

Narrativization of Human Population Genetics: two Cases in Iceland and Russia

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Abstract

Using the two cases of the Icelandic Health Sector Database and Russian initiatives in biobanking, the article criticizes the view of narratives and imaginaries as a sufficient and unproblematic means of shaping public understanding of genetics and justifying population-wide projects. Narrative representations of national biobanking engage particular imaginaries that are not bound by the universal normative framework of human rights, promote affective thinking, distract the public from recognizing and discussing tangible ethical and socioeconomic issues, and harm trust in science and technology. In the Icelandic case, the presentation of the project in association with national imaginaries concealed its market identity and could lead to the commodification of biodata. In the Russian case, framing in

terms of “genetic sovereignty” and “civilizational code” offers pretexts for state securitization. Adherence to normative framework of human rights and public discussion of genetics in an argumentative and factual mode can counter these trends.

Keywords

attitudes on genetics, biotechnology and culture, commodification, ethics, imaginaries, media representations, narratives, rhetoric of science and technology, securitization, social representations

INTRODUCTION

Narratives offer a quick way to persuade the public and are widely recommended “as a tool for public relations initiatives”, in which “message credibility is *not* compromised by narrative richness nor by source cue” (Boukes and LaMarre, 2021). ‘Narrative interventions’ are seen as a means to combat prejudices, such as anti-vaccination conspiracy theories that impede urgent action in medical states of exception (Lazić and Žeželj, 2021). ‘Narrative evidence’ creates ‘warmth’ that is lacking in ‘statistical evidence’ (Clark, Green and Simons, 2019). Storytelling and ‘storylistening’ are advocated as essential tools in public reasoning (Dillon and Craig, 2021). In short, *mythos* is being rehabilitated to augment the shortcomings of *logos* in public understanding and communication, particularly that of science. On the other hand, the use of narratives in science communication and public persuasion by scientific actors is questioned on ethical grounds because the credibility of these actors is based on their perceived commitment to a scientific regime of truth, which narratives by definition do not observe (Dahlstrom, 2012, 2021; Dahlstrom and Ho, 2012), resulting in a growing “chasm between information, meaning-making and truth-telling” (Choksey et al., 2021: 1).

In this article we will defend the second position by showing, using two cases of genetic population biobanking, how narratives appealing to social imaginaries can lead the public away from understanding and discussing the real socioeconomic implications of science and technology (S&T) initiatives, promote commodification and securitization of biodata, and undermine the very purpose for which they are supposedly employed, that is, building up public trust in S&T. Narratives and, as we add in this article, imaginaries are too prone to unintentional distortion and intentional manipulation to replace more robust argumentative reasoning and facts

in integrating science and society, bridging expert and non-expert understanding, and science communication cannot afford to cut corners in public persuasion, circumventing the difficult yet perennial task of educating and enlightening the public. This is especially true for genetics with its propensity to fuse with stories, myths, and prejudices concerning personal and collective identity. While genetics can immensely enrich our self-understanding and foster new positive individual and social meanings, it also has the historically proven potential to fuel scientific racism and eugenic aspirations, which has to be contained.

We will present this point using two deliberately very different cases of narrativization. The Icelandic Health Sector Database (HSD) gave the first occasion for many discussions allowing to grasp the shape of things to come in population genetics. We would like to draw attention to the understudied narrative ‘face’ of this case. The Russian case, nascent and virtually unrepresented in the literature, demonstrates other players in completely different social, economic, and political conditions, but, despite all the difference, gives evidence for the similar conclusions regarding the risks of narrativization of population genetics.

These two contrasting cases, in our view, allow to discern a common fundamental feature of the problem of narrativization. Trust, consent, privacy, and related values generally pose issues where the autonomy and rights of an individual have value and weight in the face of the economic and political aspirations of more powerful actors such as corporations and states. At present the side constraints (and, arguably, the positive meaning) of these aspirations are provided by the normative framework of human rights. The narrativization of population genetics (as perhaps of any field of S&T) contributes to a redefinition and justification of this enterprise through emotional association with particular imaginaries of national, historical, political sort that have no visible connection to or directly contradict the universal normative

framework of human rights. These imaginaries, once thought outdated and transcended, again begin to set normative coordinates that determine the direction of scientific and technological development. This trend is stronger and more pronounced in some cases, like in Russia. But it would be a mistake to consider it a local feature of the countries experiencing difficulties with the condition of modernity, hence our comparative reference to the historical case of the Icelandic Health Sector Database (by no means a *reductio ad Putinum*). Article form did not allow us to expand the range of cases further, although narrativization, as we will briefly show, is a common phenomenon.

We will proceed by outlining the methods and conceptual framework of our study and then turn to the case analysis.

METHODOLOGY

We conducted a scoping review to identify the media statements, policy documents, grey and academic literature for primary examples and secondary discussions of narratives pertaining to the Icelandic HSD and the Russian cases. For the academic literature, ERIC, Google Scholar, Science Direct and Web of Science were used. The search was conducted using the keywords of the conceptual (e.g. narrative, commodification, securitization, imaginary), area-specific (e.g. human population genetics, biobanking), and case-specific (Iceland, HSD, GGPR, Russia) kinds. We reviewed titles, abstracts and full texts. The focus on narratives excluded from the relevant literature that containing arguments over moral and socioeconomic issues—except for those few instances when narratives themselves were noted as the objects of ethical concern (in the HSD case). We collected the media statements from the webpages of the media that served as outlets for the narratives and counternarratives, such as the Icelandic newspaper *Morgunblaðið* and

Mannvernd website, as well as references to such statements and discussions in the academic literature (n=42). As the HSD controversy happened two decades ago, and some Internet sources had stopped functioning, we used The Internet Archive (archive.org) to restore some of the information.

The case of Russia, where the development of biobanking and nation-wide genetic initiatives is recent, allowed us to analyze most of the high-profile media statements touching upon the ends of population-wide genetic projects (n=47). We also used motivational sections of the relevant legal acts of the Russian Federation (n=6). For each case we conducted narrative synthesis, presenting fragments and elements in a cohesive whole. After this we conducted narrative analysis to identify particular social imaginaries used to justify the projects. The narrative analysis was done inductively (bottom-up) by first revealing the elements, then selecting and applying an explanatory framework. The article evolved from the case studies, but is structured to present the framework before the case materials.

NARRATIVES, IMAGINARIES, COMMODIFICATION, AND SECURITIZATION

The proliferation of narratives around genetics led to the recent expansion of ‘humanities-based scholarship on genetic science, its cultural representations, and its ethical implications’ (Barker, 2021: 1). This phenomenon is seen as a deep cultural response to the ‘post-genomic era’ (Tsai and Lee, 2021). Several recent monographs (Gill, 2020; Hanson, 2020; Choksey *et al.*, 2021) and a special issue of *Medical Humanities* (June 2021, Vol. 47/2) were dedicated to the study of narratives in genetics. It has been demonstrated that genetic narratives drive socio-technological development (Tutton, 2014), give new impetus to ‘genetic romanticism’ in imagining national

identities (Tupasela, 2016) as ‘genetic communities’ (Simpson, 2000), and promote concern over ‘genomic sovereignty’ in postcolonial countries (Benjamin, 2009).

Scholars have also identified the features of specific narratives offered in connection with particular genetic projects. For example, UK Biobank is presented in policy and promotional literature as developing “the UK as a modern, innovative and competitive nation”, relying on “the history of state provision of health care”, “a discourse of altruism and solidarity ... sometimes positioned as distinctly British” and “encapsulating and accommodating the idea of ethnic diversity” (Busby and Martin, 2006: 239). Some other national population genetics initiatives, such as those in Iceland and in Finland, on the contrary, emphasize genetic and ethnic homogeneity providing these nations “with a unique possibility to function as pathfinders and early utilizers of genomic data” (Tarkkala, 2019: 63). Taiwan Biobank has been presented as building ‘imagined future community’ around the imaginaries (‘futures’) of genetic distinctness and health of future generations in Taiwan (Tsai and Lee, 2021). Pre-existing socio-political classifications influence the process of defining genetic populations in People’s Republic of China (Sleeboom-Faulkner, 2006).

Narratives have been contrasted to arguments as “two modes of cognitive functioning, two modes of thought, each providing distinctive ways of ordering experience”, where “arguments convince one of their truth, stories of their lifelikeness” (Bruner, 1986: 11). “Science and narrative represent two distinct ways of constructing reality”, with narratives possibly giving rise to “scientific misinformation” (Dahlstrom, 2021: 1). In persuasion theory there exists a related duality of argumentative and narrative persuasion, or ‘central’ and ‘peripheral’ routes (Petty and Cacioppo, 1986).

Social imaginaries express the same duality as narratives: “ordinary people “imagine” their social surroundings, and this is often not expressed in theoretical terms, but is carried in images, stories, and legends. It is also the case that theory is often the possession of a small minority, whereas what is interesting in the social imaginary is that it is shared by large groups of people, if not the whole society” (Taylor, 2003: 23). Taylor’s definition captures the divergence between the theoretically-capable minority and the ‘large groups of people’, persuaded by appeals to imaginaries—precisely the gap public understanding of science is trying to bridge.

Commodification is the process of turning into a commodity, the reassessment in terms of economic value (Appadurai, 1988: 3). Commodification is problematic in relation to the framework of human rights because it “often appears most contradictory to the ideals of individual agency when it is individuals or categories of human beings that are circulated as commodities” (Jenkins, 2010: 967). Despite the efforts to disprove the ‘commodification hypothesis’ (e.g. Hoeyer, 2007), it is generally seen as expressing a valid concern in many biomedical contexts.

A similar, although far less noted, concern arises in respect of securitization as an articulated assemblage of practices whereby heuristic artefacts (metaphors, polity tools, image repertoires, analogies, stereotypes, emotions, etc.) are contextually mobilized by a securitizing actor, who works to prompt an audience to build a coherent network of implications (feelings, sensations, thoughts, and intuitions), about the critical vulnerability of a referent object, that concurs with the securitizing actor’s reasons for choices and actions, by investing the referent subject with such an aura of unprecedented threatening complexion that a customized policy must be undertaken immediately to block its development (Balzacq, 2010: 3).

Securitization has been identified as an important trend shaping the relation between politics and medicine, calling for as much as a new dedicated field of study (Howell, 2014). More broadly, it is related to the rich and complex topic of security and biopower (Dillon and Lobo-Guerrero, 2008). Securitization is problematic because it is explicitly paternalistic and at least *prima facie* contradicts the idea of personal autonomy central to the universal framework and further aggravates the condition of public immaturity. As we will see in the case of Russia, genetic information and technologies are presented to the public as having ‘double purpose’ (weaponized) and therefore requiring securitization and even state secrecy.

It should be stressed that economic and security considerations can and do carry weight. However, this weight must itself be clearly justified by relating it to public and individual good, values, and principles. And this, in turn, requires argumentation, not mere association.

HSD NARRATIVE AND COMMODIFICATION

The HSD case has become canonical, and its description and analysis from various perspectives is available in extensive literature. We will not consider the many arguments and concepts with which this case has enriched the understanding of the bioethical, socioeconomic, and other implications of genetics. Instead, we will focus on the social imaginaries, the web of which was to grant the project its meaning and legitimacy in the eyes of the public. The presence of narratives has been noted by a number of critics of HSD (Arnason and Simpson, 2003; BMJ, 1999; Chadwick, 1999; Fortun, 2001; Hjörleifsson et al., 2008; Pálsson and Harðardottir, 2002). The most frequently mentioned narrative is that of genetic homogeneity (Winickoff 2015). However, there were other strands to the story that we will try to bring together and examine.

Icelandic HSD was a brainchild of deCODE genetics and its leader Kari Stefansson. The project aimed to accumulate medical records of the entire population of Iceland as part of a Genealogy Genotype Phenotype Resource (GGPR), linking health data with genetic and genealogical databases for research and healthcare purposes. Transferring data from national public health system to a commercial enterprise required justification, aimed at three different stakeholders: investors, the Icelandic government, and the population of Iceland. It was also important to ensure a positive attitude among the global public and academic community following the development of genetics. Each of these addressees needed a unique persuasion strategy. Justifications to investors had to be framed in the market terms of profits and be concrete, coherent, comprehensive, and objective—that is, to be rational. The arguments intended for the government had to take into account its concerns about consolidating its national leadership, securing the country’s position in the global arena, improving health care system, economic growth, job creation in promising knowledge-intensive fields, reversing the ‘brain drain’, and many other issues (Stefánsson, 2000). The rationality of this second group of justifications, however, was questioned: critics argued that they constituted a promise unsupported by evidence, instead exploiting worries and ambitions, irrational techno-optimism and genetic hype—i.e. something that could be called ‘government imaginaries’ (Bubela and Caulfield, 2005; Einsiedel, 2005).

The promises pertaining to the level of individual interests concerning the progress in the field of ‘tailor-made preventive healthcare’ (Stefánsson, 2000: 27) were subjected to the same criticism (Chadwick, 1999). However, far less rational and more subtle was the narrative that appealed to the Icelandic social imaginaries to make the project attractive to the domestic public, i.e., the prospective donors. A number of interrelated strands comprise this narrative: the appeal

to the Book and through it to knowledge and service to science, the theme of Iceland's natural purity and its preservation, the preservation of language, the theme of deep-rooted democracy, the theme of the original independence and difficult centuries-long struggle to regain it, and romanticized images of the Vikings and other creatures embedded in the Icelandic imaginary.

The Book metaphor was central and most profound. Back in 1996, a year before the first HSD Act proposals, in an interview with a leading Icelandic newspaper *Morgunblaðið*, Kari Stefansson drew a powerful parallel between the Word of Genesis, the genetic code, and the Icelandic devotion to the sagas and church books containing the history and origins of the modern Icelanders. "The compulsion of Icelanders to trace their lineage from person to person, preferably to Egil Skallagrímsson, means that, together with these good church books, the genealogy of Icelanders is very well documented" (Morgunblaðið and Pálmadóttir, 1996). If in the beginning there was a word, and everything is a text, then the newly discovered language of DNA tells the most central story, that of life. Solving the mystery of this language and of its reproduction and change is one of humanity's major endeavors, and the people of Iceland, the 'nation of books' (Hannesdóttir, 1993), are uniquely positioned—or predestined, or called—to make a decisive contribution to this endeavor. The metaphor of the Book and the books seamlessly merged with the narrative of future scientific progress growing out of knowledge of the past and with an invitation to make a personal contribution—something that resonated strongly among the Icelanders (Greely, 2000).

The Icelanders' concern for their unique language, its preservation and at the same time its development, is well known (Friðriksson, 2009; Hilmarsson-Dunn, 2006; Hilmarsson-Dunn and Kristinsson, 2010; Pálsson, 1995). The Book and the books analogy allowed to expand the scope of this attention to cover genetic heritage, thus profoundly connecting culture and life science

(Pálsson, 2007). The concern for culture grows into a concern for nature, which in Iceland is justifiably perceived as special and pristine, and also the patrimony of all people—as is the genome with its relation to the environment (Oslund, 2002, 2011; Dibben, 2009). Nature is romanticized and even reanimated, populated by characters from the mythology of the past, like elves, whose imaginary way of life and closeness to nature are contrasted with the modern ‘disenchanted’ technogenic way of life (Hafstein, 2000; Halink, 2014). History is also being romanticized: the Vikings, who went through tough campaigns, battles, and natural disasters—or, in genetic terms, through severe natural selection and population bottlenecks—are just as firmly embedded in contemporary Icelandic culture, positively and negatively, as in the genetic buildup of its present population (Pálsson, 2007: 141; Gremaud, 2010; Kjartansdóttir, 2011; Hall, 2020).

Nationalism as one of the main ways of assembling the modern social imaginaries also occupies an important place in the minds of Icelanders, despite the fact that its ‘golden age’, which began in the mid-nineteenth century, is thought to have ended in Iceland by the 1990s (Jóhannesson, 2015). Iceland can claim to be the oldest existing European democracy (Byock, 2013), which was also played up in deCODE’s controversial notion of ‘community consent’ or ‘consent of population’ (Gulcher and Stefánsson, 2000). The theme of the struggle for original independence (Loftsdóttir and Jensen, 2016), lost due to internal conflicts in the thirteenth century, then regained by the nationalistic and constitutional movement of the nineteenth and twentieth centuries, endangered by the Cold War (Sigurðsson, 2000), strained by the ‘Cod Wars’, and requiring scientific and technological effort to sustain in the face of globalization was also addressed in the deCODE narrative (Rose, 2001: 12).

The resulting narrative was complex and profound, but it was in striking contradiction with the rationalization of the project addressed to the market, investors and prospective customers. A sample can be found on the archived version of deCODE's website from 2000, where the company's mission is said "to use modern informatics technology to discover facts about health and disease through data-mining, to use this knowledge to develop and sell products and services for the international healthcare industry" (deCODE, 2000b). deCODE's business prospectuses also revealed the company's market face, indicating its offshore affiliation, its financial and organizational dependence on the pharmaceutical giant F. Hoffmann-La Roche, listing international management among its executive officers, and announcing the intentions to "commercialize our gene discoveries" and "derive value both from diagnostic and therapeutic products" (deCODE, 2000a). The company was acting not on the common good of Icelanders as a bonded community of stakeholders, nor on solidarity and equity (Chadwick and Berg, 2001; Árnason, 2011), but on behalf of a narrow circle of global shareholders, connected only by financial interests: "we believe that certain unique qualities of the Icelandic population—together with our advanced bioinformatics and high throughput genotyping facility—places deCODE at a competitive advantage, which will in turn create value for the company and our partners" (deCODE, 2000a). Thus, the company's market face shows it not as a predominantly autonomous national enterprise, but as a predominantly heteronomous agent of global corporations, attempting to exploit the national sensibilities of the population. While in the narrative rooted in the social imaginaries the people of Iceland were presented as the subject of the project, in its market counterpart they were the object, and this fundamental contradiction was never bridged.

This rupture, and the suspicion of duplicity it engendered in some participants and observers, became the axis on which the narrative turned into a counternarrative that invoked the very same social imaginaries to denounce commodification (Arnason, 2009; Árnason, 2017; Enserink, 1998; Hjörleifsson et al., 2008; Lewontin, 1999; McInnis, 1999; Rose, 2001; Sigurðsson, 2001; Winickoff., 2006). So, the Viking theme was inverted to condemn neo-liberal profit-seeking raiders, attempting to seize the Icelandic national genetic heritage and turn it into a commodity in the foreign markets (Andersen, Arnason, and Sigurðsson 1999; Fortun 2008, 132). The theme of the struggle for independence turned into a struggle of local population against global capitalism and biological neocolonialism of ‘helicopter science’ (Rose, 2001: 9), against the attempts to ‘fish’ in the Icelandic gene pool (Pálsson and Harðardottir, 2002: 279). And even the President of Iceland, Ólafur Ragnar Grímsson, spoke about the deCODE project using references to folklore and tradition: the trolls had offered the Icelandic nation a golden egg in exchange for its life eggs (*fföregg*); one needs to be “careful in keeping the company of trolls” (Arnason and Simpson 2003, 542). In addition to this colorful criticisms, down-to-earth charges of corruption and disregard for the interests of the people were brought against the Icelandic government (WIRED 2000).

It is important to note that the HSD project was presented to the public in a narrative framing from its very beginning in 1996. The normative framework of human rights was first applied to the project by its critics, and deCODE had to take a reactive stance on the issues like consent and privacy, suggesting holistic concepts like ‘community consent’ and ‘consent of society’ (Gulcher and Stefánsson, 2000) in order to defend its enterprise. The HSD Act (No. 139/1998) held that health data is non-personally identifiable, so the issues of consent and privacy were not addressed in its text. The notion of ‘assumed consent’ (also ‘presumed’) was

introduced in the subsequent Act on Biobanks (No. 110/2000) in response to criticism. The international discussion about consent and privacy issues reframed the project in the conventional terms of human rights, thus overriding the initial narrative/imaginary presentation, offered by deCODE.

In the end rational arguments appealing to the universal framework and the decisions made on their basis did take precedence over the narratives built upon local social imaginaries in influencing the outcome of the HSD controversy, when in November 2003 the Supreme Court of Iceland granted the direct descendants of the deceased “the right ... to prohibit the transfer of this information [from the medical records of the deceased] into the database” (*Guðmundsdóttir v. Iceland*, 2004), effectively undermining the comprehensive intent of the project. Still, the conflict of narratives and the incoherence between market-oriented and public-oriented justifications, between what was taken as true and fictional ‘faces’ of the project, caused lasting damage to the whole enterprise, and deCODE had to go through a bankruptcy and a resale to make a rebound and find new success. Similarly, the public perception of population biobanking in Iceland underwent “a cycle of expectations, investment and disappointment” (Hjörleifsson et al., 2008: 377).

RUSSIAN NARRATIVE AND SECURITIZATION

The situation in Russia’s population genetics is similar to that of Iceland insofar as the parties are the same: the proactive, the skeptical, the government, and the people. However, their disposition and powers are different, and so are their narratives. The disposition is affected by several general circumstances. First is the absence of private actors capable of promoting and fulfilling population-wide projects. The state is the only player in the field, controlling a network

of corporations and entrusting them with various policies. Second is that the public space is also dominated by the state, marginalizing any vocal opposition to state policies and dispersing it to indirect ‘everyday resistance’, which, however, can become a significant factor (Scott, 1985). Consequently, third is the lack of channels for public opinion to form and receive expression. The Russian case, unlike the Icelandic case, demonstrates only a state narrative with no explicit counternarratives and no publicly visible criticism from the professional community. This creates opportunities for swift implementation of technological initiatives that are likely to cause more frictions in pluralistic environments—opportunities, drawing attention from various global and domestic players.

The first professional biobanks were established in Russia in 2010s (Bryzgalina *et al.*, 2017). This belated arrival into one of the game-changing fields of current S&T predisposed Russia to its familiar pattern of catching-up modernization: best practices and technologies were to be quickly studied, copied, adjusted and implemented, and dedicated state support allocated vast resources to compensate for the lacking pool of private innovation and market-driven gestation and development (Mau and Drobyshevskaya, 2012). As a result of this policy, over twenty human biobanks were formed by 2018, when the National Association of Biobanks and Biobanking Specialists (NASBio) was established by the Russian Ministry of Health. Its members are predominantly biobanks run by state research institutions, governed either by the Ministry of Health or the Ministry of Science and Higher Education (NASBIO, 2021b). The aim of NASBio is to “unite efforts of experts in the field of biobanking for development of network of Biobanks in Russia, providing specialized and educational services in the field of biobanking and also assistance in development and implementation of the scientific and practical projects and programs connected with use of funds and infrastructure of Biobanks” (NASBIO, 2021a).

The narratives, legitimizing these developments and presented on the webpages of the NASBio members, until recently mostly invoked the usual themes of scientific advancement and healthcare improvement—if only placing more emphasis on the former instead of the latter.

This changed in 2017, when the Russian president Vladimir Putin spoke of a purposeful and professional collection of biomaterial across the country by foreign actors (Соколов, 2017). Apparently triggered by a minor Pentagon research project (Mehta, 2017), this narrative fed on deeply ingrained tenets of security-centered mindset of top Russian officials and itself reinforced these beliefs. A row of speakers followed Putin's suit commenting on the outside interference into what came to be called 'biological security' and calling for legislation and policies of protection. The narrative of biological security immediately fused with the narrative of sovereignty that had been abundantly produced by the state throughout preceding years (along the lines of Carl Schmitt's decisionism) to form the idea of 'biological' or 'genetic sovereignty'. Ruha Benjamin describes "the emergence of 'genomic sovereignty' policies as a newly popular way for postcolonial countries to frame their investment in genomics" and of "public health genomics field which stands in contrast to Western pursuits of personalized medicine" (2009, 341). From 2018 onwards both security and sovereignty, on the one hand, and scientific and healthcare development, on the other, feature prominently in policy documents as legitimations of population genetics and biobanking development, with the former narrative gradually taking precedence.

In November 2018 the Russian president signed the decree 'On the development of genetic technologies in Russian Federation' (RF 28.11.2018). The decree aimed at accelerating the development of genetic technologies, including genetic editing technologies, ensuring the development of biological preparations, diagnostic systems and immunobiological agents for

healthcare, biotechnologies for agriculture and industry, as well as improving measures for the prevention of biological emergencies and monitoring in this area. The decree established the National Research Center ‘Kurchatov Institute’ (NRCKI) as the head scientific organization, responsible for the implementation of the project. NRCKI’s webpage states that the institution “was founded in Moscow in 1943 to solve the defense issues by the production of nuclear weapons” (NRCKI, 2021). Since then, its primary focus had been particle physics, but with the strategic focus shifting to include genetics, its expertise in urgent development in sensitive areas was enlisted for life sciences—a clear sign of the importance, awarded to this field by the state. Earlier, in October 2017, Putin directly compared the potential of genetic editing to that of a nuclear bomb (Галимова, 2017).

The president of NRCKI Mikhail Kovalchuk has made a series of statements regarding the development of biotechnologies including population genetics. For example, his 2015 address to the Russian Federation Council started with the premise of the strategic need to develop nature-like technologies that are superseding in importance all other technologies available to humankind. He then described some of US efforts to subjugate global science and put it in the service of the US strategic aims that include biological and cognitive control over global population, infringing upon the sovereignty of other states. He concluded by condemning the absolutization of personal freedom that leads to the erosion of traditions, moral values, and the state as “the only instrument that insures the balance between the rights and the freedoms of humans” (Ковальчук, 2015; Kovalchuk *et al.*, 2019). In 2018 in an interview Kovalchuk stated that biotechnologies, like nuclear technologies, have a double purpose, but, unlike those, are easily accessible and therefore have to be firmly in the hands of the state, “strengthening the sovereignty of our country, providing for our technological independence and national security”

(Ковальчук, 2018). In this narrative, biotechnologies are weaponized and directly associated with state sovereignty, security, and geopolitics.

In March 2019 Russian president Vladimir Putin signed the decree ‘On the fundamentals of the state policy of the Russian Federation in the field of ensuring chemical and biological safety for the period until 2025 and the future perspective’ (RF 11.03.2019). The list of the tasks of state policies in the area of chemical and biological security includes “genetic passportization of the population ... and the formation of the genetic profile of the population”. As of yet, no further information about ‘genetic passportization’ is available. Russian law already provides for the collection and storage of genetic data of certain groups, such as criminals and military personnel, so one has to assume that ‘genetic passportization’ will affect larger segments or even the whole of the population. The context of state security (and not biomedicine), in which the initiative makes its appearance, also points in this direction.

In April 2019 Russian government enacted the ‘Federal scientific-technological program for genetic technologies development in 2019-2027’ (RF 22.04.2019). It mentions personalized medicine, high-tech healthcare, and agriculture as the prime areas of use for genetic technologies, thus invoking more conventional incentives for their development.

In May 2020 at a meeting with officials Vladimir Putin suggested establishing the National Database of Genetic Information (NDGI), again mentioning sovereignty and referring to Kovalchuk’s earlier statements (Путин, 2020b). The commission to develop the database followed in June (Путин, 2020a). Earlier that spring Russia’s Rosneft’ Oil Company announced its branching into genetics. Among its first steps is the creation of the Center for Genome Sequencing, dedicated to the study of genetic buildup and predispositions of Russian population (ТАСС-Наука, 2020). According to its own statement, Rosneft’ is “the leader of the Russian oil

sector and the largest global public oil and gas corporation” (Rosneft, 2021), and its somewhat unexpected foray into genetics in the times of inevitable decline of demand for fossil fuels seems to enact the well-known Russian adage that ‘people are the new oil’.

Yet another narrative is showing clear signs of fusion with genetics in Russia. It is the familiar story of cultural or civilizational uniqueness that is somehow manifested in the genetic constitution, which, in turn, expresses itself in a particular culture. The idea of ‘civilizational code’ is invoked by some of the top politicians: e. g., Vladimir Putin publicly stated that Russians have a “different genetic, cultural, and moral code” than Americans (Troianovski, 2021). The state project of introducing a mandatory course “Fundamentals of Russian Statehood” into all higher education programs in 2023 was named “DNA of Russia.” This conflation of genetics with ideology has the potential to affect both its scientific content and the ways in which genetic projects are construed and justified, which may drift further away from the normative framework of human rights and biomedical goals. The idea of protection of cultural ‘codes’ and their purported genetic correlates lies in close proximity to the ideas of ‘selection’ and ‘culling’, which in combination with conservative or conservationist beliefs have had significant influence in eugenics (Allen, 2013).

The topic of biosecurity has received a new development in connection with the war in Ukraine. American biolaboratories, established, according to Russian sources, in Ukraine to work with pathogens of dangerous infections, became one of the pretexts for military intervention (Interfax, 2022). Putin publicly stated that the US were “collecting biological materials in Ukraine and studying for its own purposes the specifics of the spread of viruses and dangerous diseases”, intending to develop “biological weapons components” (TASS, 2022). US DoD acknowledged that over two decades it “funded programs to help transition ... former

Soviet [bio]weapons facilities into peaceful public health facilities”, as well as US civilian support of 46 facilities working on “biological safety, security, and disease surveillance for both human and animal health” in Ukraine (US 2022). In this issue, Russian internal preoccupation with ‘genetic sovereignty,’ noted above as a postcolonial feature, interplays with colonial concerns over the alleged biolabs in Ukraine.

On December 29th, 2022, Vladimir Putin signed amendments to Federal law “On state regulation in the field of genetic engineering activities” establishing a new database, run by the Kurchatov Institute: “The state information system in the field of genetic information ‘National Genetic Information Base’ ... shall be created in order to ensure national security, protection of life and health of citizens, sovereignty in the field of storage and use of genetic data, as well as to ensure exchange of information contained therein between federal state authorities [...] The owner of the information contained in the information system is the Russian Federation” (Путин 29.12.2022). In his comments on the law’s signing, NRCKI head Kovalchuk said that: “In the new conditions of hybrid world war, Russia is faced with pressing issues of ensuring biological security and achieving technological sovereignty of the Russian Federation in the field of genetics. Genetics is a deeper and more dangerous challenge than nuclear, because it is invisible and intangible” (Ведомости, 2022).

Thus, on the basis of official documents, declarations of participating companies, comments of the main actors, and state media one has to conclude that the main imaginaries of the narrative justifying population genetics in Russia are state sovereignty and security, preservation of national values and traditions as a ‘civilization code’, and Russia’s taking the leadership in science, technology, and governance. Biodata must be extracted from the population and securitized by state actors, first in order to get ahead of perceived competitors,

and second, to create, through the possession of data, a new potential for power, the meaning of which is still only vaguely inferred in the future. The Baconian imaginary of power through knowledge is combined with a characteristically secretive attitude toward the appropriation and concealment of this knowledge through securitization. The need for securitization is presented as the chief justification for the practice of biobanking. The official narrative fully preserves the imaginary of catching-up modernization and outpacing of competitors typical of Russian elites of the last three centuries, combined with a lack of intention to create and secure the institutional foundations of modernity (free speech, representative democracy, rule of law, separation and regular transition of powers, etc.). Moreover, modernization impulses are paradoxically combined with an increasingly intense anti-modernist rhetoric and practice of (re-)constructing traditional institutions such as the church and the patriarchal family.

Healthcare development gets some lip service, but the declarations are not yet specified in concrete steps. Human rights are not mentioned in the existing documents, and no public bodies have been created to oversee their observation. Individual rights and interests are given consideration mainly in terms of private data protection, i. e., again, security. However, the whole framework of individual rights stands in stark contradiction with the prominent holistic rhetoric of state sovereignty, traditionalism, and denunciation of individualism as an obstacle to state future. If no clear procedures and institutions for public oversight are established, the state will receive full control of data, which would open up the possibilities for abuse. Abuse might have the form of direct suspension of individual rights in the name of the state, but it can also come as negligence and corruption, allowing sensitive personal data to leak to the market in what can be called ‘commodification through securitization.’

There is no evidence that population biobanking has any significance for the general Russian public. It is unlikely, given the state of civic society and activism in Russia, that there will emerge a movement, explicitly questioning the projects or persistently demanding their modification to prioritize human rights and fair benefit sharing. However, concluding on this basis that statist policies of mobilization will be implemented smoothly would be premature. One reason is that Russian society demonstrates low level of trust in biomedicine. E.g., it is seriously affected by the spread of anti-vaccination and similar attitudes, not least due to the irrationality propagated by the media itself (Мац and Чепрасова, 2014). Studies show that anti-vaccination beliefs grew even stronger in the outburst of COVID-19 pandemic (Макушева, 2020). This attitude is likely to complicate the mass collection of biosamples.

Another, and deeper, platform for the development of counternarratives as well as critical arguments is offered by the pre-modern tradition of evasion and resistance to the state, entrenched in Russian culture on the conceptual level (Bakunin, Kropotkin, Tolstoy) as well as in daily practices. “An indispensable concomitant of a political system which made such extreme demands on society was an apparatus of control. [...] The more the state asked of it, the more society practiced evasion, and the state [...] had to engage in systematic manhunts” (Pipes, 1974: 108). Or, in the words of a prominent XIX-century Russian historian S.M. Solovyov, “the pursuit of a man, of labor and industrial power in a vast, but poor and deserted state becomes an essential occupation of the government: if someone left, he is to be caught and attached to his place so that he could work, make a living and pay” (СОЛОВЬЕВ, 2013: 18). Seen from this perspective, population genetics in Russia offers a new substance to the old form of relations between the state and the people, and so can be met with the same practice of evasion and resistance—provoking more state pressure in a perennial vicious circle.

CONCLUSION

Our analysis reveals important issues with the narrative persuasion strategies used by corporate and state actors to extract and consolidate genetic and associated data. The practice of narrative justification of genetic projects can mislead the public and distract it from tangible socio-economic issues. It accentuates and reinvigorates sources of legitimacy not explicitly linked to the human rights framework, eroding this convention, already fragile in some societies. The general public's one-sided or even false understanding of the nature and consequences of proposed genetic projects allows market and state actors to exploit biodata, not adding to the individual and common good of donors and their communities. This appropriation can be identified as commodification and securitization, respectively. 'Narrative interventions' and counternarrative responses erode trust in science and technology. The means to avoid these negative tendencies is to present and discuss genetic (and other) projects not only in narrative but also in argumentative form that allows for their reasonable evaluation and builds, if not so quickly, a more credible and reliable consensus. Our findings do not contrast with studies that note the high potential of narratives in 'cultural approach' to science communication as storytelling, as ritual, and as collective meaning-making (Davies *et al.*, 2019). Nor do they contradict the practice of combined use of scientific arguments and narratives "to encourage frequent and accurate portrayals of science within entertainment media narratives as a powerful avenue of reaching the public with science content," as is done by *The Science & Entertainment Exchange* program (Dahlstrom, 2014). Clearly, the ideal is scientific communication in which narratives and arguments, imaginaries and facts, converge in a single coherent and

multidimensional representation of their subject matter. However, as our cases demonstrate, it is arguments that ensure accuracy and help resolve tangible issues.

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