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The Value of Having Values

Artifacts of Normative Knowledge as Instruments of Collective Self-Governance for Data Flows

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1.1 INTRODUCTION: AVERTING TRAGEDY BEGINS WITH UNDERSTANDING DILEMMAS

The concept of "data" carries implicit promises of potential value: information, knowledge, and wisdom. Digital data's attributes as a resource – nonrivalry, inexhaustibility, instantaneous transmission – lend themselves to assumptions that reinforce such promise: of generative, if latent, energy. This promise is expressed quite literally in the cliché that "data is the new oil," which posits data as an opportunity for propulsive intelligence, bringing forth a new industrial revolution, this one on purportedly cleaner terms than the last, as if the "exhaust" of data systems is not pollution but rather recursive resource streams to be reprocessed into cybernetic meta-intelligence.

This promise has expressed itself in various formulations – open data, big data, blockchained data, and most recently large language models and other trappings of "artificial intelligence" – which have tended to swell, crest, and crash like waves through elite discourse and the marketing strategies of technology companies and consulting firms. Across these episodic cycles, a theme is apparent: In the shadows between promise and reality, there lurk dilemmas. Many of these dilemmas are by now quite predictable: often economic, occasionally technical, and to a certain extent even material, but above all social. Such dilemmas have confounded many efforts to use data as a resource, perhaps especially well-intentioned aspirations that instead tend to fizzle out or even result in undesirable outcomes that run counterproductive to the original purpose. By now it is almost equally clichéd to observe that, very much like oil, industrialized data systems yield toxic externalities that corrode societal trust and institutional integrity.

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To the extent that there are common patterns in these effects, we can seek to understand them – and strive to perhaps overcome them. Following Elinor Ostrom (2007), we can ask: Under what circumstances can collective efforts *avoid failure* when producing and using data for some social purpose, despite the myriad dilemmas that they may inexorably face?

1.2 WHAT ARE BOUNDARIES IN DIGITAL RESOURCES?

Ostrom's framework might at first glance seem like an awkward fit for digital resources, because of conceptual disjunction with the first principle articulated in governing the commons: *clearly defined boundaries*.

Governing a resource begins with agreement upon *what is the governed resource*. In the context of natural resource systems, the most significant dimensions of this principle are spatial and material: The governed resources are physical things that exist in a place. Digital resources, however, seem to invert important attributes of natural resource systems: They can be accessed anywhere, by anyone with capable equipment and connectivity, simultaneously and inexhaustibly. Furthermore, the potential value of data resources tends to *increase* in scale with use, as the types of use for which such data can be leveraged tend to increase over time.

In conventional institutional settings – of a private firm or public organization – boundaries around digital resources are established through the means of authority and hierarchy. The potential benefits of knowledge that is public, or at least *shared*, however, hinge to a significant degree on transcending such institutional boundaries.

1.3 WHAT KINDS OF BOUNDARIES ARE RELEVANT TO INSTITUTIONAL DESIGN OF KNOWLEDGE-SHARING SYSTEMS?

There are at least a couple of obvious answers to the question of what kind of boundaries can be drawn around knowledge commons. First and foremost, there is the boundary of *scope*, which specifies the kinds of information that are managed within. Any information that falls out of scope should be, presumably, excluded. Boundaries can also be literally drawn in data flow diagrams that describe the entities and relationships in an information system; through such technical documents, designers can specify the various users, structures, and data flows that are involved in the production, management, and use of data over time.

Scope and *system* boundaries, however, are insufficient to describe the breadth of potential uses and users associated with digital resources, which can expand in number and kind far beyond that which was initially envisioned by a system's architects, especially in open systems. In Levin and Beckwith's framework (2015) of a "datashed," the flows of data are conceived as if through a natural ecosystem, like the water cycle – but one that is easily dissociated from place and local context. This ecosystemic understanding of digital resources reveals collective action problems

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that are different in kind from those of natural resources – not owing to subtractability and exclusivity of the resources themselves, but rather the social and institutional relationships from which they are extracted and in which they are used. Indeed, just a few years after the dawn of the modern internet, communities of environmental planners already recognized that the rapid expansion of data-sharing capacities posed not just opportunity but also significant risks, as the "permeability of boundaries threatens to inhibit the ability for groups of people to sustain the trust needed for effective cooperation" (Van House et al. 1998, 341).

What kinds of boundaries, then, can delineate not just *what* and *where* a knowledge resource *is*, but who (among potentially overlapping sets of data contributors, data subjects, and/or data consumers) ought to have what privileges in it, toward what ends?

1.4 KNOWLEDGE COMMONS ARE CONCEPTUALLY BOUNDED BY THE VALUES ASSOCIATED WITH THEIR PROVISION

This chapter argues that a key principle of institutional design for provision of knowledge resources is the explicit articulation and deliberative application of value statements.

Knowledge is inherently structured in accordance with certain values – that is, *what is good? What are our purposes? What are the positive qualities that we expect as a result?* What kinds of outcomes are, in turn, considered undesirable and even unacceptable?

Different parties are likely to have different answers to these questions. (Some impacted parties might never be directly involved with the knowledge production and sharing process – and likely will never have the privilege of being asked in a meaningful way.) Many of these answers can conceptually align in harmony with each other; some, however, might conflict.

In this context, value statements, then, function as a kind of boundary object, in that they enable groups of people with different perspectives to collaboratively share meaning (Star and Griesemer 1989; Carlile 2002) – in this case, by creating a normative conceptual space within which different parties' interests can be aligned. As such, these boundary objects are of a constitutional nature: They establish the terms under which communities can make an array of subsequent collective-choice decisions pertaining to the design, promotion, evolution, and protection of knowledge resources.

1.5 THE GOVERNING KNOWLEDGE COMMONS FRAMEWORK ADAPTED OSTROM'S INSTITUTIONAL ANALYSIS AND DEVELOPMENT (IAD) FRAMEWORK TO THE ANALYSIS OF INFORMATIONAL RESOURCES

This claim may have been implicitly assumed by Frischmann et al. (2014) as they adapted Ostrom's IAD framework for application to the domain of informational resources. Their Governing Knowledge Commons (GKC) project was introduced

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with a set of research questions that can guide the empirical analysis of knowledge-sharing initiatives. One of the first questions in the GKC research framework is: "What normative values are relevant for this community?"

The GKC authors carefully noted that their own work is empirical in nature, rather than normative, "focused primarily on community goals and objectives rather than on values from higher-level social contexts or foundational ethical and moral principles" (Madison et al. 2022, 18). For the purposes of research and analysis, this position is logical. However, as a practitioner with decades of experience in building (and defending) community-based capacities for knowledge sharing, I want to uphold a particular pragmatic principle: A community should explicitly state its core principles. There is value in the collective declaration of shared values.

In practice, these constitutional artifacts can be instrumental in the practice of institutional design and governance for collaborators who may lack technical knowledge of such processes. Likewise in research, such artifacts can guide analysis of the relationships among a community's normative claims, collective choices, and operational processes. By naming value statements as the tools with which communities can draw normative boundaries, we make it easier to apply the Ostromian theory of institutional analysis and design to the practice of sustainable knowledge sharing.

1.6 WHAT ARE VALUE STATEMENTS?

Value statements are part of a family of artifacts that are often – but not always – found across organizational contexts, sometimes described (especially in the nonprofit sector) with the shorthand of "MVV" – which stands for Mission, Vision, and Values.

A *vision* statement describes a project's idealized future, the utopian destination that is pointed toward by a *mission* statement, which describes a project's work. Such statements are similar to statements of *purpose* or *scope* – which specify what kind of *result* a project intends to achieve, and what *product* it produces toward that end.

Value statements tend to further qualify the attributes of a project's purpose and vision: They make normative claims about the positive qualities that animate a project – such as *sustainability*, *accountability*, *accessibility*, and so on. Conversely, these statements imply a set of qualities which should be avoided, discouraged, or even refused – qualities which presumably describe the status quo or the result of failure.

Principle statements may be considered distinct from and complementary to value statements. In my own practice, I posit that principles describe procedural attributes, that is, the ways a group agrees to do work. If value statements articulate the reasons "why" a group does work, principle statements articulate "how" the work ought to be done. Principles underlie working agreements and decision-making processes – specifying collective expectations such as "rough consensus and

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running code" (associated with early web standards initiatives such as the Internet Engineering Task Force) (Russell 2006; see also Lessig 1999, 4) or "We begin by listening" (Allied Media Projects n.d.).

For the purposes of this chapter, I will refer broadly to value statements as the primary example of this broader family of normative artifacts – making distinctions when relevant, but otherwise assuming that statements of purpose, vision, values, and principles perform boundary-drawing roles that are similar enough to be considered together.

1.7 ARE THE VALUES TYPICALLY ASSOCIATED WITH KNOWLEDGE-SHARING INITIATIVES CLEAR AND SUFFICIENT?

So far, so obvious. A reader might understandably consider value statements to be mundane, tactically ornamental rather than strategically instrumental.

And yet fully articulated value statements are not ubiquitous either. Indeed, many knowledge-sharing initiatives simply declare a value in their name – such as "Open" this and "Smart" that – without any further specification.

Close examination of these common, nominal claims reveals various problems that arise from ambiguity in and underspecification of such value statements.

1.8 "OPENNESS" IMPLIES THAT DATA CAN BE ACCESSIBLE TO ANYONE FOR ANY NUMBER OF USES

"Open," for instance, has been waved as a banner of progress by advocates, consultancies, and information technology contractors alike. On President Barack Obama's very first day in office, he signed two executive orders (out of a total of three) issuing "open government" directives. Four years later, McKinsey published a widely cited report on "open data" which estimated its total potential economic benefit across sectors as amounting to more than $3 trillion.

Among just these two examples we find a diverse array of value claims: The Obama administration's open government directives called for "transparency, participation, and collaboration" (Coglianese 2009) while McKinsey focused on "efficiency" and "optimization." The former implies purposes of public accountability and "democratization" that redistributes political agency among citizenry; the latter implies market-shaping infrastructure that can foster competition and innovation. As a signifier, *open* is open to all of these interpretations; sometimes, they might comfortably coexist. But such harmony cannot be taken for granted.

The hypothetical promise of *democratization through openness* is tested by the actual qualities of our existing political economy. While, hypothetically, anyone *could* use and benefit from open data, the actors who are *most likely* to actually use open data are not those who previously lacked access to such data. Rather, the actors who are most likely to directly benefit from open data are those who

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already had the means and motivation to use public knowledge to private ends. The late Michael Gurstein was a champion of the field of "community informatics," yet when considering the value of *access* to open data, he observed that it is in and of itself "sufficient only to … provide additional resources to the Sheriff of Nottingham rather than to Robin Hood" (Gurstein 2011).

Indeed, some of the most prominent large-scale open data initiatives have resulted in – for instance – transfers of property rights from low-income communities, or public lands, to corporate interests (McKenzie 2017).

1.9 "SMARTNESS" IMPLIES THAT DATA CAN BE PROCESSED INTO INTELLIGENCE – LIKE FUEL FOR AN ENGINE

"Smart," like *open*, is a similarly common value statement, with similarly problematic ambiguity. Most commonly associated with the "smart cities" meme, *smart* in such contexts presumably refers to intelligence that can emerge from cybernetic flows of massive data about the activities of people and things. "Smartness" seems inherently beneficial, and the word "city" implies collectivity – yet the phrase itself does not specify who, exactly, gets to be smart and attain the benefits of *smartness* (Beckwith et al. 2019).

Indeed, the objects of *smart city* discourse tend to be large-scale surveillance endeavors, established through processes that are often opaque and undemocratic (Scassa 2020). As Frischmann et al. observe in the first chapter of *Governing Knowledge Commons* (2014):

> The "smart" character of the smart city elides the fact that resident identities and behaviors are necessarily abstracted in smart city processes in the conversion from their material origins to their digital representations. That makes these digital representations controllable, shareable, and analyzable in ways that living humans being often are not. It also makes it easier to keep the collection and manipulation of the data hidden from the people that the data represent.

Observing this trend in which "smartness" is often used as justification for efforts that enclose knowledge about communities, and privatize decision-making apparatuses about surveillance and data use, Beckwith et al. propose "stewardship" as a protective value through which communities can reassert control over their own informational resources and, in turn, preserve collective autonomy and personal dignity.

1.10 ARTICULATING THE VALUES AND PRINCIPLES OF DIGITAL INFRASTRUCTURE FOR THE COMMON GOOD

In a current working paper about "digital public infrastructure" – a concept that is implicitly posited as a corrective to the ambiguous framing of "smart cities" and "open data" – Eaves and Mazzucato (2024) assert that the concept of "public value"

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must be carefully specified in order to ensure that information systems that serve the public are created and governed for the "common good."

Toward this end, they make a distinction between two frames for understanding the values imbued in sociotechnical systems: the frame of "attributes" that describe the technical design of such systems, and the frame of "functions" that describe their societal purpose and benefits.

As an example of this distinction, consider the complementary difference between the FAIR Principles and the CARE Principles.

1.11 THE FAIR PRINCIPLES: SETTING BOUNDARIES AROUND THE TECHNICAL ATTRIBUTES OF "OPENNESS"

The FAIR Principles (Findable, Accessible, Interoperable, and Reusable) describe specific attributes that qualify the "openness" of data (Wilkinson et al. 2016). Each such attribute is further defined in substatements with principles by which open data can be made useful at scale – such as metadata with relevant attributes, unique and persistent identifiers, and detailed provenance.

These principles are technical and tactical – offering standardized criteria for production of data that is *useful*. This concretizes the meaning of "open data" as that which is specifically designed to be shared and used across many technologies and contexts.

Despite its name, however, the FAIR statement makes no normative claims about the purposes for which open data might be used – fairly or otherwise. The boundaries of openness are drawn around a set of objective questions pertaining to data formatting, publication, and licensing.

1.12 THE CARE PRINCIPLES: SETTING BOUNDARIES AROUND THE NORMATIVE DIMENSIONS OF DATA PRACTICES

The CARE Principles, by contrast, describe the positive functions of shared data: CARE – which stands for "collective benefit, authority to control, responsibility, and ethics" – describes the circumstances in which environmental, communal, and personal data can be collected and used for beneficent purposes (Carroll et al. 2020).

As such, these principles draw a standardized set of normative boundaries around the purposes of data sharing, especially that which involves Indigenous people and/or the environmental resources that they steward. In Eaves and Mazzucato's terms, these are functional values that complement the FAIR Principles' technical attributes.

1.13 "DIVERSITY, EQUITY, AND INCLUSION": ATTRIBUTES OF PLURALISM

Similar analysis can be applied to the common triad of "diversity, equity, and inclusion" (DEI) value statements. Democracy presumes equality among citizens – but

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in a world in which the boundaries and terms of citizenship are compromised in various ways by racism and wealth inequality, the attributes of democracy must be further qualified. The values of DEI are commonly posited in recognition of the otherwise-invisible power structures within and around institutions, as a declaration of commitment to strive to avoid the default states of hegemonic whiteness and capitalist disenfranchisement of those who do not have such claims to hegemonic power.

As with *openness* and *smartness*, however, DEI does not fully describe the functions to which these attributes are applied. Does inclusion of individual people of color in an organization's board – and, in turn, equitable remuneration of those persons – in and of itself mean that the organization serves a broader democratizing function in a diverse society? Perhaps not. Without further qualification, we can expect the interests of capital to be served often in ways that conflict with the interests of people and the public.

Functional values would specify *the ends* to which DEI serves democratic purposes. By answering the question *what are the results that we value?* a community can qualify what it would look like to achieve diverse, equitable, and inclusive results.

1.14 EXAMPLES OF VALUE STATEMENTS IN ACTION

For digital infrastructure processes that are committed to the maximization of the common good, Eaves and Mazzucato (2024, 18) assert that "a combined functional and attribute perspective is desired." They acknowledge, of course, that such common good will not be maximized simply through the act of articulating these values of functional purpose and technical attributes. Instead, this synthesis must be enacted through governance.

With just a brief glance at some examples, we can see what it looks like to apply values as boundaries in practice. These examples display a range of conditions on access to data – from partially open, to conditionally shareable, to entirely closed – that reflect values which have been intentionally prioritized over "openness" and "smartness."

1.15 THE INTERNATIONAL UNION FOR CONSERVATION OF NATURE RED LIST: WEIGHING OPENNESS AGAINST CONSERVATION

The International Union for Conservation of Nature (IUCN), for instance, is a global authority on ecosystem science. The IUCN's Red List compiles granular data about the location and concentration of plant and animal species. This data is essential for conservation efforts, and the IUCN's purpose is for public education – so an abstracted level of the data is intended to be "open" (in the sense of the FAIR principles) as a public knowledge resource. However, this data can also be useful for poaching efforts that target specific species. This is to say that there are tensions between the values upheld by the IUCN's mission.

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As a result, the more granular levels of data in the IUCN's Red List are only available on request, under a licensing agreement that requires adherence to a stated function of conservation. The value of *conservation* is first established as a norm, reinforced by trust-building processes and, ultimately, rules. None of these steps can entirely prevent bad actors from conceivably repurposing this data for poaching purposes, but they can mitigate such risks – and establish the necessary preconditions for remediation.

1.16 TE MANA RARAUNGA'S CONSENT-BASED LICENSE

Te Hiku Media is a cultural initiative that has recorded and annotated hundreds of hours of spoken Māori language. This data is an essential input for the development of technologies that could serve iwi communities such as speech-to-text tools. Before sharing this cultural data trove on the internet, however, Te Hiku Media first designed and assigned a special license, the Kaitiakitanga License. This license is not premised on openness, but rather consent. The license requires that any project which uses the data must directly benefit the Māori people, subject to their approval.

In describing the rationale for this license, Te Hiku Media cites Te Mana Raraunga (n.d.), a network of Māori technologists that advocates for tribal *sovereignty* in matters pertaining to digital information about Māori people, language, culture, resources, and environments. Their statement of principles specifies *Authority*, *Relationships*, *Obligations*, *Collective benefit*, *Reciprocity*, and *Guardianship* (as translated from Māori language).

Accordingly, this license reinforces these boundaries around local knowledge, in defense of autonomy against more powerful private interests that might otherwise use open geographic, linguistic, and cultural data to facilitate a new wave of tribal dispossession.

1.17 MAPPING PALESTINIAN JERUSALEM: WEIGHING OPENNESS AGAINST JUSTICE

In another example, Public Lab worked with Palestinian communities to produce a participatory map of the urban environmental attributes of their neighborhoods in Jerusalem. Public Lab's mission specified the production of shared outputs – by which they typically meant open hardware, open-source software (such as MapKnitter, the tool used in this project), and open data – but this project's output was never published online in any format. This decision was made in order to protect the communities involved in its production. As Public Lab's leadership codesigned this project with Palestinian community leaders, they articulated values for the project that included "justice" and "sovereignty," which participants noted were directly in tension with "openness" in this context.

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"Maps are so political," says Public Lab co-founder Liz Barry, reflecting on this project years afterward. "They are objects of power at the same time as they are objects of science. Open data isn't a universal good when its subjects are vulnerable. They may be producing data about themselves so that they can have more agency to determine their own fate, but that same data in other hands could enable outsiders to gain power and dominate them" (personal correspondence; see also Rambaldi et al. 2006).

1.18 WHY THIS MATTERS: WISHFUL WORDS OR DESIGN PARAMETERS?

Just as a natural resource system does not resemble the simplistic "commons" of Garrett Hardin's thought experiment (just a field, barren of any social context), a knowledge commons is more than just a dataset (Hardin 1968). Knowledge commons include systems of collective choice-making about what kinds of data will be collected, what kinds of data are considered useful, how data is made available. We make these choices in accordance with our values.

Of course, we know that any given institution's declared value statements will not necessarily inscribe all of the values that drive the collective choices of a community, much less the actions of the individuals within it – as with Ostrom's distinction between rules-in-form and rules-in-use, what is written down does not necessarily correspond with what actually happens (Ostrom 2005).

And yet value statements can serve as the cornerstones of institutional design – shaping a conceptual container from which new norms can emerge, and with which collective choice-making processes can be steered toward congruency in rules and equitability in outcomes.

1.19 COMMON OBJECTIONS TO THE ARTICULATION OF VALUES

Yet I often come across projects that seem to lack any such statements, or that have never bothered to apply or update them after their initial formative stages. In my experience, proposals to draft value statements, or revise them, tend to meet with resistance.

This resistance typically takes the form of some combination of the following reasons:

- First, different people may have different values, so communities might be reluctant to exclude any particular group.
- Second, value statements can be interpreted in different ways by different people, which leads some to conclude that such statements are useless or, even worse, may foment uncertainty and friction.
- Third, value statements are in and of themselves unenforceable – and therefore are considered performative artifice rather than instrumental artifact.
- Finally, value statements are assumed to be difficult to articulate in a democratic process.

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The rest of this chapter will address each of these concerns. In order, I will observe that value statements can help to establish a community's identity, and subsequently apply this identity to the process of coping with dilemmas that naturally emerge among members with diverse interests; as such, value statements are *instrumental in even if insufficient for* good governance; and, finally, these statements are quite practical to draft without getting mired in endless procedural contention. I will conclude by offering pragmatic guidance for developing and applying value statements in open knowledge communities.

1.20 VALUES CAN SHAPE A GROUP'S IDENTITY: EXCLUDING BEHAVIORS, IF NOT PEOPLE

Different people have different values, and sometimes these values can be in tension with each other. So the concern is that a given set of values might exclude some people from a resource that is meant to be universally shared. This, however, is precisely a reason to articulate values: By specifying those values that are of presumably universal benefit and appeal, a community can delineate between those interests of its members that are held in common, and, conversely, those that may not be served.

As boundary objects, these artifacts create the space in which collective goals can emerge. Practically speaking, this can facilitate the formation and growth of a knowledge-sharing community by signaling trustworthiness to prospective contributors. By clearly articulating the good qualities associated with a knowledge-sharing initiative, the initiative can more easily attract participants and provide them a shared sense of identity.

In my own experience, this process can even shift the dynamics of competition in markets that otherwise risk failure. By articulating a shared purpose, and involving market actors who might feel accountable to that shared purpose (given its alignment with their brand, mission statement, etc.), value statements can imply the threat of a reputation cost to those who might not participate, because such nonparticipation may signal a rejection of these values.[1]

1.21 VALUE STATEMENTS ENABLE THE GENERATION OF "NORMATIVE KNOWLEDGE" FOR COPING WITH DILEMMAS

While shared data is the basis of "descriptive knowledge" produced by an informational commons, shared values are the basis of "normative knowledge" – about the purposes of such information, and the prospective risks that may be associated

[1] In the context of international relations, this is known as the power for otherwise nonbinding treaties to "tie hands" among actors who might otherwise act competitively, but wish to avoid the costs to reputation of noncompliance (Fearon 1997).

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with it. Of course it is true that the same statement can be interpreted differently by different people (each of whom might have different secondary values, as acknowledged earlier) (Voida et al. 2014). This diversity of meanings, however, can itself be a strength rather than a liability for a community, in that it cultivates a rich collective understanding of its own dilemmas.

As Friedman et al. wrote (2006) about Value-Sensitive Design: "Generally, the more concretely (act-based) one conceptualizes a value, the more one will be led to recognizing cultural variation; conversely, the more abstractly one conceptualizes a value, the more one will be led to recognizing universals. Value Sensitive Design seeks to work both levels, the concrete and abstract, depending on the design problem at hand." This normative knowledge can facilitate the emergence of new kinds of norms – and, eventually, rules – by creating a shared framework for discourse and, in turn, deliberative institutional design. By establishing a rubric for articulation of trade-offs posed by dilemmas emerging from conflicts among stakeholders – including situations where different shared values are in tension with each other – communities can engage in a kind of "value-sensitive institutional design."

With this logic, communities can more effectively coordinate activities that might constrain some individual interests in order to promote those that are shared. As such, value statements enable the emergence of other logical and ethical boundaries not just around scope but also around contributors, data subjects, uses, and outcomes. By equipping a knowledge-sharing community to describe both the common good and individual benefit using the same terms, we can translate Ostrom's second principle – "Rules regarding the appropriation and provision of common resources that are adapted to local conditions" – from a primarily spatial orientation to a social context.

1.22 VALUE STATEMENTS ARE NOT DIRECTLY ENFORCEABLE, BUT THEY ARE USEFUL FOR PRIORITIZATION

In and of themselves, value statements may not be enforceable as rules. They express aspirations. Even if a norm is essentially universally recognized, there is not any consensus as to what consequences should result from its violation.

Value statements, however, can entail attendant logics about what *kinds of use* are intended, and what *kinds of outcomes* are expected. In turn, uses and outcomes that are considered inappropriate and unsanctioned can be disincentivized, if not prohibited (Sanfilippo and Frischmann 2023).

Despite the limitless potential inherent in the promise of openness, there are always constraints of time and energy that require some kinds of data, and some kinds of uses, to be prioritized over others. In this way, value statements can help overcome the conceptual limitations of "open" or "smart" initiatives by specifying additional parameters for successful outcomes. Certain kinds of values such as *trust* and *safety* are essentially subtractable resources: They can be depleted by

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inappropriate actions. Such undesirable actions might not be entirely preventable by a given community – given the nature of the knowledge and/or the other kinds of values in a community – but the community can decide to establish processes and structures that can mitigate these risks.

1.23 VALUES HELP US KNOW WHAT WE WANT TO KNOW: HOW TO MONITOR, WHAT TO EVALUATE

Values also clarify the kinds of curation and feedback that are desirable – making explicit the kinds of user inputs that are considered positive or negative. This, in turn, may have significant implications on design decisions pertaining to monitoring and evaluation of data quality. Without such normative knowledge, many knowledge-sharing projects might default to monitoring that which is easily quantifiable – number of entries, rate of growth, and so on – which does not necessarily accord with the most important aspects of the health of the knowledge ecosystem and its community of users.

How do we observe what is happening with the resource? Do we have processes for reflecting on this analysis, and acting accordingly in affirmation of our values?

Parmiggiani and Grisot (2020) observe that these questions are not just asked by designers, but also through the distributed activities of administrators and users in a knowledge-sharing commons, as they engage in "situated resolution" of various kinds of problems encountered as they engage in *achieving data quality, filtering the relevant data, and ensuring data protection*.

"[T]he practices for assessing data quality are emergent and contextual, as well as involve stakeholders with different interests and training in data management and who actively participate in producing the data and ensuring their quality by means of several informal heuristics. Generating good quality data is thus open to interpretation and context dependent." Parmiggiani and Grisot (2020, 22) describe examples, for instance, in which satellite monitoring includes cranes in a dataset about urban trees – a kind of error that is more likely to be caught by local knowledge that can distinguish among signals such as height. "Often, these contributions remain visible to other workers on the same research site but invisible to managerial levels in the organization where data governance decisions are formally made" (Parmiggiani and Grisot 2020, 28). By explicitly stating values, a knowledge-sharing community can promote distributed data governance decisions as close as possible to the context in which data is gathered, verified, and used.

1.24 DEMOCRATIC WRITING WITHOUT GRIDLOCK: THE ADVICE PROCESS

Useful value statements reflect a variety of perspectives, and as such the process of crafting them tends to benefit from a degree of democratic input (Allen 2014). As per

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Ostrom's principle of "collective choice arrangements," truly valuable value statements are those that reflect (and can be changed in accordance with) the perspectives of the various members of a community that contributes to and uses a resource.

Effective "democratic writing," however, does not need to be conducted by committee. Responsibility for drafting value statements on behalf of a community can be distributed through a method such as the Advice Process (Bakke 2013; see also the Equal Experts' Advice Process Playbook n.d.). Through such a process, authorial power is delegated to an individual, or small group of people, with requirements to engage all interested parties in iterative cycles of review, feedback, and revision.

Before further considering these means, I should briefly address the ends: *True consensus is not strictly necessary for effective democratic writing*. A middle path between majority vote or unanimous agreement is *concordance and consent*: The result should reflect the broadest possible agreement that can be reached without strong objection. In other words, everyone does not have to totally agree with everything, as long as all are willing to live with it. This process – delegation, feedback, and consent – can enable a group to account for differences without getting bogged down by disagreement.

1.25 IDENTIFYING AND ENGAGING STAKEHOLDERS

Assuming there is already an articulated purpose for a given project, the next step is to identify the different sets of stakeholders who are impacted by this purpose. This might include the public at large, but also should include specific groups of direct participants and indirectly impacted parties – data contributors, data subjects, and so on. With the purpose statement front and center, invite representatives of each group to share their reactions. This can be done in many one-on-one dialogues, though group discussions can generate invaluable energy and, in turn, insights. Write down what they say (and make sure to review with them to affirm you have got it right).

1.26 ARTICULATION AND SYNTHESIS

As this process iterates, different stakeholders will likely use different vocabularies. This is OK; patterns will emerge. Look for similar statements that can be coherently grouped together under a single word or phrase: These are your contenders. Polling can help identify those which resonate the most across groups.[2] This process may benefit from cycles of expansion and convergence: generation of all possible

[2] The CARE principles hold that, while each group might perceive different benefits and risks, those who are most directly impacted (such as data subjects and/or those whose livelihoods might be directly affected by data use) should typically receive deference in this process. This principle, however, may merit exceptions in cases of public interest such as disease tracing and water quality assessment.

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value statements, followed by clustering, synthesis, and naming the smallest possible set of unique themes.

My personal preference for formatting value statements takes a pyramidal approach: Values ought to be expressible as a single word or phrase, and from there can be elaborated. A single word or phrase ought to be definable in a single sentence. And this single phrase with its one-sentence definition can then be elaborated in a longer paragraph that addresses the various permutations of that value across significant contexts. Such a nesting structure enables the artifact as a whole to be adapted for multiple purposes – from thumbnails to essays.

There is no rule about this, but I suggest looking for a number of value statements that can be counted on one hand. Any larger and it is hard to keep track; anyway, I would bet that among six or more potential statements, at least two will be similar in intent and can be merged.[3]

1.27 FORGE A BALANCING INSTRUMENT

An appropriate set of values should work together as a system – like primary colors, elemental attributes, or cardinal directions. One value on its own might be insufficient and conflict with others if prioritized exclusively; together, they can form a kind of normative compass. (For instance, a value of *sustainability* might entail revenue-generation strategies, but these might conflict with values of *equitability* or *accessibility*; there may not necessarily be one right way to resolve these tensions, yet by naming them communities can begin to cope with them.)

The value statements should be political, in the sense that they offer a positive vision of how the world should work, though noncontroversial, in that they should be universally appealing (at least among the identified stakeholder groups).

With these values in hand, a community can continue this practice of dialogic inquiry throughout its lifecycle: In any given context, ask how a given value can be best realized, how a given set of values can best be brought into balance.

1.28 IN CONCLUSION: A WAY TO BEGIN, AND MEANS TO ENDURE

In reviewing my outline for this piece, I spoke with one organizer who expressed that they had once relented in the face of resistance to this process – "There was a sense that we didn't have time, that just doing the work was more important" – only to eventually regret it when conflicts later emerged. "Spending time to agree on these principles and values enables you to be flexible and adaptive later. It enables different people working on different things to feel committed to each other, because they share this common language."

[3] Odd-numbered sets seem to be somewhat more satisfying and easier to remember than those with even numbers, for reasons that I find hard to explain.

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Through this process of elaboration, a community can both set the parameters for more complex forms of collective choice-making and engage in collective learning about the process thereof, in order to clear pathways through what might otherwise seem to be intractable dilemmas.

Value statements are of course not sufficient – not inherently binding in and of themselves, and subject to interpretation by different stakeholders with different logics that may be in tension with each other and result in conflict. For effective and sustainable collective action to steward digital resources, however, value statements may be considered practically essential – critical inputs to ongoing, iterative processes of evaluation and collective choice-making.[4]

This foundation of normative knowledge can give leaders, members, and subjects alike a common framework for communication about their motivations, and about the rationale for decisions, as they navigate and negotiate across contexts. By explicitly stating its values, a community establishes an agenda for education of its members as cocreators of a shared world.

[4] To borrow Lee Vinsel's provocative formulation (2023): Value statements equip us with the compass we need to be better reactionaries.

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