. Her archives preserve the ghosts of things past, entrapped in their own spectral, translucent forms. They are replicas of the original object, made compact and easy to duplicate. Allahyari has so far released open-source 3D files, and all accompanying documentation, of one sculpture on commission by Rhizome (*King Uthal*). The life of the artefacts is potentially prolonged through multiplication and by their release into the hands of the public. However, the artefacts' digital resurrection does not necessarily protect them from destruction. The ongoing accessibility of digital information is compromised by the limited longevity of digital storage, along with frequent system and format updates that inhibit compatibility between different formats. We are not safe from another equivalent of the fire that destroyed the Great Library of Alexandria, though today it may take the form of climate change related flooding, or even a simple short circuit.

Morehshin Allahyari's *Material Speculation: ISIS* functions as a critique of destructive acts. But, the painstaking process of research through disparate sources that was necessary to obtain the information needed to rebuild the original objects, and has intentionally been made visible by the artist, can also be seen to form a critique of the obscured status of culturally significant documents and data.

## **Suzanne Treister: *HEXEN 2.0***

London born and UK based artist Suzanne Treister has acquired an eclectic oeuvre of information dense work that spans a career of almost thirty years. Treister began as a painter, moving on to become a pioneer in new media and net art. It is interesting to note that, although the artist frequently broaches subject matter that is related to the Internet, emerging digital technologies, and algorithmic thinking, she continues to dip into the traditional mediums of painting and drawing. The confines of a single sentence creak to accommodate the scope and complexity of Treister's subject matter. She repeatedly points her penetrating gaze toward surveillance programmes, military operations, the powers that

control informational infrastructures underpinning Western societies, developments in computation, and the government's more covert schemes for inculcating compliance in an increasingly globalised citizenry.

Suzanne Treister's work is an interesting case study in the context of my practice. Her preoccupations are of a similar nature, and she too appears to possess an obsessive desire to probe deeply into the content that becomes part of the final artwork. The artist will often take a particular governmental operation, technology, persona, or event as a starting point, and map out a universe that extends far beyond. She takes a methodical approach of thorough investigation into the factual elements of each case study. These are met with varying degrees of fabulation, a technique that allows the artist to bring to the fore the fantastical aspects of official governmental programmes, and to speculate on the future developments of technologies of civilian surveillance and control. With this type of artwork, it is important to establish a balance between fact and fiction. The artist must decide how much of their process to disclose to the audience. The subject matter can evoke a sense of obligation to tell 'the truth,' but art is not the right vehicle for claims of objectivity.

Suzanne Treister employs the medium of drawing to make the hand of the artist visible in the work. The artist is a skilled draftsman, a talent she uses as a way of filtering the array of found documents and artefacts and subjecting them to a similar treatment, creating a more holistic archive of material. For example, in *Correspondence: From Afghanistan to Zimbabwe* (2007-8), the artist presents a taxonomy of 324 letterheads from Government and Presidential Offices, Ministries of Defence, NGOs, and arms manufacturers world wide ("Correspondence"). It is unlikely that Treister would have been able to obtain blank letterheads from all of her sources directly. Instead, she uses drawing as an empowering technique that allows her to access material otherwise obscured by walls of privacy. Putting pencil to paper becomes an investigative tool. Much like a police sketch artist, Treister draws the culprits guilty for delivering messages of power and secrecy across the world. The result is an analysis of the design mechanisms that enable the communication of high-level orders with potentially disastrous global repercussions.

*HEXEN 2.0* is a sequel to Treister's earlier work, *HEXEN2039*, first presented in 2006. In *HEXEN2039*, the artist turned to her alter ego of Rosalind Brodsky, who first came on the scene in 1995. Brodsky is a time travelling employee of a research institute that is developing mind-control tools for the British Military. The word "HEXEN" can be read in two ways. It is the plural form of a *hex*, or *hexe*, which refers to a witch or a magic spell ("hex"). 'Hexen' is also a colloquial term for the drug N-Ethylhexedrone, a recently created designer drug that induces stimulating and euphoric effects ("Hexen"). Both definitions are equally suitable for the projects' titles, their duality between magic and chemistry being a faithful reflection of the push and pull between the occult and scientific research

that the artist draws out in her artwork. *HEXEN2039*, according to a description on the artist's website,

reveals links between conspiracy theories, occult groups, Chernobyl, witchcraft, the US film industry, British Intelligence agencies, Soviet brainwashing, behaviour control experiments of the US Army and recent practices of its Civil Affairs and Psychological Operations Command (PSYOP), in light of alarming new research in contemporary neuroscience. ("HEXEN2039")

This outline presents a characteristically befuddling number of topics in one project. The connections enforced by the artist upon seemingly disparate subject matter appear to be borderline conspiracy theories. In reality, many of the interconnected relationships she traverses through her projects are rooted in fact. A journey through the artwork's website is a winding maze of hyperlinked pages of smaller artworks. Each page leads into further layers of background information, many of which include factsheets about the real-world operations and organisations mentioned in *HEXEN2039*.

*HEXEN 2.0*'s breadth of research is no less impressive, but it does focus around a tighter node of interest. The project takes the Macy Conferences that occurred between 1946 and 1953 as a point of departure. The conferences are famous for bringing together thinkers from diverse fields, including engineering, social sciences, and mathematics, and laying the groundwork for the interdisciplinary field of cybernetics. Treister chronicles the endeavours of some of the participants, investigating the offshoots sowed by cybernetics, such as the Internet and experiments with LSD. She weaves in parallel counter-narratives and movements of the 1960s and 70s. In a typical multi-media approach, Treister's research takes shape via drawn diagrams, a bespoke Tarot deck, a video, photo-text works, and a website.

The pair of photographs titled *Cybernetic Séance* is an anchoring piece of work. It exists as a photo-text work and extends to a video. The former simply includes two almost identical photographs of two groups of the Macy Conferences cohort seated around a table, their fingertips touching the table top in the manner of participants of a séance. The names of all those who took part in the conferences (including those "missing from view") are listed in the caption, along with their disciplines of study. The video consists of the still photograph accompanied by a 15 minute long looping dialogue that sounds like a series of recordings of the conference lectures. Unidentified individuals' voices overlap with one another, creating an aural dissonance. The effect adds to the paranormal atmosphere of the images. Here, Treister is being covert about the blurring between fact and fiction — though the details of the conferences are correct, the photographs have been digitally manipulated. The *Cybernetic Séance* is a fable, but a convincing one.

In *Tarot Cards*, she utilises an underlying framework of interrelationships of meaning embedded in the Tarot deck and its history, and then layers this already existing



complexity with her own intricate web of connections. The Tarot is a tool of divination that evolved from cards that were used for playful fortune-telling games in fourteenth century Italy. Their imagery evolved to illustrate references to real-world elements, including Christian symbolism. By the eighteenth century, the art of card reading spread to other parts of Europe (Oatman-Stanford).

In Treister's hands, the Tarot is decontextualised and repurposed with new meaning. Though, the traces of the Tarot's original meaning and symbolism remain; their strong associations are impossible to ignore. Treister recreates the entire deck of seventy-eight cards, populating the imagery with an encyclopaedic overview of concepts, people, and research initiatives related to the Macy Conferences. Each card is hand-drawn and dense with diagrams, psychedelic colours, portraits, and tightly packed threads of text. Larsen notes that by working through the format of the Tarot, Treister is able to "[tap] into the dynamic potential of occult knowledge forms to connect disparate historical dots in a kind of alchemical hypertext" ("The Secret Life"). In addition to the *Cybernetic Séance* and the *Tarot Cards*, *HEXEN 2.0* includes a set of one page profiles of each of the Macy Conferences' attendees, fifty prints that depict mirror images of meticulous pencil-drawn renditions of book covers of research materials relevant to the project, and five complex intensely scribbled diagrams in which Treister draws relationships between early cybernetics and Web 2.0. Some links are fairly straightforward, as those between ARPANET and DARWARS (a programme that develops military training simulations), others are convoluted, as in the example of "HEXEN 2.0/Historical Diagrams/From Diogenes of Sinope to Anarcho-Primitivism and the Unabomber via Science-Fiction."

As Larsen reminds us with the example of Soviet scientist and 'cosmic philosopher' Konstantin Ciolkovskij, "playing out science on the terrain of the occult is not simply a binary inversion" ("The Secret Life"). Treister's work takes concrete factual documents and collides them together with tools and symbolism borrowed from the occult to draw out and expose the beliefs and assumptions necessary for the construction of pure 'facts.' In so doing, she makes the mythology underlying the dominant power structure — its underlying fictive nature and ideological imperatives — visible and available for critical engagement. Ken Johnson of *The New York Times* concludes that "the connections drawn within and among the cards are so mind-boggling to contemplate that it seems entirely appropriate to comprehend them within a magical system like the tarot" ("Suzanne Treister Hexen 2.0").

## Simon Denny: *Secret Power*

Simon Denny is an artist who was born and partly educated in New Zealand, and is currently based in Berlin. He represented New Zealand at the fifty-sixth Venice Biennale with *Secret Power*, an artwork that used the National Security Agency (NSA) documents leaked by Edward Snowden in 2013 as a source of content (a portion of these have been made public in the *Snowden Surveillance Archive*). *Secret Power* takes its name from a 1996 book by investigative journalist Nicky Hager, which uncovers New Zealand's role in a larger spy network. Borrowing this title helps Denny to position his work in closer relation to New Zealand, while pinning New Zealand as a complicit agent in international surveillance, even though *Secret Power's* content is very much focused on material originating from the United States.

The artwork essentially takes an existing archive of documents and represents them anew. NSA produced PowerPoint slides are mined for imagery, text, and symbolism. Visual and textual elements are pulled out, blown up in scale, recreated in 3D, or rebuilt as sculptures. The NSA graphic designer and, later, Creative Director of Defense Intelligence, David Darchicourt, became the central figure of the installation. Though, he is reportedly not responsible for the visual appearance of NSA presentation slides (Gallagher). Denny's work highlights the incongruity of the amateurish, playful design style and its message of secretive surveillance (Denny).

Simon Denny's work is of interest to my practice for his methodical approach to preliminary research. The ways in which Denny chooses to repurpose the source imagery gives me pause for thought when it comes to my own work, which is born of similar origins. His presentation decisions are also informative to consider — he too is dealing with an overwhelming stream of information, which he sorts, categorises and catalogues in idiosyncratic ways. In his essay for *Secret Power's* accompanying book, Robert Leonard notes that both the artist and the viewer end up echoing the NSA's own methods, "... we also trawl through data and metadata, engaging in analytics, pattern recognition, and profiling, trying to make sense of things" (Leonard).

*Secret Power's* main exhibition, located at the Marciana Library in Piazza San Marco, adopted the appearance of a museum exhibit, with its use of glass cases full of visual curiosities. Denny swapped out traditional wood for metal, using server rack cabinets as contemporary iterations of library stacks. The library's interior is a sumptuous feast of Renaissance era paintings, depicting allegorical visions of virtuous pursuits of knowledge, such as philosophy, arithmetic, music, and priesthood ("Secret Power"). Part of the work was installed at a second location, Venice's Marco Polo Airport. Marciana Library's imagery was transplanted onto this space by way of large floor and wall covering vinyl stickers, accompanied by several panels of wall text and historical depictions of maps.



Denny created a site-specific installation in both cases, absorbing the interiors already loaded with rich narratives into his work. In the library, an important place in Venice's historic centre, he contrasted the present strongholds of secret knowledge and hegemony with those of the past. Oil painting and shiny server cabinets full of cables and Perspex are at odds with one another. Surprisingly, after the initial dissonance, they comfortably blend into one entity. The airport, a liminal space of transition and surveillance that looks identical to its sterile copies around the world, is injected with a reminder of local history, a marker of place. One location mirrors the other, with the language of the artwork and its surroundings switching places. The temporal layers of reference embedded in *Secret Power* through its location expand the work beyond an obsession with a set of documents, opening up its relationship with wider networks of knowledge making.

My work has a similar preoccupation with a found PowerPoint slide deck. When a supposedly factual set of documents is used as a case study for artwork, a challenge is posed by the myriad of ways in which the information could be treated. There is a danger in simply replicating the material, without adding anything to the conversation. The divide between fact and fiction becomes patchy when the source of an artwork (normally seen as a subjective medium) is an official document from a governmental organisation (seen as objective and authoritative). Does the artist have some obligation to make the extent of their embellishment clear? I would argue not, as the context of art entails the freedom of imagination. Denny, however, found it imperative to get the facts straight, enlisting Nicky Hagar as a knowledgeable guide to NSA's leaked documents (Denny). The need for accuracy makes more sense in Morehshin Allahyari's *Material Speculation: ISIS*, since her purpose is partly one of activism. She adopts a clear moral position within the work, whereas Denny eschews any commitment to any one stance. He creates an accessible window to a parallel universe of complexity, and abandons the viewer to wander the stacks in contemplative silence.

## Summary

Morehshin Allahyari, Suzanne Treister, and Simon Denny share a procedural approach to making artwork. They tackle concrete subject matter, steeped in factual information, re-working and re-contextualising it as content for their art. Because of its origins, the work takes on a somewhat informative angle. We are being made privy to certain information, which has been carefully curated. It is educational in a journalistic sense. However, its truthfulness and the legitimacy of its sources are not assumed, nor painstakingly referenced, as they would be if we encountered similar content in a museum or an academic context, for example.

Hal Foster's succinct description of archival art, and the common approaches to engagement with existing material shared by a wide range of so-called 'archival artists,'

provides a set of conceptually analogous processes that are applicable to my practice. The investigative process of assembling an archive, with the physical manifestation of its layered, indexed contents, is a method that sits in line with the thesis topic of the Nooscope, and my creative practice. Archiving is an act of division, even though it strives towards a totality. Because it is impossible to amass the entirety of all possible information on one subject in one place, or perhaps at all, some documents and data must be excluded, while others are subsumed. Even when it comes to data that is collected and processed by computer algorithms, some limitations of scope must initially be set up by humans — all possible variables need to be covered. What should be measured? What is the intention? What are the parameters?

The creation of an archive necessitates that these decisions be made. It allows one to approach a particular subject matter with an attentive, investigative lens. The fact that this action takes place in the context of art making, rather than a journalistic or historiographic framework, allows different types of insights to be obtained. There may be valuable facets of experience that are uniquely made available in the sphere of art: the poetic, speculative, evocative, sensory, visceral. These qualities are integral to the human experience, and there is value in connecting with artefacts on this level, rather than through a purely analytic approach.

The process of re-archiving an existing archive can be seen as an act of refusal. It is a critique of the original collection; it undermines its origins, offering an alternative, or an extension that improves, elucidates, or alters what's already there. Awkward gaps can be filled with fictional scenarios. Narratives can be deflected to follow divergent channels, offering alternative possibilities, or pauses for thought. A question is posed: why have beliefs, systems, structures, and norms been constructed in this way, and could things be different?

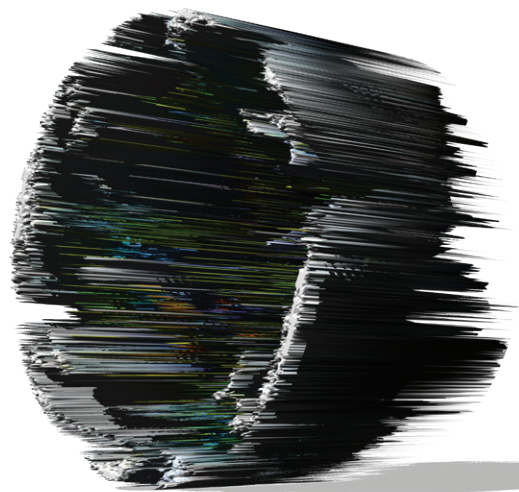
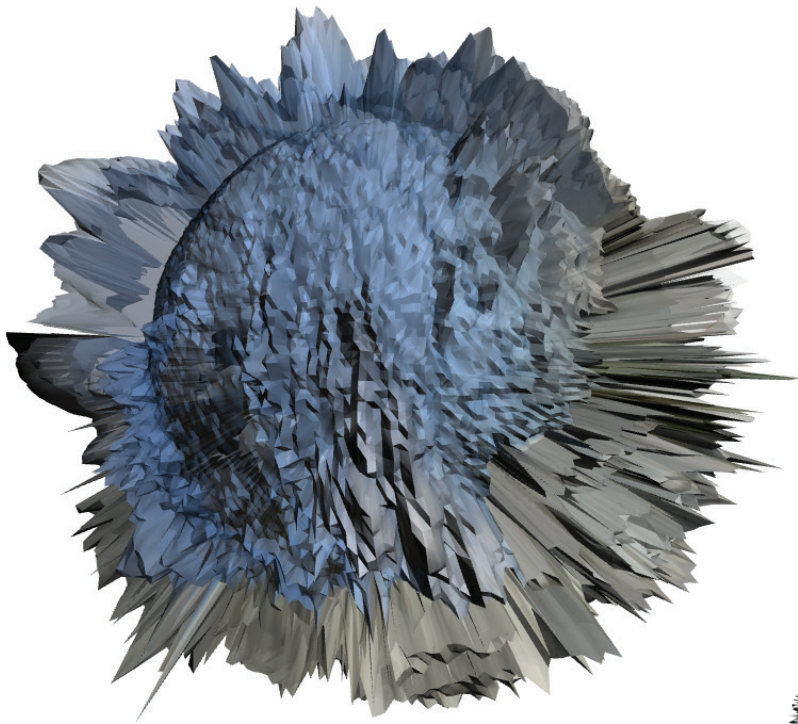
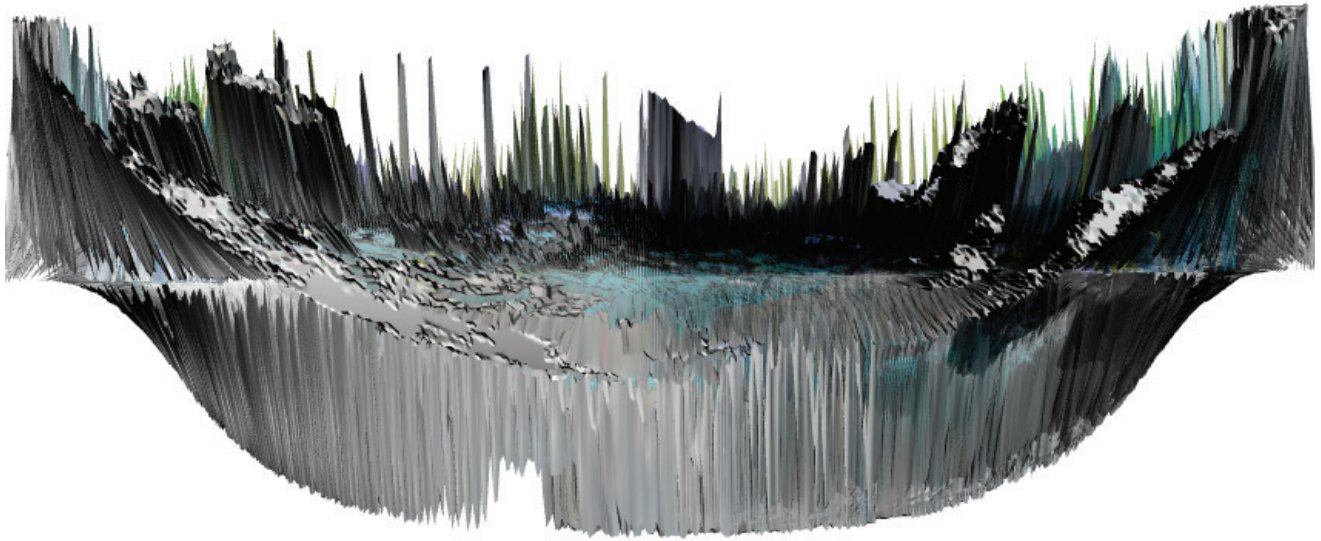


Fig. 2



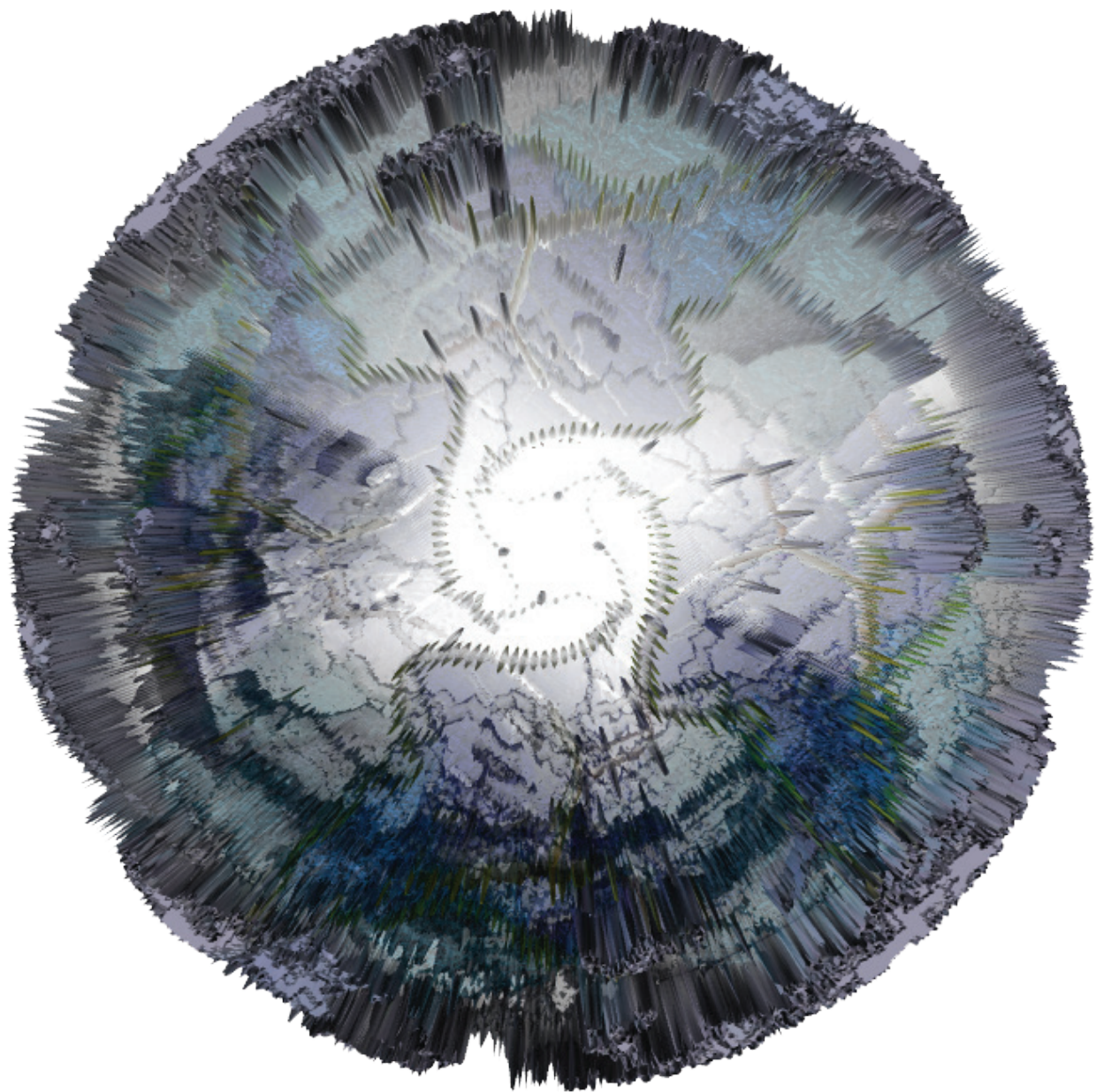


Fig. 3

# The Nooscope

## The archive, myth and the politics of technoscience

The archive is precarious — an unstable formation. Like the practitioners surveyed in the previous section, artist, curator and writer Julie Louise Bacon points to the archive's shaky foundations in "Unstable Archives: Languages and Myths of the Visible." Bacon foregrounds the mythical origins at the heart of its source (77). The fictitious origins of the archive undermine attempts to instil it with authority. Bacon recalls anthropologist Pierre Maranda's attribution of the origins of language and myth to a shared source, highlighting the importance of categorisation and formation of patterns in making meaning, not only in religion, but also scientific thought, thus destabilising the possibility of objectivity (77-8).

Myth blurs categories and transgresses boundaries by definition. John Dominic Crossan quotes anthropologist Edmund Leach, who describes the core characteristics of myth as containing, "... a persistent sequence of binary discriminations as between human / superhuman, mortal / immortal, male / female, legitimate / illegitimate, good / bad ... followed by a mediation of the paired categories thus distinguished" (98). Myth's purpose in culture is, in part, its ability to traverse the seemingly irreconcilable space between such contradictory concepts. This definition echoes the binary oppositions Donna Haraway calls into question, as she calls for a "cyborg myth [of] transgressed boundaries" (295).

In Russia, such boundaries are porous. It has a history of conflating religion, spirituality, politics, and science into one, making the Nooscope just another example in a long lineage. Like Maranda, Claude Lévi-Strauss explains that while, traditionally, myth refers to a time long past, it also forms repeating patterns; "it explains the present and the past as well as the future." He goes on to draw a comparison "between myth and what appears to have largely replaced it in modern societies, namely, politics" (Lévi-Strauss 430). Myths are retold, they evolve: "myth grows spiral-wise" (Lévi-Strauss 443), but a central structure remains in subsequent versions. The Nooscope is effectively a political myth, a tool used to construct a narrative of Russia as a world-class competitor in the realm of global computational platforms. It is reminiscent of rumour tactics employed during the Cold War — a less aggressive iteration of the arms race.

The Western technological and scientific traditions are perceived as bastions of rationality and objectivity, and are often portrayed by the media as such. It is of interest to my project to dismantle this impression, and to regard it as another type of myth, through the examples of Big Data projects like Planetary Skin and FuturICT. These projects display a faith in the power of Big Data and computation that is not unlike the faith displayed by religious fanatics, though their task is borne of a positivist tradition. These are, respectively,

North American and European equivalents to the Noosphere. Both are large scale endeavours supported by governmental and commercial actors, with substantial funding involved. However, an analysis of the aesthetic and stylistic conventions evidenced in the outward image they choose to display to the public reveals cracks that destabilise their legitimacy.

Such global-scale computation projects make claims at having the power to produce multiple simulacra of the Earth, all for the purposes of what is essentially fortune-telling. Astronomical amounts of data are logged in endless sets in search of a model to trump all models, like the “total book” that contains all possible variations of all possible books, on all possible subjects in Jorge Luis Borges’ short story “The Library of Babel” (Borges 63-64).

Much like occult practices or the myths of the past, “Big Data” promises to help us better understand the world, to try foresee future incidents, to build models that predict what will happen in a proposed sequence of events. Florian Cramer demonstrates the contradictions, the transgressions of boundaries that are so commonly present in the history of computation in his book *Words Made Flesh: Code, Culture, Imagination*. Pseudosciences like Numerology and Astrology were once considered legitimate sciences. It was not until after the eighteenth century that metaphysics and occult ceased to be part of mainstream scientific discourse (Cramer 68). Though academics may dismiss them now, they are still practiced and taken seriously by groups of people around the world, enough so that groups of scientists have banded together and released statements for combating such fake science (“Science Needs”). Cramer argues, “algorithmic code and computations can’t be separated from an often utopian cultural imagination that reaches from magic spells to contemporary computer operating Systems” (8).

The following section takes a close look at the Noosphere and its origins. We uncover the strange mythologies that surround it, and are inherent within the article “Capitalisation of the Future,” and the associated slide deck “The Basic Units of Technological Revolutions.”

## The Noosphere

The Noosphere’s name originates from the term ‘noosphere,’ which is derived from Ancient Greek ‘nous,’ meaning the mind, or intellect (“noosphere, n”). The concept of the noosphere has roots in several thinkers’ work. French mathematician and philosopher Edouard Le Roy was the first to publish on the topic in 1927 (Samson and Pitt 60). Le Roy also refers to Pierre Teilhard de Chardin in his text “Noosphere and Hominisation” (qtd. in Samson and Pitt 60-70). De Chardin was a French palaeontologist, philosopher, and Jesuit priest who was engaged in conversation about the noosphere with Le Roy and Russian geochemist and mineralogist Vladimir Vernadsky. According to de Chardin, the three coined the term together (qtd. in Samson and Pitt 60-73). However, it was Vernadsky who developed the concept of the noosphere beyond the more psychological, spiritual, and anthropocentric focus of his colleagues (Trubetskova).

Vernadsky saw the noosphere as the new step in the evolution of the biosphere, a concept he describes in the book *Biosfera*, 1926. The biosphere includes the Earth's layers that contain living organisms, including inorganic matter that enables their habitat. Translation of his work into English has been sparse. Until recently, it was limited to two articles published in 1944 and 1945, and an abridged translation of *Biosfera* in 1986. It is ultimately Western science that decides what scientific work is deemed significant — Western, English-speaking countries are home to funding, influential journals, and hegemonic institutions. Still, Vernadsky's concept of the biosphere is considered to be a seminal scientific text that lay the basis for today's understanding of a global ecology (Piqueras 169). He believed that the development of human thought in science and reason has altered the biogeochemical makeup of our planet. As Jonathan Oldfield and Denis Shaw explain in their paper on Vernadsky's noosphere,

... while the movement from the biosphere to the noosphere is not reducible to the conscious actions of humankind, the noosphere would nevertheless appear to represent an arena within which humankind has the potential and agency to play the defining geological role. (149)

According to Vernadsky, the noosphere is “the *reign of the reason* in the biosphere which is also changing the face and structure of the biosphere” (158). He explains that, while the noosphere began to grow tens of thousands of years ago, it is deeply tied up with the growth of the sciences (162). The noosphere can be seen as an enmeshed, extended field of energy upon the Earth (Oldfield and Shaw 147-48).

Vernadsky did not foresee the much more negative relationship between humans and the planet that we face today in the proposed geological age of the Anthropocene. Paul J. Crutzen and Eugene F. Stroermer refer to the noosphere in their definitive treatise on the Anthropocene. We can see that, by the year 2000, optimism about the sphere of the mind has waned considerably. They recognise that disasters like another ice age or a nuclear war can “be prevented in a real functioning noosphere” (18). However, Crutzen and Stroermer forewarn that future sustainability of ecosystems is contingent upon humanity's ability to utilise the knowledge gathered in the noosphere — “better known as knowledge or information society” (18). FuturICT and Planetary Skin Institute appear to be the kinds of expressions of the Noosphere that Vernadsky, Crutzen, and Stroermer were hoping would materialise. Ironically, the noosphere's namesake, The Nooscope, does not aspire to such honourable goals. It takes the idea of a sphere of human consciousness, but drops the responsibility of using this knowledge to support the biosphere it has emerged from, is integrated with, and supported by.

Russia has made moves to utilise Vernadsky's teachings in the past. The scientist remains a well-known and revered figure in the country, as well as in his home of periodic exile, Ukraine. His name has been bestowed upon: a mineral, street names, mountain peaks, a metro station, a volcano, even a moon crater (Trubetskova). Russia's government has



superficially engaged with the concept of the noosphere in its 1996 Presidential decree “Concerning the Concept of Russia’s Transition to Sustainable Development,” where comparisons are drawn between sustainable development and the noosphere’s effects. The noosphere is also referred to in subsequent publications on sustainable development (Oldfield and Shaw 146). Perhaps Vernadsky’s ideas are conducive to manipulation due to his status as a national hero of science — he is well-known, but the complexity and breadth of his studies are not necessarily properly understood by the wider public. This makes them easy to bend to ulterior purposes. The Noosphere is an example of a scientific idea has being twisted well beyond its intended scope.

Vernadsky seems to be cursed with misappropriation. One of two sources that led me to a full text of Vernadsky’s “Transition from the Biosphere to the Noosphere,” a chapter in Vernadsky’s 1938 book *Scientific Thought as Planetary Phenomenon*, is in what appears to be a pseudo-scientific journal. Nonetheless, it precedes many alternative options on the topic in Google’s search results. It is fortunate that I was able to obtain a different copy of the text by virtue of being fluent in Russian. A copy of the book, translated into English, appears buried deep within a Russian website devoted to Vernadsky (Stepanov).

Vernadsky’s scientific papers are quite difficult to find in English. A Google search reveals a rather eccentric circle of discussion, notably in a pseudoscientific journal titled *21st Century Science and Technology*. At first glance, the covers in its archive of past issues bear uncanny resemblance to scientology pamphlets, or Jehovah’s Witnesses’ magazine *Awake!* which is a more contemporary and design savvy counterpart to *The Watchtower* (Watch Tower Bible and Tract Society of Pennsylvania). *21st Century Science and Technology* seems to have ceased publication in 2013. The journal’s topics favour articles that argue for the harm of medical marijuana, the virtues of nuclear power, and deny the existence of human-triggered climate change. Articles about Vladimir Vernadsky surface in this mix a disproportionate number of times. The last issue from Fall-Winter 2014 included a special feature on the scientist, heralding “150 years of Vernadsky.” It is unclear why he is such a prominent fixture of the journal, but it can’t be good for his credibility. The website’s topic pages raise additional red flags. The side bar of clickable image banners includes titles such as: “Life and the Weak Physical Forces,” “Global Warming?” “DDT” (the page insists on the safety of the toxic pesticide banned in the United States), “The Moon Model of the Nucleus,” and “Science & the LaRouche Youth Movement.” The latter is a clue to the origins of this journal. Lyndon H. LaRouche Jr. is on the Scientific Advisory Board, and is mentioned in the foreword to “Transition from the Biosphere to the Noosphere,” in *21st Century Science and Technology* (Jones 10). He is enough of a fan of Vernadsky and has published a book titled *The Economics of the Noosphere*.

The journal is a successor to *Fusion* magazine, which had close ties to LaRouche, and was forced to shut down due to accusations of federal credit card fraud by some of LaRouche’s other organisations (“A Monthly Science Magazine”). He was sentenced to



fifteen years in prison the following year (The Associated Press). Lyndon H. LaRouche Jr. is a cult-like political extremist figure who is fond of pseudoscience, anti-Semitism, racism, homophobia, and repeatedly running for president, amongst other things. He and his followers have mastered the art of confusion, jumping from one end of the political spectrum to another, and supporting contradictory causes as a veil of distraction (Berlet and Lyons). A description of LaRouche's *The Economics of the Noosphere* in an online store claims that the concept has been "enhanced by LaRouche." Furthermore, it suggests that "economists and political leaders in Russia have been intensively studying his work in this area." Perhaps these claims are not far-fetched, considering the content of Vaino's "The Capitalisation of the Future."

### **"Capitalisation of the Future"**

The technical principle of magic, controlling matter through manipulation of symbols, is the technical principle of computer software as well. (Cramer 15)

While the concept of the Noosphere appears to have originated from the 2012 paper, "Capitalisation of the Future," written by A. E. Vaino,<sup>4</sup> there is no clear indication that A. E. Vaino is the same person as Anton Vaino, the Chief of Staff of the Presidential Executive Office. The persistent employment of initials in lieu of a full name contributes to the cloud of intrigue around the article. As previously mentioned in the introduction, the international media erupted with speculation about this article in August 2016. The interest continued for several days, before fizzling out — the Noosphere became just another buzz word that failed to produce more than a couple of days of click-bait. The tone of the articles about Vaino's paper was, for the most part, either sarcastic or dismissive. The concept was ridiculed and deemed unfeasible, the journal article itself has been proclaimed "impenetrable" (Reveall), "far out" (Stanley) and "bizarre" (Litvinova).

I believe that the somewhat exaggerated treatment of the subject matter is largely due to its source — Russia. A post-Cold War exchange of politically motivated jabs continues between Russia and the United States. It is shaped by international relations and the rhetoric exchanged between the two countries, but also in subtler ways via the great fictional worlds conjured up by Hollywood.

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<sup>4</sup> It also appears in *Image of Victory*, a book co-written by A. E. Vaino, A.A. Kobyakov, and V.N. Saraev in the same year, though it is the article that has been the fixation of the media.

Devices with more radical premises than the Nooscope continue to emerge from United States' institutions, such as the MIT Media Lab, which consistently breaks new ground in research in fields as wide as interface design, intelligent textiles, biomechatronics, molecular engineering, and artificial intelligence ("Research —MIT"). It was the RAND Foundation that innovated the outlandish concept of 'smart dust' mentioned by Vaino in "Capitalisation of the Future," and this was back in the 1990s (Cook, Lanzisera and Pister 1177). Today, University of California, Berkeley has further developed 'smart dust,' also known by the less mystical name MEMS (microelectromechanical systems), into functional wireless sensors the size of a cubic millimetre (Sanders). This is the Internet of Things taken to a new level of ubiquity. As with the development of the ARPANET, the 70s precursor to the internet, this research is funded by DARPA, the Defence Advanced Research Projects Agency.

It is unclear where funding for the Nooscope project would have materialised from. Nor is there evidence that the project has developed beyond typed pages. To be able to judge whether there is any validity to the "Capitalisation of the Future," or to the concept of the Nooscope, it seems prudent to go to the source itself. The article has only once been subjected to in-depth engagement in the academic context; it is discussed at length in Alexander Podoprighora Vasilyevich's "Институт И Инструмент. Глобальная Неопределённость И Социальная Динамика [The University and the Instrument. Global Uncertainty and Social Dynamics]," where the writer attempts to decode, and then push against, Vaino's premise to offer his own ideas on combating global uncertainty. No official English version of the text is available, though two translations by interested individuals have appeared online. A crude translation (probably processed via Google Translate) appears on a somewhat controversial science news and commentary website run by a T.J. Nelson, who identifies himself as a researcher at a biomedical institute. The second is a blog post on *Medium* by Patrick Stanley. This translation is of professional quality, and Stanley admits that he "had it translated into English," though no further details are given.

The Nooscope has been discussed at length on news websites, alternative news sources, blogs, and in forums (Gessen, Litvinova; Lyanin; trycatch1; "Nooscope: Media"; Reveall; Stanley; Zhartun). Alexander Bobrakov-Timoshkin of Radio Svoboda scraped a wide selection of well-thought-out commentary posted on Facebook. However, none of these address the concept with any depth, though a few of the newspaper articles feature comments from local academics.

It has been speculated that "Capitalisation of the Future" was written by someone who professionally fakes academic papers, rather than A. E. Vaino himself (Lyanin; Litvinova; Zhartun). If this is the case, then there has been little attempt made to conceal the falsehood of the document — the alleged writer's email address (rather than that of Vaino's) is listed beneath the title. The email address can be traced to Maria Guskova, Associate Professor of the Department of Foundations of Economic Theory at the Moscow

Institute of Electronics and Mathematics (Guskova). A simple Google search brings up multiple articles that have been topped with the same email address, but are attributed to different authors.

Academic fraud is a common enough occurrence in Russia that a group of researchers, scientists, and journalists called Dissernet have banded together to expose it. One of their particular areas of interest lies in debunking Masters degrees and Doctorates falsely obtained by public figures and politicians. Dissernet has unearthed a complex network of writers originating from the Russian State University for the Humanities, who specialise in ghost writing for journal articles and dissertations. Maria Guskova features as a node deeply embedded in the net of organised fraud. The group also analyses the content of all academic journals published in Russia. *Questions of Economics and Law* is accused of, amongst other things, including “examples of articles with mysterious authorship” and “examples of the publication of pseudo-scientific articles”; both of these instances cite “Capitalisation of the Future” as the perpetrator (“Question of Economics”).

A more subtle forgery is hidden in the design of the artefact. The text is set in a typeface named Newton C, which looks either like a very slightly modified, or entirely plagiarised version of the typeface Newton. Newton C can be downloaded from a free font website *Fontsov*. Newton was designed in 1990 by Vladimir Yefimov and Alexander Tarbeev of the Russian type foundry ParaType. Itself based on Monotype’s ubiquitous Times New Roman, Newton boasts improved legibility and sells for \$30 USD per font, with a choice of Regular and Bold, with their Italic counterparts, plus an additional ExtraBold. Like Times New Roman, it exudes a trustworthy, comforting sense of familiarity. It is reliable, formal, and invisible, being associated with a typeface that has become a system default on both Macs and PCs. The use of a plagiarised typeface design in an academic paper does not reflect well on its writers. This instance of artifice only sustains the speculation that readers have also been deceived as to the writer’s true identity.

If “Capitalisation of the Future” was indeed penned by Guskova, with Vaino simply signing his name to it, then is he even familiar with its content? It is possible that the article may have been ordered to show Vaino’s ongoing involvement in on-trend research, a childish taunt to Russia’s Western rivals? This being the case, the entire spectacle around the Nooscope, along with indignation and vague paranoia it elicited is might have been unfounded — and energy best focused on addressing other problems concerning the Russian administration.

Miscommunication, misinformation, and misinterpretation. The follies that result from the loss of nuance between translations can have devastating consequences. For example, the alleged mis-translation of the wording of the Potsdam Declaration and Premier Kantarō Suzuki’s response, which resulted in the dropping of two atomic bombs on Hiroshima and Nagasaki by the Allied forces in World War II (See Sam Yamashita and NSA’s declassified “Mokusatsu — One Word, Two Lessons”). In the case of the Nooscope,

the failure to look beneath the surface may result in reactionary action towards something that holds no weight. Though this is unlikely, considering the proportion of ridicule in the treatment of the subject matter so far. But only Russian reporters have pointed to academic fraud; this kind of information is more accessible to them than to their Western colleagues. The time squeeze of contemporary digital journalism may be a barrier to scratching the surface beneath stories that originate from places where non-English languages dominate. Inadvertent ‘fake news’ can be the result, though ironically, it is in the subject matter of the reporting where the real fake is concealed. Fact and fiction, scientific fact and phantasm; these are unstable categories that seep into one another in today’s media climate.

Vaino’s article may contain little scientific backing, but FutureICT’s assertion is that it is possible to create a simulation of the entire planet, and the complex interactions that take place upon it, all based on live data feeds, and then create models of possible future scenarios based on this, in real time — these claims are no more wild and unsubstantiated than Vaino’s. Projects like FutureICT and Planetary Skin are motivated by geopolitics, as much as by the advancement of scientific research. Such projects may be more likely to receive funding, no matter how far-fetched their ambitions, if they aid in the strategic positioning of their originating country as a formidable force of research and innovation internationally. The Nooscope is a poor man’s version of such endeavours. Its purported scope and mechanics are similar (though they do not profess to be concerned with the wider good of humanity, as in the case of the others).

“The Capitalisation of the Future” is an example of a think piece parading as scientific research. Its defence of any validity is equally feeble in the field of economics, where it strangely positions itself. It lacks appropriate references that support the claims it makes — out of twenty items in the bibliography section, nineteen are works by A. E. Vaino, or V. N. Saraev, his frequent co-author, the other three are term definitions (Vaino 57). Its argument is muddled and filled with strange phrases and descriptions that would be more at home on a New Age website.

### **Analysis of the article**

The article begins with a mysterious statement: “Market is a manifestation of life. Life is most clearly manifested in its thickening — in points, lines, space-time materialisations.” Vaino supports this statement with references to physicist Werner Heisenberg’s uncertainty principle and mathematician Theorem K. Gödel’s incompleteness theorem, deducing that “there is no way to prove, i.e., rationalise, that the surrounding world we are so used to — familiar to us visually, via hearing and to the touch — really exists, and not only in our imagination” (42). The text continues with a discussion about space, time, and market relations. It appears that the uncertainty of financial markets is the problem the writer seeks to solve. Since “the human spirit is like the source of uncertainty,



Fig. 4

that moves markets” (44), the Nooscope is then a tool that can predict potential crises.

The Nooscope, apparently described in over fifty patents, is

a device, consisting of a network of spatial scanners, created for receiving and registration of changes in the biosphere and human activities with the help of transactions — motion pictures of occurrences — of the image of the intersection of space-time-life. The Nooskope sensor network, ranging from credit cards and ending with a new generation of “smart dust” uniquely identifies the occurrences in space and in time. (50)

While this explanation is a little off-kilter, it is not so different from the descriptions of Planetary Skin Institute and FuturICT projects, as we will see in a later section, “The Nooscope’s Counterparts.” Indeed, the writer himself describes these projects and uses them as comparisons to the Nooscope. The point of difference of the Nooscope, however, is that it can register “the invisible,” along with changes in the biosphere and human activity, or the noosphere (50).

The Nooscope registers changes in seven layers: the business sphere, the conscience of the market, infrastructure, man-made catastrophes, natural catastrophes, the sphere of special purpose, and collective consciousness (52). The article goes on to describe the possible ways that sensors can penetrate every aspect of business, education, infrastructure, and private life, even “a transmission system of emotion [that] allows to translate the delight of sports victories, the bitterness of life situations, the trust of socio-economic reforms, etc., via social networks, in info-communication services of the Internet environment” (56). A table on page fifty-one indicates the stages of development of these surveillance schemes, from the level of Internet of Things, to worldwide control and domination — the ultimate goal. Additional, and for the most part baffling, diagrams appear throughout the text.

Though disconcerting, the key objectives laid out in the “Capitalisation of the Future” are not as surprising or shocking as portrayed in the media. Russia’s imperialist agenda is no secret, and rivals that of the United States. The Noosphere’s fixations are also made clear through a word cloud of the most commonly used words in the article (see fig. 1). It is the strange phrases, references, and the scattered mysticism that makes the “Capitalisation of the Future” so “far out” (Stanley). For example: its aims “to win the future” (45); “the main node thickening . . . that occurs at the intersection of space-time-life — it is an image, a holographic convolution of perceived reality, the image of the world, the image of good and evil” (46); “the matrix is space and time in different proportions” (48). These discordances between fact-based argument, and esoteric speculation are telling of the fictive nature of the project. Much of the language, imagery, and associations drawn from the article are explored further in my practical work. An associated slide deck, “The Basic Units of Technological Revolutions,” is also mined for this purpose.

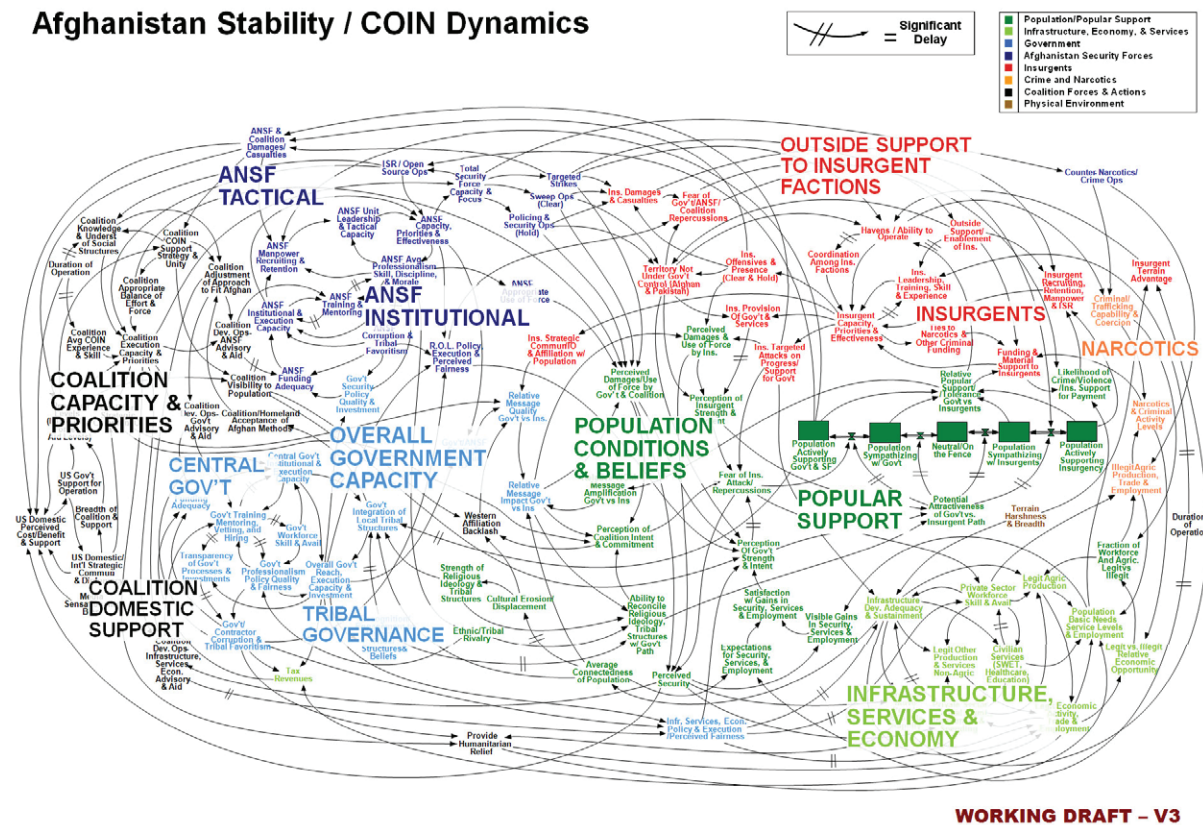
### **“The Basic Units of Technological Revolutions” slide deck**

I discovered the PowerPoint slide deck while undertaking research around “Capitalisation of the Future.” It appeared in the popular discussion forum *Reddit*, in a thread about Olga Ivshins’s BBC article on the Noosphere. One of the commenters linked to a set of slides uploaded to *StudyDoc*, a freely accessible Russian website depository for academic papers and related material (trycatch1). Listed under the enigmatic title of “Projection of the Sky to Earth” the slide deck appears too large to preview, therefore the risk of a download must be taken before having a glimpse of its contents. I have not been able to find another copy of it, or any of the individual slides, online. It is uncertain whether this presentation has been approved by either of the writers of “Capitalisation of the Future,” or some affiliated party. However, the slide deck does clearly reference information contained in the journal article. It describes the Noosphere, its purpose, and includes several diagrams identical to those in the article.

The presentation contains the usual tropes of the PowerPoint format: incomplete sentences condensed to bullet-points, abstruse diagrams alienated from any surrounding context, images inserted seemingly at random, background gradients, and poor formatting. Microsoft PowerPoint is a presentation program well known to anyone who has ever worked in an office setting. PowerPoint presentations are as common as they are despised. It is particularly pervasive in governmental institutions. Whereas more ‘tech-savvy’ movers and shakers of design studios and start-ups might favour more sophisticated presentation design tools and applications, civic departments and large corporations are slow to change their ways. The safety of PowerPoint — its twenty-odd year familiarity and its comforting presence in the Microsoft Office Suite — are perfectly matched to institutions where maintenance of the status quo is favoured over risk taking. However, PowerPoint



## Afghanistan Stability / COIN Dynamics



WORKING DRAFT - V3

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Group  
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Page 22

Fig. 5

presentations have proven themselves to be anything but safe.

“Death by PowerPoint” is a phrase coined by Angela R. Garber in an article of the same title, in 2001. The software has become a key communication tool in military briefings. In “We Have Met the Enemy and He Is PowerPoint,” Elisabeth Bumiller details several examples where the phrase almost found real-life manifestations. She gives examples of the woes of endless PowerPoint briefings United States’ military staff have had to create, and endure, during their post in Afghanistan. A convoluted diagram of American strategy in Afghanistan (see fig. 5), akin to Suzanne Treister’s mad mind-maps, made rounds on the internet as an example of the inefficacy of such slides. Edward Tufte, a respected expert and pioneer in the field of data visualisation and information design, has produced a lengthy take-down of the cognitive style enforced by the rigid stylistic conventions of PowerPoint, the style partially responsible for a failed NASA mission (Tufte). He explains that viewing information in sequential, isolated chunks, as is the case with PowerPoint, inhibits the audience’s ability to holistically comprehend the information. This could be purposefully used as a tool of confusion, obscuring the complexity of the issues at hand (Bumiller).

The critical perspective offered by these tracts has proven useful in conceptualising my artwork, and guiding its aesthetic logic. As Erica Robles-Anderson and Patrik Svensson conclude, slide decks are “easily revised, re-shuffled, and re-used . . . [they] coordinate, collate, document, and report on the work of heterogeneous actors in different groups,

across different sites . . . they travel vertically and laterally.” They form “platforms, repositories, and archives, serving to propose visions, structure agreements, and document work.” In discussing the “The Basic Units of Technological Revolutions” slides as an archive, my own work seeks to apply the same processes to an existing slide deck, re-archiving and revising an already fragmented document. Taking into account its corporate and military history, the slide deck can be used as a tool of contrast between the scale and seriousness of a massive globalised project and the lack of attentiveness to the impact of the design, uncovering inconsistencies between the medium and the message.

### **Design analysis of the slides**

The slide deck’s title on *StudyDoc* is listed as “Projection of the Sky to Earth.” However, once the file is opened, the title slide proclaims what is assumed to be the intended title — “The Basic Units of Technological Revolutions.” The name of the file itself is a cryptic combination of numbers, “4699730.ppt.” A probe into the metadata reveals some additional information: it was created in MS PowerPoint by “iren” at 7:40am on 11 November 2006. It was subsequently modified at 1:47pm on 11 April 2016 by “Alexei.” This embedded data does not tell us very much upon first glance. But, some factual information can be divulged. These slides predate the article by six years and were not created by its writer A. E. Vaino. This is not uncommon — the humble job of cobbling together a PowerPoint was probably relegated to a lower ranked office worker in possession of some ‘design flair.’ Perhaps this presentation was originally used to pitch the idea of the Noosphere to interested parties or officials. Its latest modification date, and the first slide’s indication that it was created in Moscow in 2016, suggests that there was some reason to bring up the topic of the Noosphere into the public again, four years after the publication of “The Capitalisation of the Future.”

The metadata also reveals the remarkable amount of time that was invested into the design of “The Basic Units of Technological Revolutions.” It has been subjected to 631 revisions, made during 46 hours and 55 minutes of total editing time. The unusually high number of revisions may be due to a complex bureaucratic process of approvals. Every time the document is saved counts as a revision. Perhaps the designer was compelled to repeatedly hit the ‘save’ button for fear of losing his progress. The numbers presented in the metadata appear as concrete evidence of a series of events, but decoding their meaning becomes pure speculation without contextual information.

Despite its lengthy development, the PowerPoint looks haphazard. The spacing, alignment and weight of the text change erratically throughout the document. The inconsistency would not inspire much confidence in the presenter’s expertise on the topic, if this indeed ever aired in the form of a presentation. Muddled visuals equate to a muddled mind. At least the creator has refrained from succumbing to the feared smorgasbord of



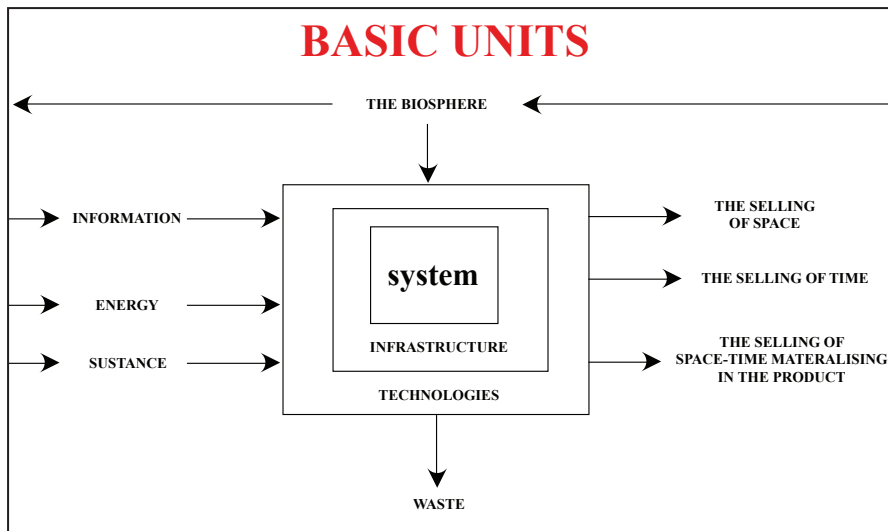


Fig. 6

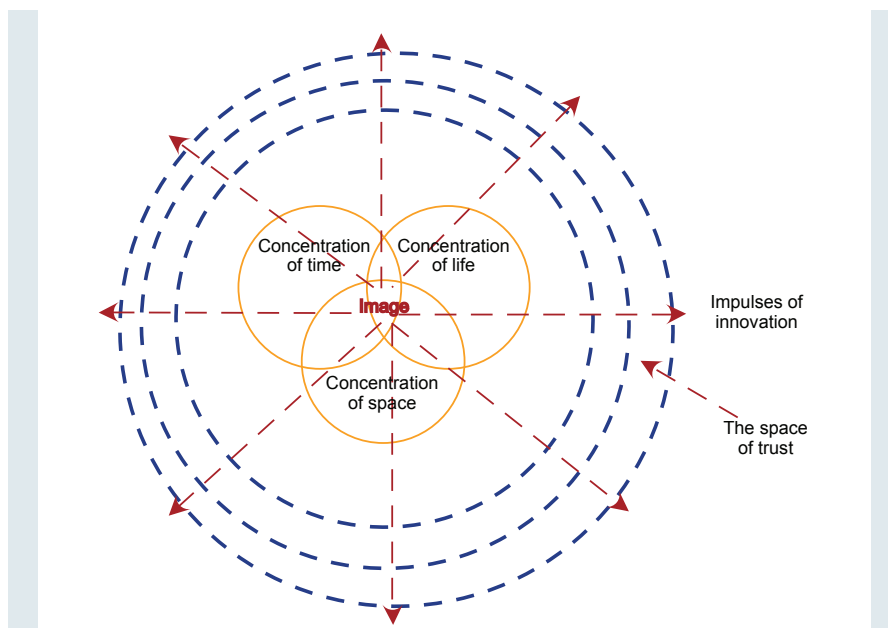


Fig. 7

novelty typefaces that can drown out reason in an otherwise respectable document. The page headers blaze in bright red, with uniform black for the main copy. Two typefaces are utilised: Arial and Times New Roman, both are preinstalled on Windows operating systems, and are the quintessential typefaces for the purposes of essay writing, emails, office presentations, reports, and the like. The pair are such routine choices for the no-brainer sans-serif and serif, they have become almost invisible.

When it comes to graphic elements, a recurring background forms a backdrop to all slides, but one. The background is a map of the world steeped in a non-confrontational power blue. It floods each slide with a consistent calm. The continents are solid, if slightly squashed horizontally. The ocean has transformed into a curious gradient that almost glows at its lightest point. Instead of waves are irregular thin white horizontal lines that run like TV static, or a scanner glitch across its surface. This pattern is disconcerting to the eye; it negates the pedestrian tranquillity of the blue. The lines sneak an underlying current

of restless anxiety beneath the content of each slide. I visualise a giant scanner laggardly sweeping the Earth, like an oversized windshield wiper, collecting every drop of information in a remote cache.

Of the twenty-four slides, fifteen contain images. These include diagrams, photographs, illustrations, and maps. In most cases though, the imagery seems to further confuse the purpose of the presentation, rather than provide additional illustration, or explanation of the written content. The PowerPoint format is generally intended to accompany a verbal monologue, so it may not quite make sense as a stand-alone document. Still, some of the images are puzzling on their own and bear no obvious relation to “Capitalisation of the Future.” There are diagrams that demonstrate odd relationships between familiar terms and concepts, such as “Basic Units” (see fig.6). Others, such as “The Knot of Thickening” (see fig.6) deal with more abstract ideas. Is this quantum physics? Pseudoscience? Some New Age spiritual configuration? These kinds of diagrams may be opaque, but this is a common crime in the world of PowerPoint, as demonstrated by Elisabeth Bumiller, Erica Robles-Anderson and Patrick Svensson, and Edward Tufte.

On the other hand, the middle section of the slide deck presents a more mystic collection of images. First, a diagram on slide eight demonstrates a series of mysterious interrelationships between the cosmos, the sky, and the sun (see fig.8). Here, the cosmos and the sky are projected upon the “Architectural Form (Cupola) Temple of Heaven.” The sun sends “Life Energy” down to a concentric arrangement of “Biomimetic Technologies,” “Infrastructure,” and “The Financial System.” This trinity bears the “Reflection” of another concentric diagram. Here, “Trust” resides at the centre of “The System of Life Maintenance,” “Technological Chains,” and “The Accumulation of Capital.” These are located on the same level, but “The System of Life Maintenance” is separated from the other two by squiggly

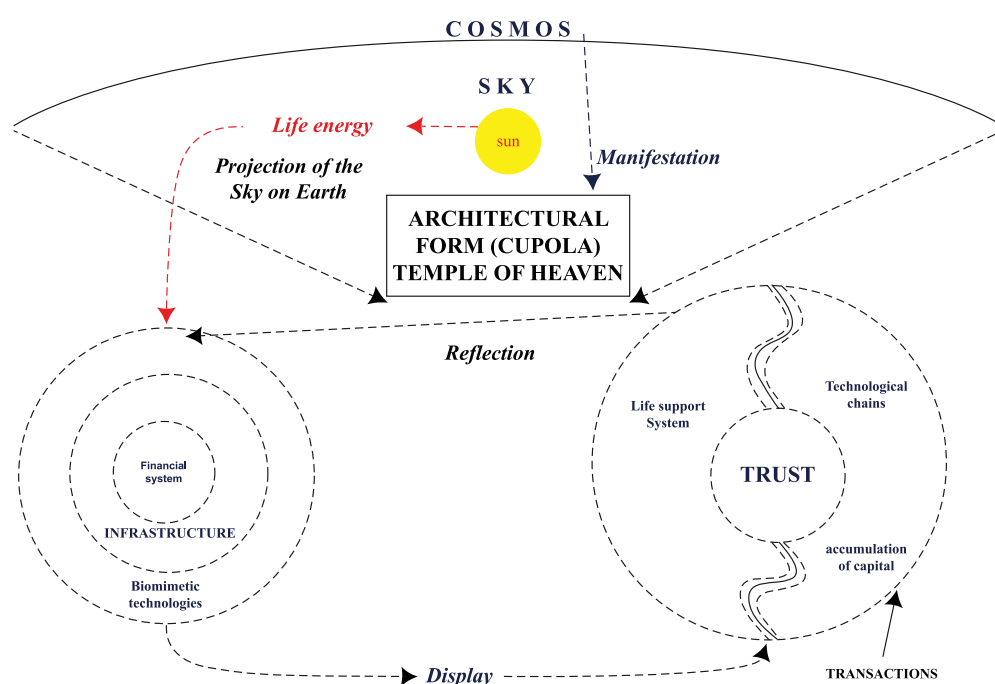


Fig. 8

lines which reveal no obvious significance. “Transactions” point to “The Accumulation of Capital,” though it is unclear what the correlation is between the two. This untitled slide looks like something from a New Age or conspiracy theory website, rather than a description of a part of a process that takes place within a massive governmental data surveillance network.

The following six slides derail the legitimacy of the presentation as a serious attempt to outline how to gain advantage in the international market. All six are titled “The Projection of the Sky to Earth,” though “sky” could potentially be translated from Russian as heaven. Slide nine, subtitled “Arkaim,” presents a drawing that either looks like a cross section of a planet, or a bird’s-eye view of some kind of structure. Google Reverse Image Search reveals the latter to be the case. This is a plan of Arkaim, the remains of a 3600 year old ancient city in the Ural region of Russia, discovered in 1987. Alarming, the first page of Google search results for Arkaim leads to articles of two white supremacist websites — *Renegade Tribune* and *National Vanguard*. It so turns out that a Russian nationalist narrative has been constructed from the archaeological findings, and co-opted into a convoluted belief about there being a link between Slavs and the mythical Aryan race. A worrisome reference for the government to make. The link is explained in detail by V. A. Shnirelman in “Archaeology and ethnic politics: the discovery of Arkaim.” Shnirelman also describes the site as an attraction for practitioners of the occult, astrologers, neo-paganists, and other groups of alternative spiritual practices (39).

Slide ten is a photograph of The Temple of Heaven, a religious imperial complex in Beijing. Built in the fifteenth century, it represents the relationship between the heaven and earth (“Temple”). Slide eleven is a black and white drawing of what appears to be Etemenanki, the Babylonian ziggurat once located in the Mesopotamian city the remains of which are located in present day Iraq. Etemenanki, Sumerian *E-temen-an-ki*, translates to “House of the foundation of heaven on earth” (“Etemenanki”). Slide twelve is a reproduction of a painting of the St Mark’s Basilica in Venice by Carlos Grubacs (“Germany : Gallery”). Slide thirteen is titled “The Projection of the Sky to Earth: the Financial System of Isaac Newton,” while depicting an illustration of the solar system. The last of the six is slide fourteen, a photograph of the Church of Ascension in Kolomenskoye, Russia (“Church”). The mysterious relationship between these disparate places seems to lie in a connection between the religious conception of heaven and the Earth.

These slides, individually and collectively, appear as part of a presentation that describes and explains the Noosphere. That is, they purport to be the product of rational and factual knowledge production. But when one looks closely, the degree to which the ideas are convincing and the thought is ‘rational’ is directly undermined by the amateurish, ‘irrationally’ designed container for these ideas. The nature of the trail that led me to the slides — a constellation of Reddit and public access academic sites — simultaneously supports claims to truth, while also destabilising any possible truth value.

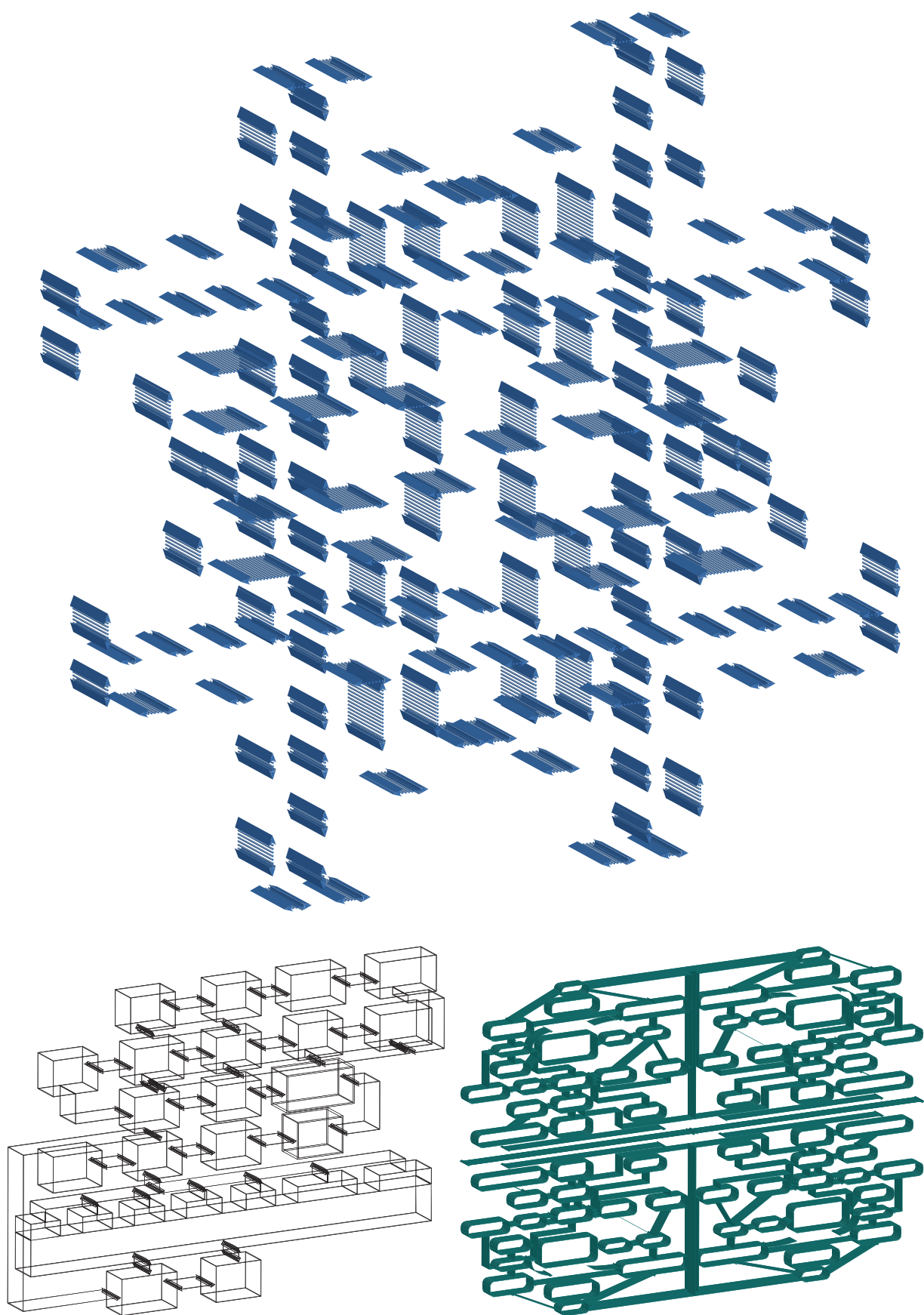


Fig. 9

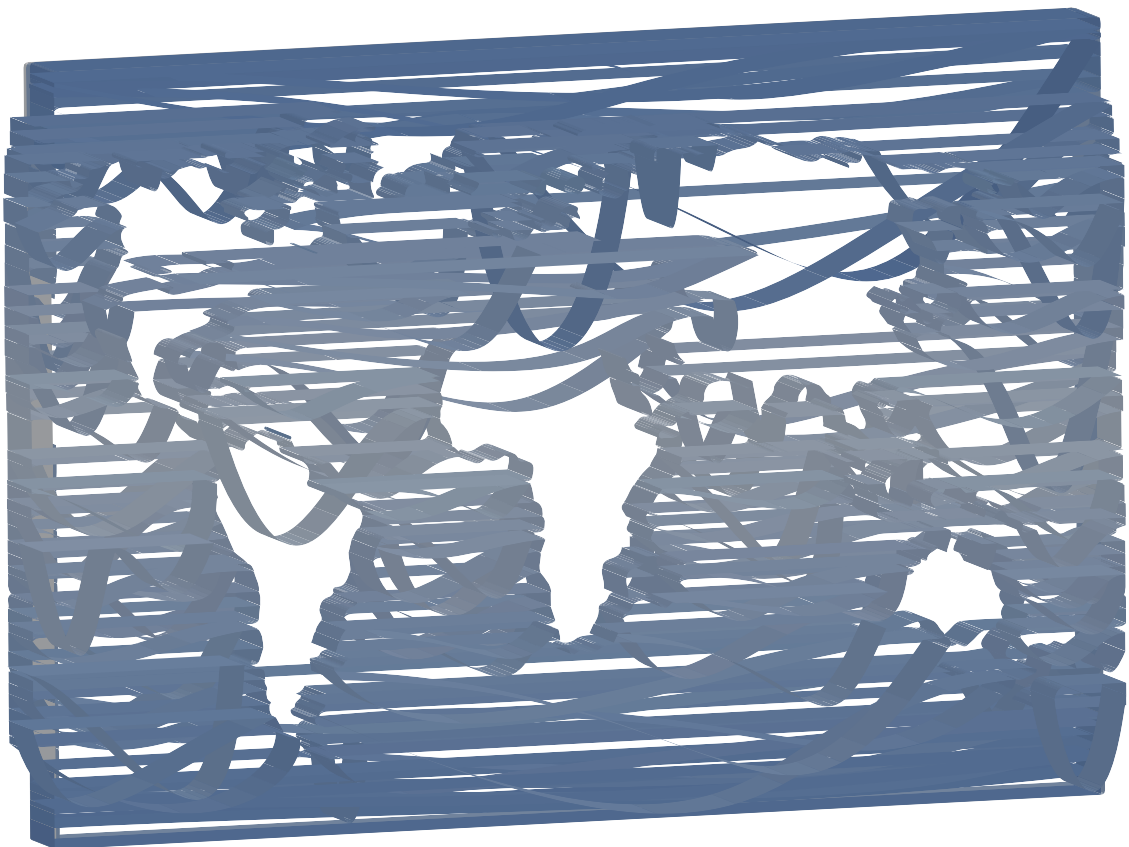
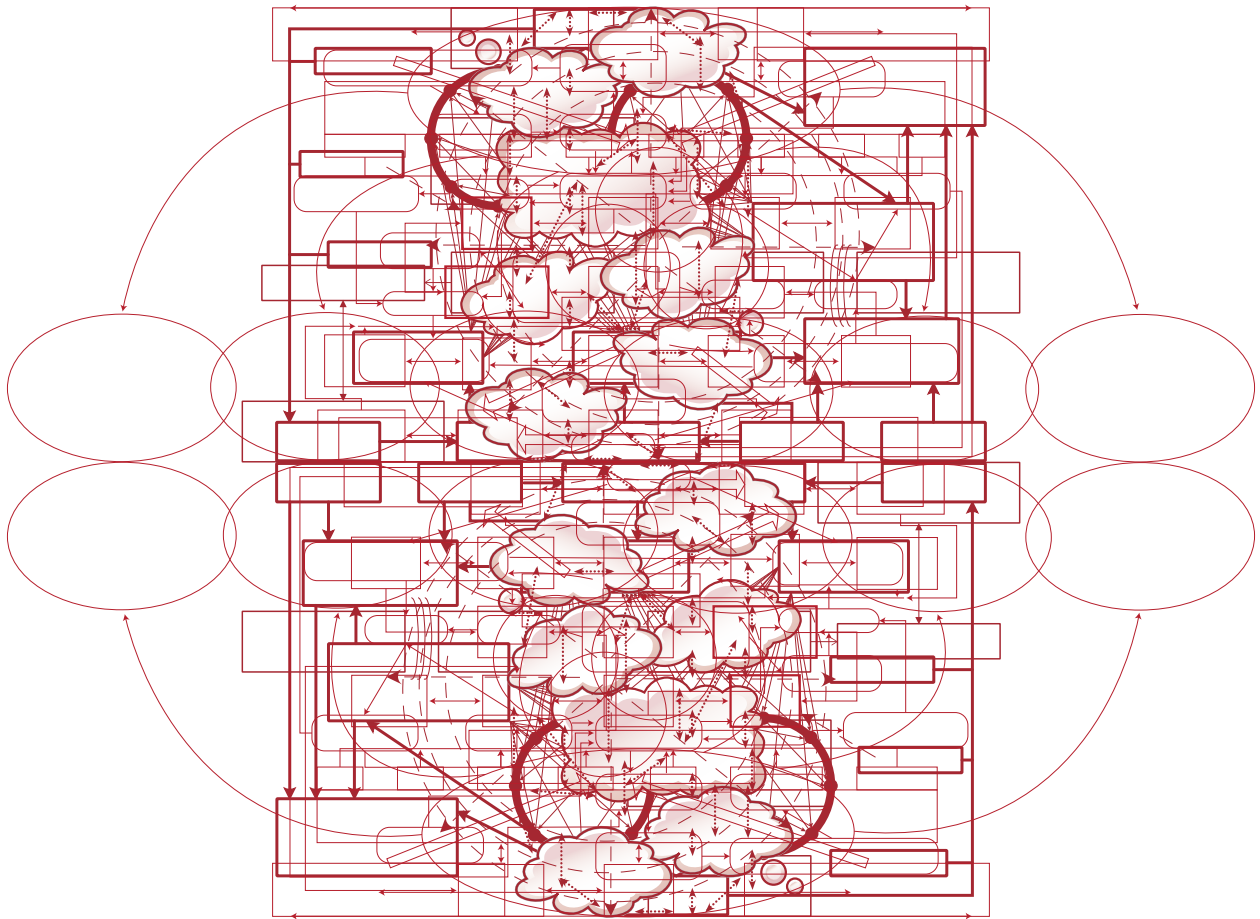


Fig. 10





FEEDFORWARD  
CONTROL

THE  
HOLISTIC  
WAY

OPTIMIZE  
THE SEARCH

METAPHOR  
IS THE IDEA

SOPHISTICATED  
PRIORITIES

Fig. 11

# Precursors to the Nooscope

The idea of the Nooscope would not exist without the global system of networks that forms the “Internet.” The precursor to the Internet as we know it today was first developed by ARPA (Advanced Research Projects Agency), an agency of the United States Department of Defense. ARPA’s initial research, after its establishment in 1958, largely focused on security, defence, satellite development, and materials research. ARPANET began as a small network of computers at UCLA. Its conception was a direct result of the Cold War. Following the Soviet Union’s first nuclear weapon test in 1949, and their launch of the first satellite, Sputnik I, into Earth’s orbit in 1957, the United States increased the urgency of the arms race (Lukasik 4-6). The Soviet Union’s Sputnik launch was in turn triggered by concern over the developments of the United States’ air defence systems, such as SAGE (semi-Automatic Ground Environment) (Gerovitch 338), in an unfolding game of Russian dolls. As fears about nuclear warfare with the Soviet Union heightened, the United States saw security experts, such as the military-focused think tank the RAND Corporation and MIT’s Lincoln Laboratory research the possibilities of networking. If struck by a nuclear missile, the country would need a robust communications network that would survive the attack enough to retaliate (Lukasik 9).

ARPANET became operational in 1970 and was presented to the public in 1972. By the 1980s, similar networks emerged, though they were still confined to institutions, particularly the research sector (Denning 532). ARPANET developed the Internet Protocol (IP) that became adopted by these alternative networks, eventually becoming the norm that allowed the mass of networks to communicate between one another, forming the Internet. The World Wide Web system was proposed by English computer scientist Tim Berners-Lee in 1989, and by the mid-1990s it became easily accessible to the public via the first web browser, Mosaic (Keeper and Baiget 91-92). Morphing from a high-level Cold War era defence project, to an international network accessible by individuals via intimate devices, the internet has once again revisited its military roots and become a national security and civilian surveillance tool.

## OGAS

Running concurrently to the development of the ARPANET, the Soviet Union had its own informatics ambitions, namely in the form of OGAS (obshche-gosudarstvennaia avtomatizirovannaia sistema). The acronym of the Russian term is translated to “All-State Automated System,” or “All-State Automated System for the Gathering and Processing of Information for the Accounting, Planning, and Governance of the National Economy, USSR” in its full glory (Peters). This is the failed Internet of the Soviet Union, or the “InterNyet,” as Slava Gerovitch has artfully termed it (Gerovitch 335-350).

The Soviet Union's cybernetic dreams were focused on the optimisation of the state controlled economy, in contrast to the United States where APRANET's origins lay in fears of a Cold War turning hot. In the early 1950s, the Soviet Union's economy was suffering in the fall-out of Stalin's rule and a devastating World War II. As Nikita Khrushchev took over after Stalin's death, he made drastic changes to the system, breaking up the stale centralised government into regional economic councils. Unfortunately, this resulted in widespread confusion and disruption of established chains of production and infrastructure. The councils were later re-arranged into larger bodies once again, taking previous bureaucratic suffocation to new levels (Gerovitch 336-37). As Slava Gerovitch explains in his paper on the Soviet Union's cyber-networking efforts, Soviet Union's definition of cybernetics

... encompassed not only the initial set of feedback control and information theory concepts, but the entire realm of mathematical models and computer simulations of 'control and communication' processes in machines, living organisms, and society. (337)

This is an expanded understanding of the term, well beyond that of the American mathematician and philosopher Norbert Wiener, who first conceptualised it in the way we know it today. Wiener correlated cybernetics with self-regulatory systems in humans and living organisms. The Soviet Union appears to have had aspirations to involve the noosphere — the sphere of mind and human society — in a complex network of interrelationships, as well as the biosphere, and the man-made machines and structures it is home to.

Automated control and regulation of the larger systems of economic production were Khrushchev's main goals. He had a naive belief in the capacity of order and organisation to solve the problems of bureaucracy. By 1963, computers and cybernetics were proclaimed as the elixir for all kinds of problems (Gerovitch 341). This attitude is not so different from that of today's proponents of Big Data, who see it as a solution for the tribulations of the democratic process and governmental decision making, such as FuturICT, a project that will be discussed in greater detail in the next section.

Internal battles between governmental departments doomed the development of state-wide informational networks until the late 1960s. While earlier plans for a country-wide information network were focused on applying cybernetic control to the management of the entire economy, OGAS, spearheaded by Victor Glushkov, reframed the task to instead focus on the flows of information between existing ministries (Gerovitch 343-44).<sup>5</sup> It was envisioned as a decentralised network of dozens of computers. OGAS was modelled on factory processes "to provide real-time information feedback, control, and efficiencies" (Peters 109). It also aspired to provide access to all the information on the network for all of its users,

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<sup>5</sup> See also, for example, the Cybersyn project in Chile: a country-scale cybernetic support network that aimed to collect statistics about resources and feed real-time data into modelling software designed to aid the government in decision-making. A comprehensive book on the subject, *Cybernetic Revolutionaries Technology and Politics in Allende's Chile* by Eden Medina, was published by MIT Press in 2011.

including the ability of ordinary workers to upload their reports and recommendations to the network — a concept that sets a precedent for today's cloud computing (Peters 112). While Gerovitch pins the failing of OGAS to bureaucracy and incompetency, Benjamin Peters argues in his detailed book on the subject, *How Not to Network a Nation: the Uneasy History of the Soviet Internet*, that the primary cause was financial. An operation of this scale was projected to take thirty years, 300,000 personnel, and twenty billion US dollars to cover the first half of the project (Peters 114). Its ambitions were simply too big — a problem that also arises with the Noosphere, Planetary Skin Institute, and FuturICT.

## Internet of Things

Cloud computing has enabled the Internet of Things (IoT) to emerge as a technology that has set the tech world abuzz. IoT is like a magic net designed to be cast over our existing devices and infrastructures. With the infusion of the power of the internet, ordinary household objects can take on a new life, one directly derived from ours. The IoT in its simplest form is a number of objects linked together via Wi-Fi. The ultimate objective of the IoT is to become so pervasive in our homes and daily lives, that we don't give their data-collecting capabilities a second thought. The development of programmable smart materials is further dissolving borders between analogue artefact and digital information (Brownell 1245). It is estimated that more than a trillion sensors will be disseminated over the next ten years (Snyder and Byrd 8).

Writer and critic Justin McGuirk presents a much less enthusiastic picture of the 'smart home' than industry leaders. He warns that a growing presence of connected devices in the home not only causes security problems and raises questions around surveillance, but also turns one of the few private spaces we have into an 'always-on' environment, transforming us into constant data generators — data that may be used to develop further products and market them to us by the companies in control (3-8). In an assessment of opportunities offered by the IoT, Kate Carruthers confirms this prediction, emphasising that major benefit lies in the ability to generate ongoing income from objects that were previously single purchase items: "much of the Internet of Things value is not in the devices, but in new services related to the devices" (69.5). However, McGuirk also points out that the proliferation of the IoT is hampered by the number of tech giants that have entered the market. The barriers of incompatible platforms between brands must be removed in order for the IoT to become truly ubiquitous (5).

In its more complex manifestations, IoT grows to the scale of a city, or even the entire planet as in the case of projects like Planetary Skin Institute and FuturICT. As architect Keller Easterling postulates, "the most radical changes to the globalizing world are being written in the protocols or softwares of infrastructural space" (6). At these scales, the Internet of Things has steadily morphed into the Internet of Everything (IoE) — the

new frontier that shifts from networked objects to networked systems. Tom Snyder and Greg Byrd believe that this move is integral to maintaining momentum in this space. IoT is integrated with artificial intelligence and machine learning to become IoE (Snyder and Byrd 9). This hypernetwork aims to connect people, objects, buildings and entire infrastructures via wireless internet technology. As humans and non-human entities exchange data within a giant network, the information that is inferred from the exchange can be used to improve productivity, cut costs, predict future consumer trends, and more.

The communications giant Cisco, one of the leaders in the development of IoE estimates value in the private sector to top \$14 trillion. The public sector is also targeted, with an alleged value of \$4.6 trillion (Bradley, et al. 1). In this space, employee productivity is the leading benefit, closely followed by militarised defense, then with various cost reductions and improved efficiencies. From smart rubbish bins, to smart roads, and predictive modelling for decision making, IoE's push for 'smart cities' has had an impact on governmental agenda.

Byrd and Snyder have high hopes for the potential of data-driven decision making. In some industries the benefits have already materialised. GE is driving this sector with their Industrial Internet of Things ("Everything you need"). But the benefits they describe could be equally perceived as dystopian, as "health systems data will be integrated with transportation, transportation data with security systems, security systems with environmental monitors, environmental data with education, and so on" (Snyder and Byrd 9). Global scale designs to expand the Internet of Everything network are discussed in the next section.



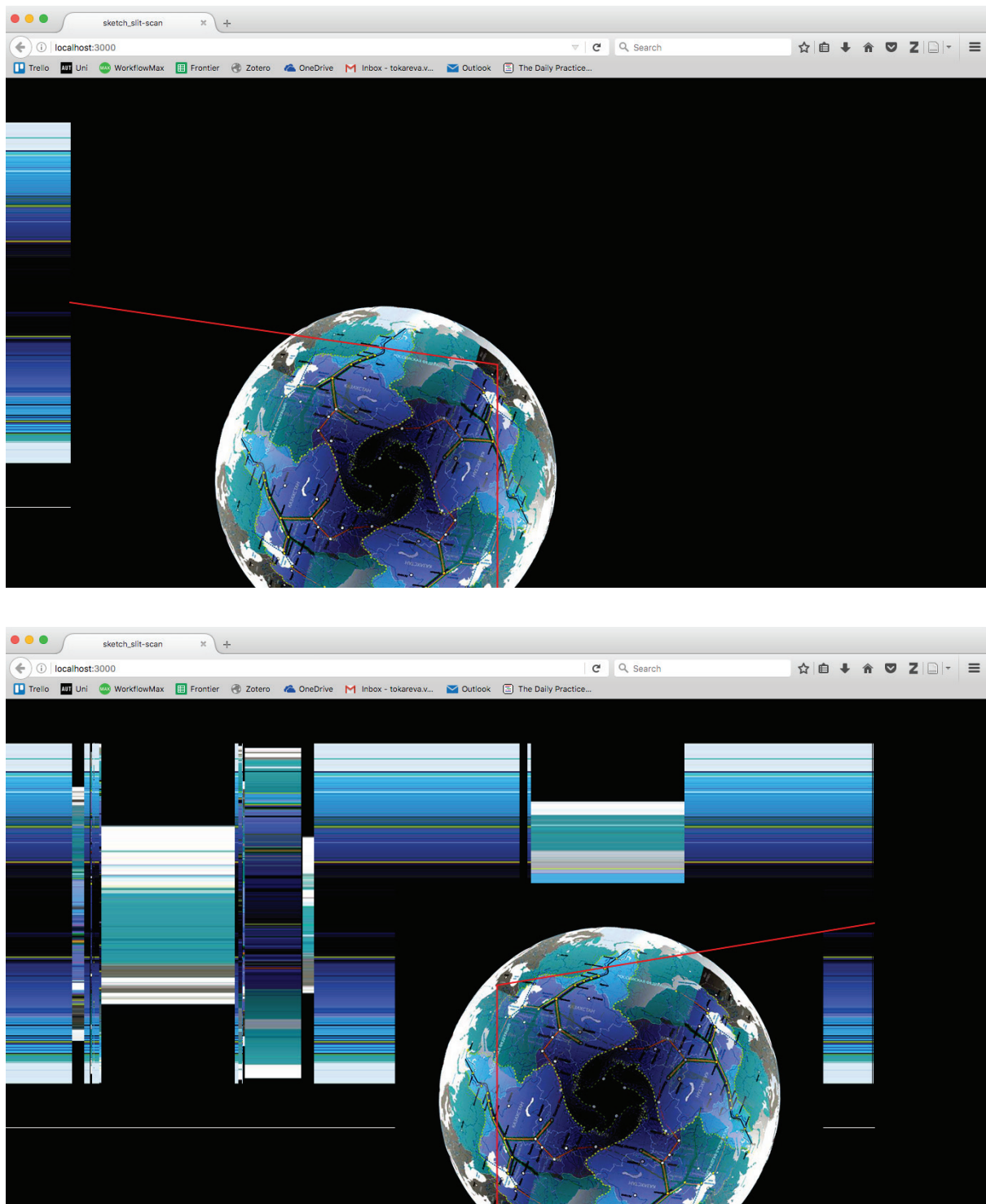


Fig. 12



Fig. 13

# The Noosphere's counterparts

The Anthropocene is arguably the defining condition of our age. The term first appeared in print by in an article by atmospheric chemist Paul J. Crutzen and biologist Eugene F. Stroemer. The pair published a succinct argument in the International Geosphere-Biosphere Programme's newsletter in May 2000 for the Anthropocene to succeed the Holocene as the current geological epoch in the (17-18). The Anthropocene is the first geological age to be defined by human impact on the biological and geological spheres. Citizen and Stroemer provide a long list of examples that demonstrates the extent of human-caused destruction: increased SO<sub>2</sub> and CO<sub>2</sub> emissions, loss of naturally occurring nitrogen in the soil through industrial agriculture, depleting fresh water sources, and mass extinction of species in tropical rain forests, amongst other things. The traces of our activity will be present at geological time scales for millions of years if we fail to change our ways (17). Micro-plastics and radioactive pollution are just two examples of human-made substances that will probably outlast the human species themselves (Carrington).

Despite the fact that the Anthropocene has become a widely discussed term in the sciences, humanities, and the arts, it has not yet been declared an official geological age. However, the Working Group on the Anthropocene, part of The Subcommission on Quaternary Stratigraphy (a constituent body of the International Commission on Stratigraphy, which is a scientific organisation within the International Union of Geological Sciences) is building a case for making the transition from the Holocene officially (Working group).

This new geological status has dawned upon us in a time of uncertainly, tentative forecasting, and ecological doom. It is complemented by economic precarity, and butted up against so-called post-truth politics that effectively deny the Anthropocene's very existence. Post-truth was even dubbed "Word of the Year 2016" by *Oxford Dictionaries*. Donald Trump, the president of what is arguably the biggest political and military power in the world, and the world's second highest emitter of CO<sub>2</sub> ("CO<sub>2</sub> time series"), the United States of America, denies the existence of climate change completely. There are fears that the benefits of the Paris Agreement are in jeopardy, now that Donald Trump has confirmed the United States' opposition to the world-wide agreement to lower carbon emissions. It now stands as the only country in the world to not have signed the document. Why stir the general population into an undue state of frenzy over unsolvable wicked problems if it can be avoided? Such an atmosphere would impede business as usual. Instead, sustained denial allows the United States to lay down hundreds of kilometres of pipeline to suck the land dry of its remaining oil deposits, as in the case of the much-protested Dakota Access Pipe Line ("Dakota Pipeline").

Due to its possession of nuclear weapons, considerable oil and gas resources, and

the size of its military, Russia remains a formidable power on the global scale. The United States continues to be its major rival. Russia's Prime Minister Vladimir Putin has joked about climate change in the past, later changing tack to say that it is the greatest challenge faced by humanity (Davenport; Pearce). This is likely a piece of PR, more than anything else. Russia, the world's fifth largest CO<sub>2</sub> polluter ("CO<sub>2</sub> time series") continues maximising its deposits of fossil fuels. It is the world's second largest producer of natural gas, only behind the United States, and has topped the charts in crude oil production ("Russia is").

Russia's ongoing need to keep in competition with the United States and the rising global power of China has prompted it to make territorial moves in the expansion of its trade routes in the Arctic (Krushkal). A map of plans for a "trans-Asian Corridor of Development" is also included on page 24 of the "The Basic Units of Technological Revolutions" slide deck. With natural resources projected to diminish in the next fifty to one hundred years, the need to keep in control of, and capitalise upon, the world's resources becomes more and more urgent. Because of this, the denial of climate change, the failure to mitigate its effects, and the omission of the Anthropocene in public dialogue doesn't stop the world's power-houses from trying to keep tabs on the state of the Earth.

As a future of increased resource scarcity draws closer, the world's largest economic players compete for a monopoly of the Earth's available resources. The monopolisation of natural resources and arable land may be an age-old pursuit, but today Big Data enters the picture. Now, it is possible to accurately measure and monitor the amounts of resources available. Their travel trajectories can be tracked via sophisticated sensor networks and satellite imagery. Global computation projects, such as FuturICT in Europe, and Planetary Skin in the United States, are being developed to collect real-time data on the state of the planet, captured via sophisticated sensor networks. These global-scale data collection and processing networks aim to capture world-wide transactions between humans, devices, and information about the world's natural resources. As Benjamin Bratton argues in his book *The Stack: On Software and Sovereignty*, today's platforms of global computation are competing with the sovereignty of state governance. Human affairs no longer take centre stage. It is "the calculation of all the world's information and of the world itself as information" that is the concern of these "increasingly powerful technologies of perception, sensing, detection, parsing, and processing" (8).

## Planetary Skin Institute

Planetary Skin Institute (PSI) is a not-for-profit organisation founded in 2009 by NASA (National Aeronautics and Space Administration) and Cisco Systems Inc., the United States owned multinational communications giant. Born of the notion that "we can't manage what we can't measure" ("Planetary Skin Institute — Global"), PSI's ambitions culminate in the establishment of a "pervasive digital nervous system" that would cast its net around

the Earth (“PSI Decision”). Combined with the snappy tag line of “Sense, Predict, Act,” the expression is somewhat disconcerting. It would not be out of place in the more ominous corners of the science fiction genre. In its mission statement, the organisation explains that it aims to assist with risk and resource management challenges resulting from global climate change. Using data collection, analysis and modelling, the institute’s research and development team aims to provide tools that will help navigate a world of resource scarcity and unpredictable natural disasters. The breaking down of disciplinary silos and collaboration across different domains are heralded as core values, along with the importance of creating open platforms (“Mission”).

NASA has been leading research on the effects of climate change, and focusing on finding solutions. Their participation in the partnership is likely due to genuine concern for the planet’s future. Cisco is a self-proclaimed leader in networking for the Internet (“About Us”). They are a business first. No matter what humanitarian tendencies they may possess, these will be secondary to economic gain. The company has been spearheading the Internet of Everything, making a project like Planetary Skin Institute a logical next step. IoE and PSI share the same vague messaging. What is the “Everything” in the Internet of Everything? The word at once encompasses all of existence and offers zero specificity. Supposedly, it is a step up from the “Things” in the Internet of Things. Cisco expounds their vision of the dominant characteristics of the future of the internet as being not technological, but “defined by the way it enables a loosely integrated and constantly changing fabric of communication, collaboration, tele-immersion, and data and analytic services to enhance the decision-making processes of the human network” (“Cisco Systems”).

PSI have acquired a host of “R&D Partners” since their inception: government partners from the United States, Brazil and Peru, a Latin American development bank, universities, and R&D institutions. The partners collaborate on a number of programs under the PSI umbrella, with focus areas as follows: land, forests, food, water, energy, disasters, and a decision platform. The decision support platform appears to be the ultimate outcome of the aforementioned “digital nervous system,” and would enable national level decision making in regard to resource management and environmental disasters.

The ALERTS (Automated Land change Evaluation, Reporting and Tracking System) system rolled out in Brazil appears to be the closest actualisation PSI’s goals (“ALERTS”). It has received coverage in a 2014 article by Fast Company (Hunter). PSI’s intention is to extend this system globally, India being next in line. Unfortunately, the link that prompts website visitors to “Explore Alerts” leads to a 404 error page, (*404 Error*), though a detailed guide to navigating the tracking system has been released (Planetary Skin Institute “ALERTS: Automated”). The same dead end meets attempts to “Explore” the PSI decision platform (“PSI Decision”).

It is worth noting that there are a number of explanatory videos related to each project, which look promising, but have all been made private. Instead, we are left with



a “Platform Overview” diagram that would make Edward Tufte fume. Four components are assembled in a small, loosely assembled rectangle: decision spaces, collaboratories, sensor networks, and data exchange. Each is accompanied by a small blurb and complex illustration, shrunk to a size that renders its function useless. In the centre lies the Earth, squashed into an oval, surrounded by strange growths, and covered in a red wiry net — supposedly the “digital nervous system” itself. The poor aesthetic choices made in the design of the illustration, that serves the important task of visualising the entire project, only reinforce the slowly dawning impression that PSI is simply vapourware, albeit on a larger scale than usual.

A copy of an introductory video can be sourced on YouTube, uploaded by a mysterious Kostas, but not on the website itself. The video begins with a poor-quality montage of footage, largely of developing nations. A tired-sounding, paternal voice narrates as we watch flooding, deforestation, traffic jams, and pollution mingle with wind farms and solar panels. The suggestion here is that an initiative like PSI would be of particular benefit to poorer countries, that are unfortunately also the ones set to bear the brunt of climate change. While this may be true, the missionary air about the video is uncomfortable. Snapshots of PSI’s user interface follow, along with now outdated looking CGI animations of scientists in the control room. The video finishes with a concise outline of the non-for-profit’s ambitions, using snippets of floating text to leave ghostly images of their key points burned in the viewer’s mind. They hang above a background of concentric irregular blobs — a recurring form used to communicate the concept of layered information proposed in the decision making platform.

The copy on the PSI’s website gives the impression of optimism and industry-relevant expertise. It is peppered with buzz-terms like “innovation,” “collaboration,” “pushing the boundaries,” “bringing down the walls [of] disciplinary silos,” “cross-fertilisation of ideas.” An almost religious “mantra of open innovation” guides their relationships with other research and development institutes (“Planetary Skin Institute — Global”). These are all familiar terms to anyone who has worked at a large organisation and attended a routine pep talk on improving work culture, or adapting to organisational change. PSI’s communication updates are less lively. In the website’s News & Resources section, the Press Releases page has not been updated since August 2013, and Notable Coverage has had no additions since August 2010. And, for a global IoT platform dealing with cutting edge technology, PSI is not very social media savvy. The hashtags “#IoT” and “#InternetOf Things” were in the top ten tech related terms last year on Twitter (Milenkova), and a quick search brings up hundreds of recent tweets on the subject. Yet, PSI’s Twitter account has only twenty-two followers and just three tweets, dating from 2012-13. All vital signs point to a dormant project.

## FuturICT

Like Planetary Skin Institute, FuturICT envisions a planetary scale digital nervous system as a network of sensors that will be able to gather and process data in real-time. According to the website's homepage, "the ultimate goal of the FuturICT project is to understand and manage complex, global, socially interactive systems, with a focus on sustainability and resilience" ("FuturICT"). While PSI is most concerned with managing natural resources and mitigating the increasing natural disasters that result from climate change, FuturICT's interest stems from an interdisciplinary mix of ICT (information and communication technologies), complexity science, and social sciences. The research team wants to create a decision-making system akin to PSI's, but on an unprecedented scale. The FuturICT platform consists of three components: the Living Earth Simulator, the Planetary Nervous System, and the Global Participatory Platform. An Innovation Accelerator is positioned at the centre, tasked with identifying opportunities for business and co-creation ("FuturICT Outline" 18).

The Living Earth Simulator is effectively a fortune-telling device, dependant on the mining of huge amounts of data, which then determines the variables used to build predictive models for natural disasters, government planning, the financial sector, and more. The Planetary Nervous System is the network of sensors that will create the infrastructure necessary to "provide data in real-time about socio-economic, environmental or technological systems" and enable "reality mining" ("FuturICT Outline" 18). The Global Participatory Platform will build tools that can be used by citizens to more effectively participate in the democratic process, and that would help decision makers make better choices for the future. It would also include a series of Interactive Virtual Worlds that allow ordinary people to imagine solutions to problems, or imagine new urban environments ("FuturICT Outline" 18). The popular game SimCity comes to mind.

Despite the disputed viability of FuturICT's plans (Warden qtd. in Morgan; Weinberger 54-56), it applied for funding through the European Commission's Seventh Framework Programme (FP7), the European Union's Research and Innovation funding programme for 2007-2013 ("FP7"). The organisation went on to be shortlisted as one of six pilot projects in 2011, competing for two winning spots to be rewarded with one billion euros of funding over 10 years. The pilot projects were given one year and some initial funds to develop their work ("Pioneering ICT"). FuturICT was not selected as a winning project, though they did receive almost two million euros from the European Commission over the year. After 2012, publishing activity from FuturICT died down, though it has remained active on social media. It appears that the project's scientific lead, Dirk Helbing of ETH Zurich University, has remained committed to the cause. He regularly updates the group's Facebook and Twitter accounts, and has been consistently uploading recordings of his talks at various academic and industry events.

In addition to funding, the project received widespread support from business and industry partners, research centres, and academic institutions, throughout Europe, which is documented in a long list of letters of support on FuturICT's website ("Who's Involved"). FuturICT Hubs were established in twenty-seven countries. Clicking on their hyperlinks leads to empty "Server error" pages in the majority of cases. Half of the national websites that remain have the appearance of amateur websites from the late 1990s, rather than cutting-edge scientific research that inspires wonder and trust.<sup>6</sup> The project's main URL [futurict.eu](http://futurict.eu) redirects to Switzerland's website, Helbing's stronghold. It is unfortunate that so much money and effort went to unrealised, utopian dreams and it seems that, as soon as the one year development phase was over, the project ceased to be updated not long after. The scope of the project was huge and its different components confusing. The website's "Information for the Media" page contains a befuddling number of similar, yet disparate presentations and white papers, ranging from tidy corporate documents ("FuturICT Outline"), to presentations seemingly purpose-made for "death by Powerpoint" ("FuturICT Warsaw"). Perhaps, the overwhelming, confusing diagrams and messy information were indicative of the fate of the project.

Nonetheless, FuturICT has been reborn as FuturICT 2.0. With fresh funding from the European Union, this time from FLAG-ERA, the project has regrouped with a new, less ambitious mission. The scope has shrunk from a simulation to the entire planet, to the development of a new sharing economy ("About the Project"). FuturICT 2.0 concludes that, "to manage scarce resources and support endangered people, powerful global information systems need to be built, based on big data and artificial intelligence" ("FuturICT 2.0"). However, these solutions pose a threat to civilian privacy, freedom, and job security. According to FuturICT 2.0, a digital economy is the answer; their aims are compounded in a new slogan, "Smart technology + smart citizens = the economy of the future." A vast array of search terms and funding-friendly buzz-words are mentioned in the span of two paragraphs, bringing together "the latest, bleeding-edge knowledge in areas such as big data, artificial intelligence, agent-based simulation, the Internet of Things, blockchain technology, and complexity science" with "disruptive innovation," "a decentralized and collaborative approach," and "community-based decision-making" ("FuturICT 2.0"). The scale of the project may have shrunk, but the list of technologies it aims to engage with is, once-again, overly ambitious.

The new website comes with a slick new logo. A wordmark in a friendly humanist sans serif is accompanied by an icon of the globe, with South America and Brazil in focus. It is surrounded by concentric arcs that suggest movement, and filled with a pink-blue neon gradient. The logo is contemporary, commercial, and 'techy,' visually positioned in close relationship to start-ups and apps. It is certainly 'cooler' than the old, oddly connected

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<sup>6</sup> See, for example, the websites of Bulgaria ([www.imbm.bas.bg/FuturICT/](http://www.imbm.bas.bg/FuturICT/)) and Romania ([www.houseofeurope.ro/FuturICT.html](http://www.houseofeurope.ro/FuturICT.html)).

letters with a badly placed, tiny earth hugged by the 'C', rendered in a colour reminiscent of Soylent Green, a science fiction film that chronicles the future FuturICT wants to avoid.

The logo has been designed through controversial crowdsourcing website 99designs. FuturICT seems to have implemented the idea of openness in the least favourable form by being involved with the 99designs platform. 99designs is geared to benefit clients looking for design work. They can post a brief on the job boards and designers submit designs in response. The client can ask a shortlist of designers to tweak their work to their liking before choosing a 'winner.' The winner receives the "reward" of simply being paid, while the spec work contributed by the others is free labour. This model is obviously disruptive to the design industry, driving down the value of professional services and easily exploiting those who may be in a desperate financial situation. It is therefore somewhat strange that a scientific group that expounds values of fairness and freedom from economic exploitation would use a platform such as this to design their logo. The winning designer received only CHF2,499 (the equivalent of 2292.78 euros) for their efforts — modest compensation for a branding package for an organisation of this scope ("Branding for a Prestigious"). This decision does not reflect well on FuturICT 2.0's intentions, it raises suspicions about their level of understanding of the economic and social systems they aim to model and improve.

## Summary

A question that arises from reading descriptions of the Noosphere, and of the materials made available by Planetary Skin Institute and FuturICT is: where does all this data go? Though all three projects treat the physical world as a resource to be mined for data and natural resources (though, in the case of Planetary Skin Institute and FutureICT, the 'management' of resources and innocent knowledge accumulation are professed to be the goals), the physical realities of data storage are not mentioned once. And yet, the maintenance of the hugely powerful data storage centres necessary for the realisation of objectives such as real-time live data feed simulations of the entire planet, for example, would require masses of the very resources these projects aim to effectively manage and preserve. It's a 'catch-22' cycle. For example, Benjamin Bratton recounts a conversation with Stanley Williams, an HP research scientist who was part of a team commissioned to design a machine capable of creating a simulation of the planet's climate in real time (essentially the same as the promise of FuturICT). The scientists concluded that, based on technology available to us now, "the computer would not only be roughly the size of Paris, but it would consume so much energy that it would be the single most significant anthropogenic climatic event that it itself be modelling!" (*The Stack* 102). Planetary Skin Institute itself admits that, its version of "near real-time results," in fact involves a four to six week lag (Planetary Skin Institute "Overview").

Both Planetary Skin Institute and FuturICT are, on the surface at least, legitimate systems. Upon first glance, they might serve as a context that, when compared with the Noosphere, makes the Russian project easy to dismiss. However, the reverse might also be true; it is equally possible to see the potential for the Noosphere to call the legitimacy of Planetary Skin and FuturICT into question. Below the surface appearances of well appointed press releases and sweeping promotional videos a different reality emerges. The promises of these aspirational global computation platforms are as empty as those of the Noosphere. However, because of their Western origins the warning signs are cast aside, while a protective veil of brand trust, inherited from their well-respected founders and financial backers, shields the projects in the same manner as the “digital nervous system” is intended to envelop the Earth.

Despite PSI’s and FuturICT’s professed good intentions, no technology is purely ‘good’ nor ‘evil.’ PSI may profess to “open collaboration between the public, private, academic and NGO sectors, that will be governed as a global public good,” but the private sector doesn’t have a great track record in working for the ‘public good’ (“Planetary Skin Institute - Global”). Why start now? Also, who will be doing the governing? Is there unanimous agreement on what constitutes “global public good”? These questions are important, but left conveniently unanswered.

As Ryan Bishop, Professor of Global Arts and Politics, and Jussi Parikka, Professor in Technological Culture & Aesthetics, both from the University of Southampton, note in their article on autonomous weapons systems, the technology and design behind these eco-surveillance sensor systems are basically identical to the so-called killing machines. They remind us that many of today’s technological advancements originated in the military, Cold War-era APRANET, covered earlier in the text, being a prime example — “technology is ambivalent in its use” (Bishop and Parikka). Further, the writers point out the obvious. Comprehensive data on the state of the world’s resources and environment is bound to swiftly assimilated into the ever-churning machine of capitalism: “What [Planetary Skin Institute] doesn’t mention is the potential for the information it gathers to be immediately monetised, with real-time information from sensors automatically updating worldwide financial markets and triggering automatic buying and selling of shares” (Bishop and Parikka). This is exactly the opportunity identified and exploited by A.E. Vaino in “Capitalisation of the Future.”





Fig. 14



Fig. 15

# Making art of the archive

## Methodology and methods

This thesis has been conducted through an equal mix of practical and theoretical enquiry. Much of my research has been centred on tracking down the history and (im)materiality of the Nooscope, tracing the origins of a myth created in the service of a geopolitical agenda. By conjuring up the Nooscope as an artefact at the intersection between technoscience and political PR, I have been able to use it as a metaphor, a tool for the exploration of tensions that exist between current developments in technological advancements related to Big Data. Like Donna Haraway's cyborg, the Nooscope is a "creature of social reality as well as a creature of fiction . . . a condensed image of both imagination and material reality . . ." (291-292).

An archival approach to art-making not only provokes new ways of thinking about the status of the archive in the twenty-first century but also, and more importantly, how art can potentially contribute to a critique of what some have called 'facticity' — our, sometimes blind, faith in scientific and technological facts.

In an article on speculative design, Benjamin Bratton suggests that "ambiguity, abstraction and ambivalence are signs of successful Design Research" ("On Speculative Design"). I would argue that successful artwork often does the same, as is the case with the three artists I surveyed earlier in the text: Morehshin Allahyari, Suzanne Treister, and Simon Denny. This is, though perhaps somewhat paradoxically at first glance, in fact especially true of artwork that deals with politically charged issues. In such cases, there is a danger of becoming more activist than artist, and simply orating an explicit message in one of the few spaces in our society where we allow ourselves to stay with uncertainty and ambiguity, without barricading it with ordered compartments of meaning. It is important to keep open these pockets of possibility and constructive cognitive dissonance, so that we do not simply default into comfortable habits of thought when alternatives and opposites may be of benefit to consider. Bratton explains his approach to teaching speculative design, art's more pragmatic first cousin:

I counsel students that their projects should seek to span two delicate balances. For the first, we should be uncertain as to whether the project is "real" (did it happen, is it really being proposed to happen, are these prototypes functional, are those images composites, etc.?) It may be clear to us, the viewers/respondents/users of the work, that this uncertainty is deliberate and that our interpretation depends on thinking it through. Ideally, if we are more unsure as we examine the work more carefully (even unsure of the designer's own intentions), then it is possible that some



critical, even important, fault-lines between common sense and an emergent rationality can be deduced. (“On Speculative Design”)

This is the experience I would like to create with the final installation for the practical component of my thesis.

## **The Reservoir**

Reading is my primary tool for obtaining inspiration not only for writing, but also for making artwork. This differs from practitioners who adopt a largely practice-based approach. For example, some artists begin the creative process with material experimentation. This may involve testing out configurations of form, colour, line, texture, or the working mechanics of an object. Ideas, problems, and tensions are generated in a ‘thinking-through making’ process, which is interspersed with reflection, and resolved through further making. I see merit in this methodology, but find it to be counter-intuitive to my own practice.

For me, the spark that ignites practical work is found in the gaps between constellations of ideas. They may be disparate, tenuously connected by threadbare links made in a moment of diffused thinking. If the threat of collapse is ignored, and I build upon this conceptual shifting ground, the results can be situated in the ‘just right’ zone of the lateral. The space I aim to operate in is one that retains a semblance of the case study that inspired my work, but is more rhizomatic in its relationship to the original, rather than a new growth subsumed into the existing whole. My research began with a survey of literature and the process of mapping zones of interest. Densely packed clusters of ideas propelled further investigation into these areas, finally whittling down the focus to the Nooscope — a vessel that carries the wider theoretical exploration.

In moving my research through theory to practice, I turned to The Reservoir, a research model proposed by Terence Rosenberg, a Senior Lecturer in Design at Goldsmiths, University of London. This approach articulates a possible relationship between artefact, or artwork, and its grounding within a conceptual framework, which may dip into discipline-related discourse, or wider socio-cultural concerns (Rosenberg). The Reservoir borrows from poetic devices, such as hyperbole and metaphor, to disrupt the linear, rationalist scientific research methods still dominant in academia today, though research in the arts has developed considerably since the article was written in 2000. Rosenberg identifies the imaginative and the rational as complementary forces that underpin creative practice (Rosenberg). He aligns these to Mikhail Bakhtin’s ideas of the centripetal and the centrifugal forces, and to the metaphors of ‘ground’ and ‘open water,’ which form the model of The Reservoir (Rosenberg). The centripetal force looks for a clear path towards predetermined objective, grounding itself in a lineage of prior theory and research. The centrifugal force “creates sets of references that relate to a number of theories without

necessarily conforming or committing to any one” (Rosenberg). It favours possibility and divergent thinking. The centripetal and centrifugal impulses are dynamically present in poetic research. The poetic process bridges the rational and imaginative, helping construct a research methodology that allows for undulation between theory and practice, keeping the project grounded, yet receptive to tangential thought and discovery.

Rosenberg maps these forces to the spatial structure of The Reservoir. The ‘programme’ lays a discursive foundation; it is the centripetal grounding which contextualises the creative work. The ‘project,’ the upper section of The Reservoir, is the artefact, or creative work itself (Rosenberg). These spaces can be traversed in a multitude of patterns. The first step involves wide reading and exploration of potential research interests across multidisciplinary fields. A comprehensive mapping process presents this information as a network of points. Then, two to four ‘triggers’ are selected as focus areas for research. These should be different enough to produce unexpected collisions of ideas, without being disparate (Rosenberg ).

I have applied this strategy to help focus the area of research of my thesis. My chosen triggers were narrowed down to Big Data, archive and myth. These were identified through extensive reading, mind mapping, and ideation. I then moved to the next step in the process — deeper research into each area. This process help me to synthesise the newly acquired knowledge, build conceptual models, and gain a deeper understanding of the political, cultural and philosophical contexts that shape the spaces the creative works occupy.

Rosenberg’s next step requires “an inventive translation, moving from an abstract to a material situation” (Rosenberg). Theory informs practice. As the ‘project’ is developed, poetic devices can once again be employed to invigorate the ideation process. Rosenberg suggests techniques such as context shifting, elision, and paradox, amongst others. My project has incorporated an ongoing cyclical relationship between the two modes of practice. Reading, research, and synthesis through writing are followed by visual experimentation, which in turn prompts further research to gather additional content and follow new channels of thought. In this way, I have created a number of smaller experiments, some of which are scattered throughout this document. The reiteration of this process has accumulated, feeding into the final installation.

### **‘re-Archiving’ techniques**

Methodologies adapted from archival practice can provide an organising logic for sorting through a volume of both gathered and generated content. The structured logic of the archive, and its influence on the construction of meaning between its parts has been an important consideration in my thesis. The methodology of collating and organising documents can be applied in the collection and arrangement of source materials, or



synthesised into the process of art making itself. Archival art can bring a fresh perspective to the art-making process. In this I follow artist and archivist Jane Birkin, who believes that when archival techniques are borrowed from their discipline and applied within art research, they are rendered radical. (Birkin 2015). Hermeneutics, with its interpretative rather than explanatory approach (Kinsella 2006), dominates as a mode of analysis in art research (Birkin 2015). The introduction of archival methodologies can open up a space of fruitful tension for the creation of new knowledge. Birkin's own practice is concerned with photography and the relationship between image and descriptive text. She utilises methods of labelling and description that originate from the archive, assimilating them into her process to the extent that "the rules and methodologies of 'archiving' [become] the practice" (Birkin 2015).

I too borrow from the archive's logic, as I engage in a process of collecting, re-archiving, re-configuring. Due to the content I am dealing with as a case study and springboard for my practical work, and the investigative nature of my process, my visual work has largely materialised as a number of unresolved smaller sketches and experiments, rather than a series of completed works. I have been building an archive of visual research concurrently to the written work, the pieces coming together to form a more coherent structure in the final installation.

Birkin also emphasises the effect the materiality of the archive has on its organisational structure. Birkin believes that spending time in the physical labyrinth of an archive, seeing its artefacts side by side, can facilitate understanding of the interrelations that bring it into existence. This experiential encounter helps make its structure visible more clearly than in the case of digital and digitised archives, where objects cannot be literally pulled off the shelf and rearranged. Birkin demonstrates the value in keeping the more 'traditional' aspects of the archive. She cites Wolfgang Ernst's argument for "preserving and documenting the ordered systems of the physical archive . . . as a platform that is vital for preserving anomalous spatial relationships" (Birkin 2016). It is these spatial systems of organisation of physical objects that have acted as blueprints for digital archives (Birkin 2016).

As Brownell notes in his article about information-enhanced materials and their role in the development of the Internet of Things, "bits are ultimately tethered to atoms" (1238), something that becomes more apparent as digital information is literally becoming enmeshed with physical objects (1243). This relationship cannot be avoided if one is to take a Big Data project as a case study. The materiality of the infrastructure that gives support to the information flows hugging the planet via concealed cables is an unavoidable fact, and one I have found necessary to honour in my practice. Obtaining a "spatiotemporal understanding of storage techniques" (Birkin 2016), and ways in which various objects and documents function together within the archive to create meaning, is useful to consider in the context of my practical work, where installation techniques can generate meaning through a similar network of relations between different pieces of artwork.

# The artwork

I began this research project with a question:

How might practice based research, combined with an investigative approach, reimagine the political spaces and power structures that influence the production, organisation, and propagation of knowledge?

The process of determining an answer has lead me to an investigation of a mythical contemporary computational platform, the Nooscope. Parsing peripheral materials, and tracing its history has lead me to engage with wider contexts that have dictated the (im) materialisation of similar projects in the United States and in Europe. Throughout the research, it became clear that geopolitical factors were at play here. Large amounts of time and resources have been poured into unfeasible projects again and again — a repeating positive feedback pattern of buzz-word induced hype, national myth building, and, sometimes, simply utopian aspirations.

The challenge I face, as I emerge from a period of informational-immersion in research surrounding the Nooscope and its counterparts, is to distil a few essential aspects of the experience into an artwork to be encountered on its own terms. As I have demonstrated in the section “Art and the Archive,” throughout the works of other practitioners, art carves an important space for exploration and understanding through embodied, experiential channels of communication alternate to the presumably rational thought required in journalistic, or scientific investigations. In its imaginative function art has a distinctive freedom for unhampered speculation, embellishment, and fabulation. These qualities in themselves can be critical tools, without being overtly dissident in the ways written and spoken language can be. In artwork, a parallel universe can open up, one that dissects, mirrors, or highlights parts of our world in ways that would not be accepted in other contexts.

With this in mind, I strive to reimagine aspects of the Nooscope, and the materials surrounding it, as an installation that engulfs and moves the spectator through layers of data and visual information which may contain clues as to its origins and logic, but might also lead the viewer down corollary paths. Ideally, there is a tension between the mass of detail made visible on the panels that form the core of my installation and the refusal of that detail to coalesce into a definable whole. A site-specific installation work has emerged as the most appropriate outcome to this project. Like the subject matter of my case studies, “the site is defined by relations of proximity between points or elements . . . marked or coded elements inside a set that may be randomly distributed, or may be arranged according to single or to multiple classifications” (Foucault 23). A dark void, steeped in a dislocating soundtrack, suspends the work in a liminal space. The sound work adds texture to the experience, creating a more immersive atmosphere, and acting as an additional archive

of suggestive material. It includes samples from choral arrangements, numbers stations, and pieces from the “Capitalisation of the Future.” The installation is envisioned as a heterotopic space, a “simultaneously mythic and real contestation of the space in which we live” (Foucault 24), where the “mythic” and “real” are entangled in semiotic confusion, where real places are mirrored by illusory spaces of juxtaposed dimensions, where time is partitioned and accumulated in fragments, a space where utopian ideals are contorted into materiality.<sup>7</sup>

The panels that form a concentric circular configuration at the centre of the studio have been constructed from materials commonly used in the bureaucratic structures that dictate the surveillance, distribution, and accessibility of information. Office printer paper is still a ubiquitous weapon of choice when it comes to the delivery of official commands, or the communication of project pitches, reports, and outlines. Lamination comprises layers, laminae, protective sheafs that freeze the flow and deterioration of information. A lamina is one layer of bone, membrane, or rock. A lamina is also the unfurled flat part of the leaf that converts carbon dioxide pollution into vital oxygen. Lamination is a process that pertains to all the definitions contained within, making a connective arc from office supplies, to plastic, to organic matter, and geological stratification.

The configuration of the installation references both some aspects of an imagined experience of Big Data computational platforms, and also more mythical and occult structures. Haunted by the ghosts of the Tower of Babel and Tatlin’s *Monument to the Third International*, as much as by the Nooscope, FuturICT and Planetary Skin Institute, the structure seeks coherence, propagation, and transcendence in the light of informational immanence. The spectator is invited to take on a weaving and wandering path through a maze of visual references and textual documents. This archival journey also reflects the cyclical nature of my research: the process of zeroing in on possible points of understanding, confronting contradictions and complexities, possibilities and resistances, only to be pushed back by the consuming drive to understand and gather every piece of the imagined puzzle, sent adrift from one mirage of meaning to another. In this way, the subject of my research and its insatiable appetite for all-knowing, all-encompassing, divining data has been mirrored by my process, imparting me with its yearning for understanding that remains always beyond grasp. Set alight with archive fever as a result of the process of researching this thesis, I will continue to pursue the resultant forking paths of inquiry, developing further iterations of answers to the question posed at the beginning of this search — the artwork presented here is but one response.

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<sup>7</sup> See Foucault’s definitive text on the concept of the heterotopia, “Of Other Spaces,” a 1986 published version of a several talks he first presented in 1966-67.

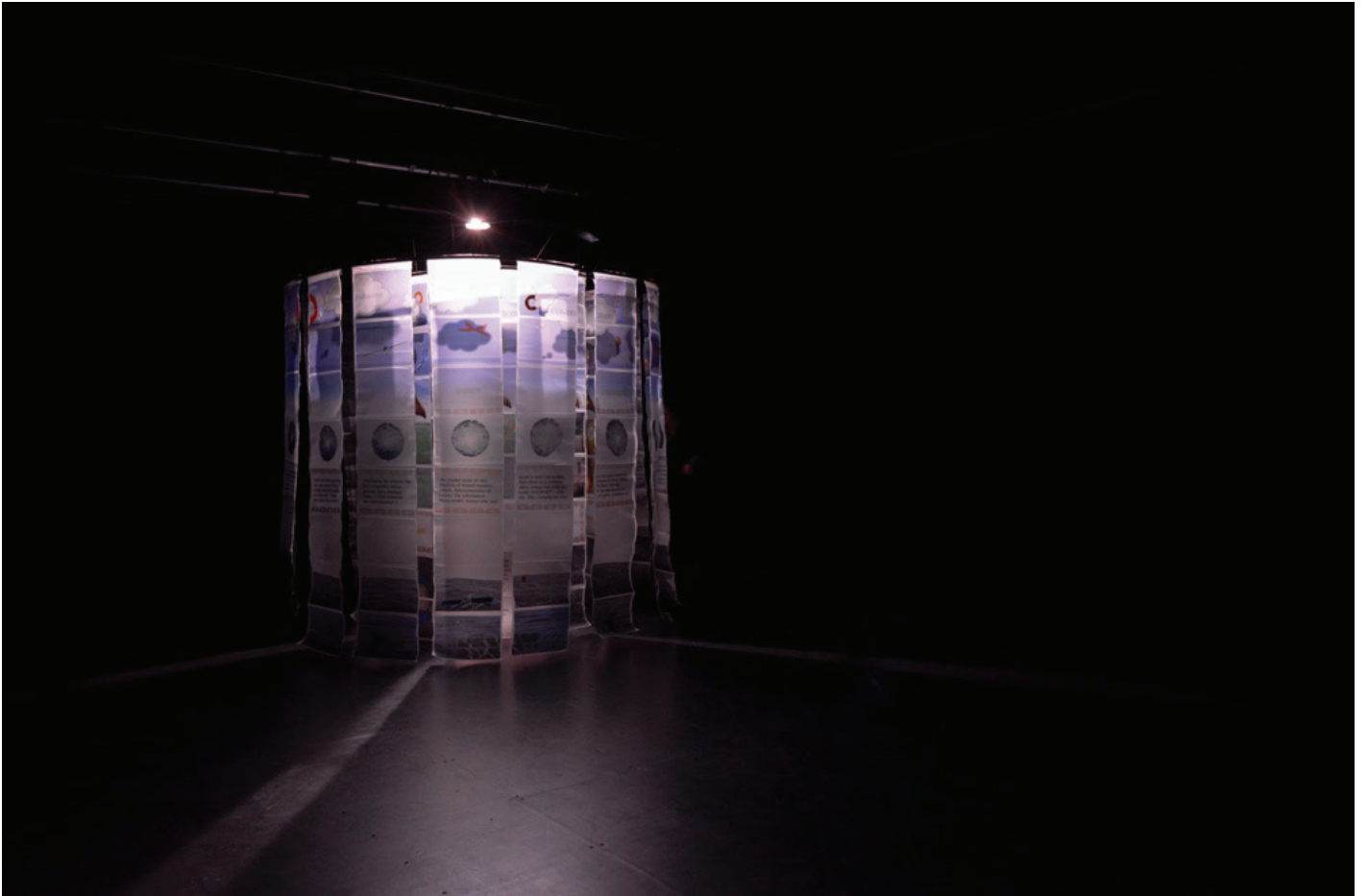


Fig. 16



Fig. 17





Fig. 18

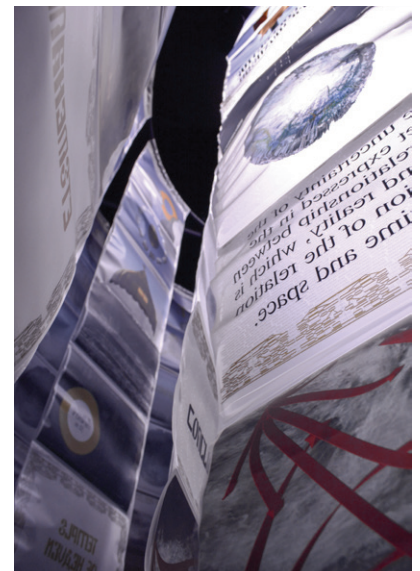


Fig. 19



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