



Genomic screening from healthfare to warfare

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ARTICLE INFO

Keywords:

Precision medicine
Screening
Datafication
All of us
Holism
Palantir
Warfare

ABSTRACT

Precision medicine refers to the individualization of medical treatment through the large-scale collection, integration, and interpretation of individual-level data. Although its institutional trajectories and applications vary across national contexts, precision medicine has occupied a central position in U.S. health policy since 2015, generating unprecedented investments in data extraction, integration and analysis.

This article critically examines one of the United States' flagship precision medicine initiatives – the All of Us Research Program – through a multidimensional framework that integrates political epistemology and ethnographic analysis. We argue that the program is organized around a holistic rhetorical, epistemological, and infrastructural orientation aimed at synthesizing heterogeneous biological, behavioral, environmental, and social data into a progressively unified computational framework. We argue that far from being politically neutral, this holistic orientation facilitates new forms of infrastructural concentration and enables the circulation and contamination of data between the spheres of healthcare, security, and biodefence.

First, we situate All of Us within the epistemic assumptions of contemporary precision medicine through ethnographic inquiry into the program's design, practices, and institutional narratives. Second, we analyze how holistic rhetoric, epistemology, and infrastructure are operationalized within All of Us through specific technological arrangements that actively shape what can be known and managed. Third, we examine how these infrastructures become increasingly entangled with military and security logics through the growing involvement of actors such as Palantir Technologies and its wider institutional network, including the U.S. health AI strategy coordinated by former Palantir executives and emerging biosecurity companies such as Valthos. Drawing on the concepts of sphere transgression and the authoritarian stack, we highlight the risks arising from the contamination of distinct social spheres—particularly the convergence of military, security, and healthcare domains—and from the simultaneous centralization of data infrastructures.

1. Introduction. Precision medicine, datafication and the promises of holism

(O'Brian, 2025, October 28)

There's a ton of biological data out there—in stuff like wastewater and, well, the air we breathe—that can help detect threats before they kill us all. The bad news: that data is messy and massive, and with more than 8B humans constantly on the move, it's not exactly easy to sift through.

[...] Valthos says it will build AI-powered tools that can pull together all of this biological data from government and commercial sources and detect bio threats before they become, say, global pandemics that keep us all locked in our houses for a year.

This article explores how screening is being redefined within large-scale precision medicine datasets that integrate diverse forms of data—genomic, phenotypic, and environmental—alongside complex organizational infrastructures and the involvement of powerful industry actors. It argues that these developments are reshaping both the goals of biomedical research and the meanings of health, particularly as such infrastructures are increasingly managed by companies originating from fields not traditionally associated with healthcare, such as national security and defence surveillance. Focusing on the case of the All of Us (AoU) Program, the article investigates the implications of this convergence, as well as the rhetorical and institutional dynamics that emerge

This article is part of a special issue entitled: Mapping Genomic Screening published in SSM - Qualitative Research in Health.

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<https://doi.org/10.1016/j.ssmqr.2026.100828>

Received 9 January 2026; Received in revised form 9 July 2026; Accepted 12 July 2026

Available online 14 July 2026

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when screening operates within the precision medicine research ecosystem.

Population screening for precision medicine is a trend which is wholly reconfiguring the concept of screening itself. Traditional public health screening targets defined populations or risk groups (e.g., by age or gender), treating individuals as members of a collective whose health is managed through standardized interventions aimed at improving overall population outcomes. Precision medicine screening is also conducted on very large, often maximally inclusive populations to build expansive datasets, but its outcomes are framed at the level of the individual, producing personalized risk profiles and interventions. In this new configuration, the collective becomes the infrastructure through which individualized knowledge and care are generated, often within infrastructures that blur the boundaries between healthcare, research, and commercial services. Screening for precision medicine is replacing traditional screening models legitimized by a public health discourse of equitable access to health, economic efficiency, and institutional accountability. Instead of disappearing, this is now transmutating through the idea of optimized individual care and individualized risk assessments. Moreover, as noted, it extends biomedical screening beyond human bodies into the domain of environmental research, thereby blurring what counts as “a body” in the postgenomic scenario. Crucially, this shift unfolds in a context in which surveillance, war, securitarian policies, and biodefence are—as we will argue—contaminating “healthcare” with the logics and infrastructures of “warfare.” It is precisely this entanglement that constitutes the focus of the present article.

Although there is no single, widely accepted definition (Jørgensen, 2019), precision medicine is generally understood as the individualization of medical treatment through the large-scale collection and interpretation of individual-level data. Here, precision refers to tailoring interventions by accounting for variability in individual responses to treatment. It hinges on the idea that people bodies are different in such a way that “one size does not fit all” (Lovly & Carbone, 2011). In one of the most influential contributions to the field – particularly in the U.S. context – Collins and Varmus (2015, p. 793) define precision medicine as “prevention and treatment strategies that take individual variability into account.” Drawing, by analogy, on a concept from Anthropocene studies, one could describe this moment (2015) as a “Great Acceleration” (McNeill & Engelke, 2016) in precision medicine research, which occurred roughly between 2010 and 2015 (Galasso, 2018, pp. 37–40). However, the institutional trajectories and practical applications of precision medicine remained unevenly distributed across contexts, and are shaped by national infrastructures and regulatory frameworks, along with different political priorities (Green et al., 2023; Jørgensen, 2019).

This shift toward precision medicine (Ho et al., 2020; Prainsack, 2017, pp. 3–4) is often justified by policy and sanitary actors in name of technological progress. In particular, the expansion of digital technologies along with the process of datafication, together with what Metzler (2010) terms the “biomarkerization of health,” has fuelled the emergence of precision medicine. This development is to be contextualized within what Kitchin (2014) conceptualizes as the broader “data revolution,” in which health and disease are progressively rendered as data-intensive objects of analysis and intervention (Holz, 2016; Leonelli, 2016).

This variegated process of datafication of health (Ruckenstein & Dow Schüll, 2017), as it relates to precision medicine, has transformed not only research practices (Hallam, 2013), but also the very notion of the patient (Prainsack, 2017). On the one hand, patients are increasingly framed as active collaborators in the production and accumulation of data. Participation, horizontality, shared responsibility in advancing research, as well as transparency and accessibility, are often presented as core values of a common enterprise shared by researchers and participants. On the other hand, as Prainsack notes, “it is a person's genetic predispositions, her lifestyle information, and clinical data that should be brought together into personal health maps informing diagnosis and

treatment” (2017, p. 4). In this framing, the patient is constituted as a partner in research and as a data object. Proponents of precision medicine frequently claim that these developments will revolutionize therapy development, diagnosis, and care—an orientation explicitly put forward in the *Toward Precision Medicine* report of the U.S. National Academies of Sciences (National Academies Press (US), 2011), which calls for the creation of new data commons to aggregate genomic, lifestyle, and environmental data.

As mentioned, in line with demands for a more granular understanding of each individual, focus is extended beyond biological and genomic parameters to include environmental dimensions, to which the person is exposed, such as climatic conditions, local ecologies, and socio-economic factors. Those parameters are understood to shape health and disease trajectories. Leonelli and Canali (2016) argue that the large-scale collection of environmental and exposure data reshapes how researchers determine what counts as a relevant environment. By assigning a central role to environmental factors within biomedical data-intensive research – more than in classical epidemiology – such approaches reflect broader shifts in health research characteristic of epigenetics and, ultimately, metagenomics (Barchetta & Raffaetà, 2024; Raffaetà, 2023). At the same time, this shift generates a paradox. As Amedei and Boem (2018) have pointed out, while both scientific understanding and patients’ needs push toward increasing individuation, research findings simultaneously point toward a “decomposition” of health as an individual bodily property (see Raffaetà, 2022), requiring new forms of aggregation and coordination.

The focus on the environment—and the corresponding need for its datafication—thus extends the target of data extraction beyond the individual to the nexus between the individual and the environment, or, as Leonelli and Canali describe it, between the “inside” and the “outside” (2016, 11). This “interface” (Galloway, 2012; Raffaetà, 2023, p. 38) becomes a site of biocapitalization, contestation, and governmentalization, where new technologies of power are deployed (Cooper, 2008; Neff, 2019; Helmreich, 2008; Reardon, 2017; Rose, 2007). We focus here on the tension between holistic rhetorical, epistemic and infrastructural aspirations and their political charged operationalization, taking the All of Us Research Program (AoU) as case study, in which genomic, phenotypic, and environmental data constitute the three core axes. We analyze this within the post-genomic condition that defines precision medicine (Reardon, 2017, pp. 179–184), where personalization and customization increasingly rely on large-scale data collection and aggregation (Prainsack, 2017; Tutton, 2012), but also within the shifting political and economic landscape of techno-capitalism (Crawford, 2021).

1.1. Methods

From a methodological point of view, this article derives from the second Author long-term ethnography started in 2018 in US post-genomic labs and biomedical research infrastructures thanks to a Fulbright fellowship at UCLA, which granted access to one lab engaged in AoU which the second Author visited four times since 2021 for a total of about three months stay. Based on key findings of this ethnography, the first Author extended the analysis devoting approximately nine months to the systematic analysis of digital documents related to AoU, examining its historical development, institutional framing, and the narratives embedded in official communications and publicly available materials. This phase involved close reading and iterative analysis of policy documents, program descriptions, and online resources, with particular attention to how the initiative articulates its commitments. The overlap with military platforms emerged from this investigation, particularly through the analysis of actors involved in building data collections and integration infrastructures. Therefore, in a subsequent phase, the first Author extended this analysis to infrastructural tracing (i.e. which platforms integrate and collect data; who owns them, etc.), outlining the intersections between military technological actors and

infrastructures and their entanglement with the biomedical field. This involved examining both the political and institutional dynamics that enable such cross-domain influence, and the ways in which these infrastructures become embedded within AoU. Particular attention was paid to tracing how these forms of infrastructural and strategic “contamination” or, as we will point out later, “transgression” operate across domains, shaping the program’s development and broader biomedical research agendas. Overall, our approach for this article can be defined as a “patchwork ethnography”, motivated by the ephemeral and partly secreted existence of the data at the center of analysis. Following Günel et al. (2020), patchwork ethnography refers to “ethnographic processes and protocols designed around short-term field visits, using fragmentary yet rigorous data, and other innovations that resist the fixity, holism, and certainty demanded in the publication process.” In line with Ingold (2007) distinction between ethnography and anthropology, this approach does not seek to produce exhaustive empirical documentation, but to use situated encounters and their ramifications as a basis for critical and conceptual reflection. Accordingly, we do not aim to offer a comprehensive theoretical synthesis of the relationship between screening practices in precision medicine and warfare within data-driven research, nor to provide evidence of how the promises made by AoU (and its partnerships) are operationalized or whether they are successful. Rather, through the analysis of this specific case, we raise well-substantiated concerns that point to the need for further exploration of the entanglement between biomedicine and warfare in the present conjuncture.

Moreover, patchwork ethnography is constitutively open to methodological experimentation and the hybridization of techniques of inquiry. More specifically, in this article we combine—conceived as different “patches” or theoretical approaches within a shared analytical framework—the anthropology of data (Douglas-Jones et al., 2021; Raffaetà et al., 2023), historical and political epistemology (Omodeo, 2019), and materialist approaches to algorithmic thinking (Pasquinelli, 2024, p. 13). While the anthropology of data examines the social life of data—its extraction, circulation, and re-signification across diverse socio-cultural contexts—historical and political epistemology interrogates epistemic practices that present themselves as neutral, exposing their political embeddedness and effects. Despite their differences, these approaches share the common goal of interrogating the political agendas embedded in scientific and technological programs.

In the next section, we first outline the main features of the AoU Research Program, which serves as the primary entry point for our analysis, and then examine how different dimensions of holism are operationalized through the program. We subsequently analyze the tensions that emerge between this holistic orientation and the parallel processes of centralization that increasingly characterize the governance of large-scale precision medicine research initiatives.

2. The all of us Research Program

The AoU Research Program constitutes a cornerstone of the Precision Medicine Initiative, launched in January 2015 during the State of the Union address by U.S. President Barack Obama. In that moment, precision medicine formally entered U.S. public policy and was presented as the beginning of a “new era” (Obama, 2015a) and as a scientific “revolution” that would bring Americans “closer to curing diseases like cancer and diabetes,” while providing “all of us” with access to personalized health information. Alongside its nationalistic framing, Obama repeatedly emphasized the inclusive aspirations of precision medicine, framing it as an opportunity for tailored medical care for the entire population.

Ten days later, Obama proposed a \$215 million investment allocated across several federal agencies (Obama, 2015b; The White House, 2015). Funding was directed to the National Cancer Institute to support research into genetic contributors to cancer, to the Food and Drug Administration to develop new methods for assessing next-generation

genetic tests, and to the Office of the National Coordinator for Health Information Technology to address data privacy concerns. The largest share—\$160 million—was allocated to the National Institutes of Health to establish a research cohort of one million volunteers, framed as a comprehensive data resource for precision medicine research (Galasso, 2018, p. 34). As stated in one of the initiative’s foundational articles, the project was ideally meant to extend beyond national borders, “through collaborations around the world” (Collins & Varmus, 2015), although the form of such collaborations remained unspecified. While the core idea of a one-million-person cohort persisted—giving rise to what was described as “the largest longitudinal study in the history of the United States”—the program was renamed the All of Us Research Program and officially launched in 2016. Initially conceived as a ten-year initiative, AoUs remains ongoing today.

Precision medicine and individualized prevention constitute the core objectives of the program. Framed against the critique that health care is too often “one size fits all,” All of Us presents its effort to build a “diverse database” – encompassing a wide range of diseases, conditions, and health-related data rather than focusing on a single disease group – as essential to enabling technological advancement and future medical breakthroughs (All of Us, 2024b). One of the program’s central premises is that understanding health requires accounting for all the factors that shape it.

To this end, AoU has cultivated an image of open collaboration between scientists and participants. Participation is voluntary and entails sharing information about lifestyle and medical history through surveys and questionnaires—so-called Participant-Provided Information (PPI). This represents the program’s most basic level of engagement. More broadly, the construction of a collaborative network between researchers and participants is portrayed as a transition from “promise” to “progress,” (All of Us, 2025a). This shift is framed as part of a horizontal vision of medicine as a collective endeavour: “our nationwide community of participants and researchers is partnering together to ensure that everyone is included in research.” ().

Within this framework, “diversity” – becomes a key operational and ethical principle; according to the project’s Core Values, participants should “reflect the rich diversity of the United States” (All of Us, 2025b) in terms of demographics (age, race and ethnicity, education, socioeconomic status), health status (both healthy participants and those with disease), disabilities, and geography. This approach is repeatedly articulated as a central recruitment narrative, both in early program documents and in more recent ones, associating “diversity” with “inclusion”: “It is the goal of the All of Us Research Program to be as inclusive as possible.”

This commitment translates into efforts to recruit populations underrepresented in biomedical research. Practically, the initiative attempts to lower barriers to participation by translating large portions of the website into Spanish, producing materials and documents for specific communities, and establishing partnerships with local health organizations. Moreover, since 2019, the inclusion of Tribal communities – such as American Indian and Alaska Native groups (AI/AN) – has become a core dimension of the program. The development of “Tribal engagement,” includes consultation with Tribal leaders, negotiations over data sovereignty, and adjustments to consent procedures and data-use policies (All of Us, 2024c).

Data collection constitutes the very core of AoU. Its stated aim is to collect “a wide variety of molecular, environmental, physiological, and behavioural information,” positioning “environment, lifestyle, and biology” as the project’s foundational triad (All of Us, 2022). These three domains form what might be described as the program’s epistemic trinity, structuring both its scientific ambitions and its infrastructural design, through several data streams.

First, the program collects Participant-Provided Information (PPI) through surveys and questionnaires through the Participant Portal. These instruments collect demographic information, personal and family medical histories, lifestyle characteristics and health-related

behaviours. PPI is collected at enrolment and updated periodically. Second, Electronic Health Records (EHRs) provide clinical data drawn from participants' healthcare providers, including diagnoses, treatments, laboratory results, and medical histories. These data are accessed at the enrolment of participants, once they consent to share them. Third, physical measurements, such as biometric and physiological indicators, are collected either at enrolment sites or through partner health organizations and, in some cases, integrated via EHRs. Fourth, the program incorporates data from wearable devices, such as Fitbit, which participants may link to the AoU platform through dedicated mobile applications. These devices generate data on, for example, physical activity, sleep patterns, and heart-rate variability. Wearable-derived data are also linked to environmental and geospatial datasets, enabling connections between individual-level metrics and exposure data based on geographic region, as well as social and environmental determinants such as air quality and neighbourhood characteristics (All of Us, 2021, p. 17). Finally, AoU collects biospecimens, including blood, urine, and saliva samples. These materials are used for DNA and RNA analysis and stored for future, as yet unspecified, assays, enabling the extraction of genomic and other "omics" data over time.

Once collected, phenotypic data (PPI, EHRs, physical measurements, and wearables) undergo processes of "transformation, harmonization, and anonymization" before being stored in the Curated Data Repository, the project's central scientific data bank (All of Us, 2024a). As outlined in the protocol, data first enter the Raw Data Repository and are then curated into standardized formats, anonymized to prevent direct identification, and organized into researcher-accessible tiers within the Curated Data Repository. Access to data is governed through a tiered system, organized in three levels. The public tier contains only aggregated, de-identified statistics. The registered tier allows approved researchers to analyze individual-level, de-identified phenotypic data. The controlled tier, subject to verification and procedures of approval, provides access to sensitive and potentially identifiable phenotype data and genomic data. Genomic data undergo specific quality-control and validation processes and enter directly into the controlled tier.

All of Us authorize participants to access to selected portions of their own data (such as physical measurements, certain biospecimen-derived results, and genomic findings) through the Participant Portal, depending on consent preferences and the phased rollout of data return. Researchers, by contrast, access data through dedicated workspaces, with permissions determined by the tier.

As of the most recent overview of the registered tier, the program reports survey data from more than 633,000 participants; physical measurement data from over 509,000 participants (self-reported data included); electronic health record data from more than 393,000 participants; and wearable data from more than 59,000 participants, including contributions from the Wearables Enhancing All of Us Research Study (All of Us, 2025a; February 4).

As mentioned, AoU is designed as a long-term, longitudinal cohort study, with participants followed on an ongoing basis and no predefined endpoint, allowing for continuous data collection over potentially decades. In return for participation, individuals are provided with selected personal health information, such as physical measurements (e.g., body mass index and blood pressure), survey summaries, and certain genetic results, particularly those which are deemed clinically relevant. While participants may choose to contribute additional data streams—such as those derived from wearable devices like Fitbit—these data are shared with the program on a voluntary basis and are subsequently made available only to authorized researchers within a secure, controlled-access environment. The program does not provide individual-level data to commercial entities for marketing or other non-research purposes, and data governance policies are presented structured to prioritize participant privacy and ethical use.

3. The holistic aspirations driving the all of us Research Program

3.1. Holistic framing

Since its beginning, AoU has attracted sustained attention within anthropology of medical practices, science and technology studies, bioethics, and policy-oriented scholarship. A growing body of critical literature has interrogated the program's emphasis on inclusivity and diversity, particularly its reliance on the diversification of data as a pathway toward medical inclusion for precision medicine. In this section, we turn to a different dimension of the AoU architecture: its commitment to holism. Although the concept of holism has a rich and heterogeneous intellectual history (Harrington, 1999), it is generally understood as an approach that emphasizes the integration and value of whole systems rather than isolated components or functions (Thumiger, 2021). As Peder Anker (2002) has shown, holism played a pivotal role in the early development of ecological science. In particular, Anker traces how Jan Smuts's idealistic and holistic vision of the environment—despite being entangled with deeply problematic and racist assumptions—was closely linked to managerial and political projects governing South African territories.

Abstracting from the specific historical context of Anker's analysis, while recognizing its resonance with contemporary data-intensive initiatives, his notion of a "politics of holism" offers a valuable theoretical and methodological lens. It suggests that appeals to wholeness are never neutral but instead embed specific political orientations and forms of governance. This raises critical questions: What worldview underpins such holistic projects? How is this worldview materially operationalized in practice? Given that AoU invokes holism in its very name, the following sections examine the specific features of its architecture in order to foreground the political tensions and assumptions embedded within this project.

As briefly mentioned, therefore, this call for wholeness can be analyzed from multiple critical perspectives: through the lens of surveillance imperatives in contemporary biocapitalism (Zuboff, 2019); through theories of governmentality, including environmental governmentality, that emphasize how the nexus between individuals and environments is actively constituted in order to be governed (Lorimer, 2021); through expanded notions of technologies of power, such as networked biopower (Ashuri & Van Voorst, 2024). Across these approaches, two elements remain constant. From a material standpoint, as Green and Loscalzo (2017) note, this holistic vision depends on atomized components (bits of data) derived from heterogeneous data sources. At the same time, the resulting "new whole" is stabilized and contested through emerging power hierarchies among patients, clinicians, and—most notably—technology providers (Kuch, Kearnes, & Gulsion, 2020). Moreover, in the context of precision medicine, and more broadly of systems medicine, holism undergoes a significant technoscientific transformation, "resulting from an altered, more all-encompassing technological gaze on human life and related changes in biomedicine's methods and philosophy" (Vogt et al., 2016, p. 310).

Through this framework, we examine the AoU Research Program in order to analyze how holistic rhetoric, holistic epistemologies, and holistic infrastructures are materialized within contemporary precision medicine initiatives. By holistic rhetoric, we refer to recurrent calls for inclusivity, horizontality, and diversity that frame participation and data contribution as collective and shared endeavours. By holistic epistemology, we denote the assumption that the continuous expansion and integration of heterogeneous data sources can generate a unified and comprehensive representation of the person that is presented as enabling precision medicine interventions tailored at the individual level. Finally, by holistic infrastructuralism, we refer to the effort to embed these projects within large-scale, diffused cloud ecosystems that promise interoperability, shareability, and scalability, and that increasingly function as integrated data repositories rather than discrete

databases. We claim that these features define the All of Us Research Program.

3.2. Holistic rhetoric

Regarding the program's holistic rhetoric, Green, Prainsack, and Sabatello (2023) have shown how calls to include historically under-represented populations—operationalized through the expansion of demographic and genetic diversity within datasets—risk reifying or naturalizing racial categories rather than destabilizing them. In official AoU materials, this commitment is repeatedly framed through an inclusive and future-oriented language: participants are invited to “help build one of the most diverse health databases in history,” and to contribute to a research effort that will “benefit everyone.” Such formulations position diversity as both a moral good and a technical necessity, embedding it within the infrastructural logic of large-scale data collection. Yet, as Bowker and Leigh Star (1999) remind us, classification systems are never neutral; rather, they enact the very social categories they purport to describe. In this sense, diversity functions simultaneously as an ethical imperative and as an epistemic device, reinforcing—or at least reproducing—the classificatory frameworks it seeks to challenge.

A closer reading of recruitment campaigns, consent forms, and participant-facing interfaces reveals how this rhetoric of inclusion is operationalized in practice. Prospective participants are often addressed through narratives of empowerment and collective contribution: joining the program is presented as an opportunity to “make history,” to “represent your community,” and to ensure that “people like you” are no longer excluded from biomedical research. These appeals rely on a careful balancing act. On the one hand, they foreground historical injustices and the need for redress; on the other, they translate these concerns into a data problem—one that can be solved through more comprehensive and representative datasets. In doing so, structural inequalities in healthcare access, environmental exposure, and social determinants of health risk being reframed as issues of insufficient data inclusion, rather than as enduring political and economic conditions.

These dynamics are mirrored in what can be described as an epistemic asymmetry between the promises of data collection and the distribution of research benefits. As Galasso (2024) demonstrates, efforts to promote inclusion through diversified recruitment and data accumulation are not necessarily matched by equitable access to the benefits of precision medicine research. The program's documents frequently emphasize long-term, diffuse benefits—future treatments, improved diagnostics, more personalized care—while remaining comparatively vague about how and when these benefits will materialize, and for whom. In other words, as others have argued (Fox, 2020), inclusion at the level of data does not automatically translate into inclusion at the level of outcomes.

From this perspective, the collective subject invoked by the program—the “we” or “us” of AoU—appears fragile. While the program's rhetoric constructs a unified body of participants contributing to a shared biomedical future, ethnographic attention to participation reveals a more uneven landscape. Participants contribute data, biological samples, and time, often without clear pathways to direct benefit, while the infrastructures of analysis and innovation remain concentrated within well-resourced research institutions and private-sector partners. As Aparicio (2024) argues, the promise of a shared biomedical future often remains unfulfilled, as the populations most intensively represented in the data are not those who most directly benefit from its applications. This tension is particularly pronounced in the United States,

where the relative absence of a robust welfare state exacerbates the gap between biomedical innovation and equitable access to care.

3.3. Holistic epistemology

As we have claimed, the expanding demand for data within AoU is justified precisely through a holistic rhetoric. This rhetoric also reflects what we've called a holistic epistemology, namely, the need—embedded in the very structure of the program—to continuously integrate and accumulate ever-increasing amounts of data at the individual level. At a quantitative level, it is articulated through claims that the accumulation of ever more diverse data will lead to more effective and inclusive forms of precision medicine. As the website reports, collection of data at the patient level allows to know “how the differences in each person's DNA affect their health” since “Knowing these differences can make precision medicine possible for more diseases.” (All of Us, 2023). According to this epistemology, data integration is framed as a prerequisite for grasping health as a multidimensional phenomenon—one structured around the triad of environment, biology, and personal life. In this sense, the “unified whole” described by Kuch, Kearnes, and Gulson (2020) functions as an organizing epistemic ideal, constructed through the aggregation of what might be termed “unified patients”: individuals rendered as internally coherent composites of heterogeneous data.

This characteristic extends beyond AoU. Hallam's ethnographic and historical account of the development of bioinformatics highlights how this mode of biological research is structurally dependent on the continuous accumulation of data (Hallam, 2020). As he writes, “Bio-informatic biology is obsessed with producing more data, more rapidly [...] Data production and data analysis are bound into a feedback loop that drives a spiraling acceleration of both.” Data accumulation is thus not extrinsic to bioinformatics, but one of its core epistemic premises – a logic that can be extended to precision medicine more broadly (Kuch, Kearnes, & Gulson, 2020), and, by extension, to AoU. One of Hallam's informants describes the drive toward ever-increasing volumes of data as creating “a Google Earth for looking at the data” (Hallam, 2013, p. 60). This metaphor evokes an all-encompassing, seemingly neutral map of the world, promising total visibility and interpretability at the individual level, and resonates with what Sharon (2016) has described as the “googlefication” of health. This aspiration toward comprehensive, map-like knowledge appears to be central to the aims of AoU's holistic epistemology, which similarly seeks to render individual-level variation fully visible and computable at scale.

3.4. Holistic infrastructuralism

But this holistic epistemology operates also at a meta-level – what we call “holistic infrastructuralism”. By holistic infrastructuralism, we refer to the progressive integration of the infrastructures supporting these projects within a unified data environment. Holistic infrastructuralism reflects a broader turn in biomedicine in general, and precision medicine in particular, toward cloud data ecosystems that facilitate scalable biomedical analytics and researcher access across institutions (Stein et al., 2015). This shift, as shown by a substantial body of scholarship, has involved increasing partnerships between biomedical research and major technology corporations, including Google, Amazon, and Microsoft, 23Me with significant consequences for how data are analyzed, governed, and valued (Prainsack, 2019; Sharon, 2016). This process has been particularly evident especially after the crisis of COVID-19, where Big Tech have presented themselves as societies' problem solvers (Lanzig, 2024, 2626). These collaborations have contributed to the

reconfiguration of scientific labour, privileging computational or informatic expertise, thus reshaping epistemic authority in biomedical research while reshaping and structuring social life (Amoore, 2020; Kuch, Kearnes, & Gulson, 2020; Sharon, 2018).

In the case of AoU, this infrastructure is tied to its specific status as a research project rather than a clinical intervention. As explicitly stated in program materials, AoU does not aim to provide direct medical care; instead, the advancement of biomedical research constitutes its primary objective. Consistent with Collins & Varmus's declaration that "qualified researchers from many organizations will [...] have access to the cohort's data, so that the world's brightest scientific and clinical minds can contribute insights and analysis" (2015, 785), the program prioritizes data shareability and accessibility as core values. Participants' data undergo processes of anonymization and standardization (e.g., according to the OMOP common data model) before being made accessible to researchers through the cloud-based Researcher Workbench, which is, for example, partially hosted and billed by Google. As an NIH-funded initiative, moreover, AoU is embedded within a broader cloud-based data ecosystem designed to facilitate "easy access and fast analysis" (Stein et al., 2015).

A central component of this ecosystem is AnVIL (Analysis, Visualization, and Informatics Lab-space), a federally funded cloud-based platform coordinated by the National Human Genome Research Institute (NHGRI). AnVIL provides a computational environment for the analysis of large-scale genomic and other kinds of datasets, thus facilitating access to key NIH-funded resources, with a special focus on genomics. Through AnVIL, researchers can work with some of the widest genomic datasets supported by NHGRI, including resources such as the 1000 Genomes Project.

AnVIL was developed under the auspices of the NIH Cloud Platform Interoperability (NCPI) initiative, launched to promote interoperability, scalability, and shareability across federally supported biomedical data platforms. In this sense, AnVIL operates as an NIH-hosted cloud environment. As mentioned, it reflects a broader effort to move beyond isolated institutional repositories toward a unified, cloud-based federal data ecosystem for biomedical research. Importantly, in a sort of nested structure, AnVIL is built upon Terra, a cloud-native computational platform developed by the Broad Institute – one of the central institutions in contemporary genomics research and a key actor in large-scale genomic sequencing and data analysis (Hallam, 2013).¹ Beyond its technical function, Terra also carries a name that invites broader reflection on the holistic imaginaries accompanying US data infrastructures. Terra – Latin (and Italian) for "Earth" – evokes notions of totality and global scope that resonate with the platform's ambition to

enable comprehensive access to and integration of large-scale biomedical data through computation technologies such as Galaxy or Jupiter.²

In this section, we have analyzed the holistic rhetorical, epistemic and infrastructural ambitions of the precision medicine program All of Us. At the same time, we have argued that All of Us should be understood as part of a federally supported cloud-based data ecosystem that operationalizes holism through infrastructures of data sharing and communal access. What we aim to stress—and what lies at the very center of the analysis that follows—is the tension between these aspirations, which, while framed in terms of inclusivity, openness, and distributed participation, remain structured by underlying asymmetries and forms of infrastructural concentration. More specifically, this case brings attention to the contradictions that emerge when a biomedical program that elevates holism as its central value—across its rhetoric, epistemology, and infrastructures—becomes entangled with logics of warfare. This becomes even more problematic as the promise of wholeness functions as its primary normative and organizational axis. Indeed, while these infrastructures are presented as enabling openness and collaboration, they are simultaneously dependent on highly centralized technological arrangements. In practice, the realization of data commons relies on a limited set of commercial cloud providers, resulting in a concentration of infrastructural power that sits uneasily with the program's holistic rhetorical aspirations. In the final section of the paper, we address this tension more directly by turning to another key technological actor into this data ecosystem—and, more specifically, into U.S. health research, Palantir Technologies.

4. From holism to warfare: the case of Palantir within AoU, and beyond

As Suchman argues, "the premise that data exist prior to their 'collection,' and that everything can be rendered as a data source, aligns with a broader colonial imaginary of data naturalization" (Suchman, 2025, p. 100). This critique is particularly salient in the context of AoU, where data collection is framed as politically neutral, technically necessary for precision medicine, and ultimately oriented toward the advancement of science. As many have shown, however, data do not simply pre-exist their collection. These are linked to specific cultural, disciplinary, and epistemic commitments, but also infrastructural, as illustrated in this article. The infrastructures through which data are generated, curated, and made analyzable actively shape what counts as data and the infrastructural holism we've been analyzed is materialized giving form to objects of knowledge and practice, translating specific epistemological assumptions into material and computational arrangements (Crawford, 2021; Pasquinelli, 2024). This dynamic is particularly evident when technological actors, originating from fields unrelated field to biomedical research, become pivotal within that field, as is the

¹ The Broad Institute was established in 2004, thanks to the vision and philanthropy of Eli Broad, after whom it is named. Broad, who passed away in 2021, was a somewhat unusual figure in the world of scientific patronage. He made his fortune in the construction industry, founding one of the largest homebuilding companies in the United States, the Kaufman and Broad Home Corporation. After selling his stakes, he got into philanthropy, with a particular interest in arts, business, and science. The Broad Institute presents itself as a non-profit organization committed to advancing biomedical knowledge for the public good and to fostering personalized medicine. At the same time, Eli Broad's philanthropic activity exemplifies what can be described as a model of market philanthropy: through large-scale investments in non-profit institutions donors are able to create organizational structures that can generate significant economic returns. In the case of the Broad Institute, these returns have been closely tied to the management of intellectual property in the field of genome editing, which—as Giuliani and Vercellone have shown (Giuliani & Vercellone, 2019)—represents a primary way in which non-profit institutions generate income. A pivotal moment in this process occurred in 2013, when neuroscientist Feng Zhang, a core member of the institute, secured patents that enabled the Broad Institute of MIT and Harvard to license its version of the CRISPR-Cas9 system for use in eukaryotic cells. These patents quickly became a cornerstone of the institute's licensing strategy (Kozubek, 2017).

² While no direct historical lineage is claimed, this semantic register recalls earlier technoscientific imaginaries in which digital technologies were framed as tools for emancipation and holistic understanding. In particular, it echoes countercultural projects such as the *Whole Earth Catalog*, by Stewart Brand, which articulated aspirations toward wholeness and connectivity through emerging technologies and experimental architectures, including Buckminster Fuller's geodesic designs – of which, we suggest, the symbol of Terra, an exagon, is reminiscent (Turner, 2006). Significantly, the name Terra also recalls Tierra, the artificial-life model of evolution created by bioinformatician Tom Ray in 1990 to digitally simulate the evolution of life. Much like the Broad Institute's Terra, Ray's aspiration was to expand Tierra beyond a localized system into "global cyberspace," enabling evolutionary processes to unfold across a shared and distributed network of computers (Helmreich, 1998, pp. 3–4). Read together, we suggest, these references indicate a longer genealogy of infrastructural holistic imaginaries in which computational ecosystems are framed not only as technical supports, but also as totalizing "worlds", informatic and material spaces in which data, knowledge, and—through the latter—life itself, can be shared, scaled, and, ultimately, governed at planetary scale.

case with Palantir.

Palantir Technologies is a technology company that develops software platforms designed to “empowers organizations to effectively integrate their data, decisions, and operations.” (Palantir Technologies Inc, 2024a; Palantir Technologies Inc, 2024b) Founded in 2003 by Alex Karp, Peter Thiel, Joe Lonsdale, and Stephen Cohen, the company rose to prominence in the aftermath of the September 11 attacks and has since assumed a central role in U.S. security and intelligence infrastructures (Knight & Gekker, 2020), particularly in the context of counterterrorism and national security operations (Vance & Stone, 2011). Palantir operates globally, with activities reported in more than 150 countries, and in 2023 the company was valued at approximately \$14.47 billion (Lanzig, 2024). Its core analytical platforms – Gotham and Foundry – are designed to integrate, link, and analyze heterogeneous data sources within a single operational environment. These systems enable the consolidation of large volumes of data originating from distinct domains, rendering them interoperable and actionable. In this sense, what we have termed infrastructural holism constitutes a central design principle of Palantir's technologies. Rather than producing insight through isolated datasets, Palantir's platforms are explicitly oriented toward total integration.

Beyond their application in commercial and research settings, Palantir's technologies have been extensively deployed in surveillance, profiling, and security operations. In the United States, Palantir software has been used by Immigration and Customs Enforcement (ICE) for immigration enforcement and population profiling, with deployments predating but intensifying during the second Trump administration. More broadly, Palantir has been positioned as a key actor in the development of so-called “dual-use technologies.” Recent critical assessments, indeed, have drawn attention to Palantir's involvement in contemporary military and security contexts (Suchman, 2024; Reichborn-Kjennerud, 2025, 147), raising concerns about the ethical and political implications of data-driven infrastructures in situations of armed conflict. As highlighted by Albanese (2025), such technologies contribute to the operationalization of surveillance, targeting, and decision-making systems whose consequences unfold in contexts of war and mass violence, including the occupation of Gaza.

Since 2019, Palantir has entered the field of health and biomedical technologies more forcefully, playing a prominent role in large-scale data integration initiatives. During the COVID-19 pandemic, the company was involved in the construction of what has been described as the largest centralized collection of COVID-19 patient data globally, intended to support epidemiological research and public health decision-making. In the United Kingdom, the National Health Service (NHS) entrusted Palantir with the development of key data infrastructures for pandemic response, while in the United States Palantir actively participated in the data enclave of the National COVID Cohort Collaborative (N3C) program. A recent report (Richman, 2026) shows how U.S. Immigration and Customs Enforcement (ICE) is using Palantir tools that draw on individuals' address data from the Department of Health and Human Services (including Medicaid) to enable more precise identification of those deemed “dangerous.” The problematic nature of these technologies—particularly their structural dual-use (Guarascio, 2026)—has become even more evident in recent events in Minneapolis. There, heavily militarized federal operations have been widely criticized for violating the civil rights of both immigrants and U.S. citizens, often through aggressive and indiscriminate enforcement practices.

With respect to our case, AoU has established direct links with Palantir technologies, and this warrants closer examination. Consistent

with the program's ongoing expansion of data collection and integration, since 2023 AoU “is planning to integrate environmental exposure data tied to the locations where its study participants live. The unprecedented effort, led in part by NIEHS, represents a significant step forward to quantify how a person's environment influences overall health” (Stetler, 2023). As further noted, “the geospatial information will provide a lot of information on environmental health at the population and subgroup levels to answer public health questions” (Stetler, 2023). To operationalize this expansion, the Center for Linkage and Acquisition of Data (CLAD) was established in 2024 in collaboration with the University of Colorado Anschutz Medical Campus. According to official program materials, “the center will connect new types of information to AoU participant data to help researchers better understand the drivers of health and disease” (Palantir Technologies Inc, 2024a). Part of the data integrated through CLAD will be drawn from sources such as the Environmental Justice Index, a national dataset designed to capture spatialized dimensions of environmental exposure and inequality.

Palantir technologies have been awarded federal funding as a partner in this initiative, positioning the company as a key infrastructural actor within CLAD. As Chris Lunt, Chief Technology Officer of AoU, explicitly stated, “The approach to data collection for the Center for Linkage and Acquisition of Data will allow the program to maximize participants' data and expand the utility of the All of Us dataset without asking more of our participants [...]. This will enable All of Us data to answer questions researchers don't yet have the means to investigate.” (Palantir Technologies Inc., 2024) Within this framework, Palantir's software is designated to serve as the interoperable digital backbone of the CLAD platform. As Hirsch Jain, Head of Public Health (Federal) at Palantir, remarked, “This program has the potential to dramatically improve health outcomes and we are excited to be a part of the team.” (Palantir Technologies Inc, 2024a). Palantir's Foundry platform has been selected as the core software environment supporting these integration and analytic processes.

Building on a notion elaborated by Sharon and Gellert (2023), Lanzing (2024) has interpreted Palantir's entry into U.S. health and biomedical research as a case of “sphere transgression.” Drawing on Michael Walzer's theory of social spheres, Lanzig recalls that, within a society, distinct spheres—such as health, security, or the market—are governed by different principles of justice, according to which specific goods are distributed. When actors originating in one sphere intervene in another, these principles risk being violated: goods may be appropriated, redistributed, or, in more extreme cases, monopolized by spheres to which they did not initially belong (Lanzing, 2024). This does not imply that all forms of interaction between spheres are illegitimate; rather, Lanzig highlights the risk that such interactions may undermine the autonomy of one sphere through processes of subversion. Crucially, sphere transgression does not only concern the movement of actors or resources, but also the penetration of the logics and rationalities of one sphere into another, thereby reshaping its normative foundations. In this context, technological continuity (i.e. the sharing of infrastructures) becomes a key mechanism through which sphere-specific norms are blurred and the rationalities of security-oriented data practices are translated into the governance of health data, as these contributes to environmental governance.

In the case of Palantir, Lanzig argues, this process of transgression has been facilitated by a significant continuity at the technological level. Palantir's expansion into the domain of health research has not required the development of dedicated, domain-specific infrastructures. On the contrary, it has relied on the redeployment of technological systems

originally designed for security and intelligence contexts. The use of the same or closely aligned platforms across different social spheres enables this transition to occur with relatively little friction, rendering boundaries between domains less visible and more easily traversed. As illustrated by the All of Us Research Program, Palantir's involvement in the CLAD integration platform builds upon the same infrastructural architecture used to support a wide range of activities across other domains, including security-oriented applications. The reuse of a unified technological framework across health and security contexts allows assumptions, operational logics, and modes of governance associated with one sphere to be carried into another. Overall, this dynamic seems to give shape to a new form of governmentality, nor of bodies or of ecosystems, but made out of their integration and totalization through data.

This resonates with what has been described as “data promiscuity:” the idea that data are relatively indiscriminate in their relations to users and purposes, such that “what is seen as data on a thing for one purpose can always become seen as data on another aspect of that thing, and be used for another purpose and by another user” (Hoeyer, 2020, p. 2). Within this framework, the very definition of “health data” becomes unstable, as boundaries between domains of use are continuously reconfigured through infrastructural interoperability and large-scale data integration.

At the same time, Palantir's expansion into the health domain is accompanied by a discursive strategy that emphasizes technological neutrality, democratic values, and public benefit. Through its public communications, Palantir increasingly mobilizes a language of health improvement, inclusion, and societal progress, aligning its interventions with the holistic and inclusive rhetoric – both at the technical level and at the ideological one – promoted by initiatives such as All of Us.

5. The perversion of the biomedical field and the fine line between holism and monopolization

The rhetorical, epistemological, and infrastructural holism articulated through AoU—and increasingly materialized through Palantir's technologies—rests on a constitutive tension between the promise of totality, integration, and wholeness, on the one hand, and a counter-vailing tendency toward concentration of power, on the other. Rather than realizing a genuinely plural and distributed form of knowledge, the pursuit of holistic integration risks consolidating control over data, infrastructures, and analytic capacities.

One risk highlighted in Lanzig analysis is what she terms “perverted logics,” whereby the normative and technical rationalities of one sphere – most notably those associated with security, surveillance, and warfare – are imported into another, distorting its institutional aims. When health data – such as those generated through AoU – are integrated into platforms led by actors like Palantir, whose technological expertise has been primarily developed in the field of surveillance, the risk of “logic perversion” becomes actual.

This tension becomes particularly visible when situated within the longer history of entanglements between warfare and medicine. Claims to holism can be understood as a double-edged epistemic and political device: they enable the integration of heterogeneous domains—healthcare, security, and data governance—while simultaneously legitimizing the expansion of infrastructures across traditionally distinct social spheres. As STS scholars have long noted, however, the partial “contamination” or interaction between domains (Lacey, 1993) is not new; medical knowledge and technologies have historically circulated between military and civilian contexts. Classic examples include the development of penicillin within wartime research settings and its subsequent translation into civilian healthcare, or the emergence of digital infrastructures such as the Internet from defense-oriented projects before their broader societal adoption.

What appears to be new in the current configuration, however, is not simply the circulation of innovations or technologies across domains, but a more profound reconfiguration of the domains themselves.

Whereas earlier transfers tended to preserve a relative distinction between spheres, contemporary data-intensive infrastructures increasingly operate through what may be described as an “authoritarian stack,”³ in which integration is achieved through processes of vertical consolidation, monopolization, and concentration of power. The notion of authoritarian stack, coined by a group of political scientists affiliated with the Friedrich-Ebert-Stiftung (*Authoritarian-Stack*, 2025), describes the centralization of technological, corporate, and state power through interconnected digital infrastructures. Through a series of visual mappings, the authors trace the links between Big Tech corporations, leading technology entrepreneurs, and multiple departments of the U.S. federal government. The concept highlights how layered technological arrangements can progressively narrow spaces of contestation, redistribute epistemic authority, and concentrate decision-making within increasingly centralized infrastructures.

In this context, healthcare is not merely supplemented by tools or forms of knowledge originating in the security domain; rather, there is a growing risk that it may be redefined through logics which do not pertain to its domain, such as logic of biosecurity, risk anticipation, and continuous surveillance. As Lanzing (2024) argues, processes of sphere transgression entail increasing dependency on vertically integrated data infrastructures, reinforcing dynamics of monopolization and infrastructural concentration – as captured by the notion of authoritarian stack. Health thus becomes framed less as care or treatment and more as the pre-emptive management of potential threats—whether epidemiological, behavioral, or informational—within a unified infrastructural environment.

Within this configuration—especially in the United States—Palantir is emerging as a central actor. Beyond its prominent role in security and defence, Palantir's infrastructural position is reinforced through extensive public contracting. Notably, in July 2025 a ten-billion-dollar contract with Palantir Technologies—one of the largest in the history of the U.S. Department of Defense—was framed in official discourse as a move to “enhance military readiness and drive operational efficiency.” (*U.S. Army Public Affairs*, 2025)⁴ These dynamics are increasingly visible at the level of governmental policy and administration, where former Palantir executives have recently been appointed Chief Information Officer of the U.S. Department of Health and Human Services. In this context, the “Artificial Intelligence (AI) Strategy” has been signed in December 2025, a document which aims to reduce bureaucratic burden and to enhance “technologies to streamline operations and enhance support for care delivery throughout the entire health care industry” (*U.S. Department of Health and Human Services*, 2025). The strategy seeks to accelerate AI innovation in order to create a singular pipeline for health research, “uniting Divisions by eliminating information silos where appropriate and coordinating and collaborating without friction.” The infrastructural holism of the project is mirrored by its rhetorical holism: tellingly, the initiative is named “OneHHS.”

These dynamics are not confined to federal institutions but are increasingly visible across the broader biosecurity ecosystem. For example, in October 2025, former members of Palantir Technologies, together with former members of the Broad Institute, launched Valthos,

³ The epistemic relevance of this concept is further supported by parallel research conducted in other national and sectoral contexts. In particular, Gopal and Babu (2024), in their analysis of digital insurance infrastructures in Indian agriculture, show how governmental actors mobilize digital technologies through a rhetoric strikingly similar to the one observed in precision medicine: promises of precision, efficiency, and optimization are deployed to justify the expansion of centralized data infrastructures. Their findings suggest that the authoritarian stack is not confined to health or to the United States but reflects a more general mode of infrastructural governance, which require a further integration of political epistemological approaches and ethnographical analysis.

⁴ The contract does not guarantee that the full \$10 billion will be spent. It establishes a maximum spending cap within which the Army, and potentially other Department of Defense agencies, may buy technologies from Palantir.

a biosecurity startup whose stated aim is to build the “next-generation biodefence.” As stated on the project's website, “As AI advances, life itself has become programmable. The world is approaching near-universal access to powerful, dual-use biotechnologies capable of eliminating disease or creating it. Today, it's faster to weaponize biology than to advance new cures.” Framed through a speculative and overtly militarized rhetoric of “missions,” “heroes,” existential threat, and extinction, Valthos “envision[s] a future where any threat to human health can be immediately identified” (Valthos, 2025). The capacity to dispose of health data about *all of us*, in real time, constitutes the epistemic presupposition of such a project—a logic that is strikingly consonant with contemporary modes of warfare. As Suchman (2024) and Reichborn-Kjennerud (2025) have shown, accuracy and continuous targeting have become pivotal elements of contemporary military operations. As Reichborn-Kjennerud (2025, p. 208) writes, “the contemporary world of targeting is a world in which everything and everyone, everywhere and all the time, are not only potential targets for action, but have already been targeted and are constantly retargeted as new data and reconfigurations engender new relations that make the world measurable, indexed, intelligible, and actionable.” Valthos – already reported to have secured approximately \$30 million in funding commitments (Valthos, 2025) – appears to operationalize precisely this holistic logic, in which large-scale health data infrastructures and rationalities of warfare seem to increasingly converge, opening a new and urgent terrain for political-epistemological and ethnographic analysis.

6. Conclusion

This article has inquired what genomic screening is becoming in in an age of surveillance, war, mass violence and biodefence. It has taken the case of AoU Initiative, which is reshaping traditional concepts of screening by linking public health, biomedicine, and the market. Initiatives like AoU individualize treatment through large-scale data collection, integrating genetic, environmental, and lifestyle information through holistic rhetoric, epistemology, and centralized cloud-based infrastructures, aiming to aggregate diverse datasets for personalized interventions. The article has shown how the promise of holism coexists with the risk of a centralization of power: actors like Palantir introduce security-oriented technologies and governance logics, blurring boundaries between health, surveillance, and environmental data. This dynamic can be read through the lens of a broader process of centralization, which we frame as part of an “authoritarian stack”, where integration and accessibility coexist with monopolization and potential perversion of different social rationalities. The imbrication between warfare and health research has been historically significant, particularly since the nineteenth century (Howell, 2014), and we propose that the contemporary developments examined in this article be interpreted in light of this longer historical genealogy. Yet, they require close scrutiny as the current convergence of political and technological conditions is perverting healthcare into warfare in name of the shared mission of early detection of any threat to human health.

Consistent with the ethnographic approach adopted in this article, the analytical “patches” assembled here do not seek to provide a comprehensive theoretical account of the relationship between precision medicine, screening, and warfare. Rather, they offer a critical reflection on a set of dynamics traced through the combination of ethnographic inquiry and political-epistemological analysis. In this sense, the All of Us Research Program has served less as an object of explanation than as an entry point through which to interrogate broader transformations in the contemporary biomedical field.

The analysis developed here points toward questions that require further empirical and conceptual investigation. In particular, the relationship between what we have described as the authoritarian stack and the process of sphere transgression deserves more systematic examination. One possible hypothesis is that these concepts capture two complementary dimensions of the same process. Whether this hypothesis

can be sustained remains an open question that requires further situated ethnographic research across different biomedical settings.

What this article has shown, however, is that the convergence of precision medicine, security, and warfare we have analyzed is distinguished by a specific holistic rhetoric, epistemology, and infrastructural logic. It is precisely these holistic ambitions—framed through promises of integration, interoperability, and anticipation—that authorize the expansion of data-intensive infrastructures across institutional and political domains. Further research should therefore investigate how such holistic imaginaries reconfigure the relationships between healthcare, security, and warfare, and with what political consequences for the governance of life under contemporary data infrastructure.

Funding

This article is part of a project that has received funding from the European Union's Horizon 2020 Research and Innovation Programme (GA n. 949742 ERC-HealthXCross).

CRediT authorship contribution statement

Giovanni Fava: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Roberta Raffaetà:** Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

This article is the result of a collective effort to conceptualize the politics and political economy of data in health research within the ERC-HealthXCross project; we thank all the members who contributed to the foundation for the present paper through ongoing discussions and critiques. We also wish to thank Professor Lucy Suchman, visiting fellow of the project (with the ERC-AIModels project) between April and June 2025, who provided a critical perspective on processes of datafication and their relationship to warfare. Finally, we would like to thank Professor Matteo Pasquinelli (and the ERC-AIModels's team) for suggesting a comparative approach, encouraging us to situate the case examined in this paper—the All of Us Research Program—alongside other global “promises of precision” based on algorithmic pipelines and data extraction.

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