International Law and the Provocations of the Digital: The 2021 Annual Kirby Lecture in International Law

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I. Introduction

What are international law's signature operations? With what settings and activities do you most associate international law? Perhaps you think of some diplomatic back-and-forth in the United Nations Security Council Chamber or at a UN Climate Change Conference. Or maybe you think of blue-helmeted figures distributing food aid after some disaster. It could be that you think of an international border or the efforts of the International Court of Justice to resolve disputes over them. Or some of you might think of the International Space Station orbiting our planet and the agreements that keep it there.

In all these settings and others like them, we can discern international law's basic architecture at work. All these scenes feature encounters between states, and between those charged with governing and representing states. Of course, there are other ways of relating internationally that feature in these scenes too. Cities, Indigenous peoples, corporations and faith-based organizations are all active in the domains to which I alluded. And international lawyers are mindful of these kinds of non-state intermediaries. Nonetheless the skeleton on which today's international lawyers continue to drape their disciplinary muscle remains that of state-to-state relations. For this purpose, the state is classically depicted as it is in the first article of the 1933 Montevideo Convention.[1] You know the formula; it is a textbook staple: permanent population; defined territory; government; and the capacity to enter into relations with other states. In this lecture, I want to revisit this classical recipe for what constitutes a state, legally speaking, and to

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[1] Montevideo Convention on Rights and Duties of States, opened for signature 26 December 1933, 165 LNTS 19 (entered into force 26 December 1934).

show how each of the ingredients of this recipe—and the international legal order that this recipe is meant to serve up to the world—is becoming increasingly separated from our pre-existing understandings of them.

International law's prevailing logic has been, in large part, an analogue logic. This is becoming interspersed, in practice, with a digital logic with which its analogue tendencies tend to conflict. This is what I aim to show you in this lecture. This is rendering many of international law's standard answers for the problems of the world potentially unreliable. It is also giving rise to new measures of relative worth to which political communities are now held. In particular, states and would-be states are being held to a standard of datafication to maintain their statehood's viability.

It is important to emphasize that this digital-analogue conflict is not just internal to international law. It articulates with a set of broader economic and social conflicts now underway. These are conflicts between—roughly speaking—those who are seeking to monetize digital data, those who marshal digital data to try to dominate others or defend the status quo, and those who are seeking to mobilize digital data against exploitation (with inevitable complicities between the three). And while the analogue-digital conflict at work in international law (as I will explain further in a moment) does not map neatly onto these kinds of economic and political conflicts exactly, it does operate within them.

The question that the digital poses for international law, therefore, is not how to catch up with the digital. No, that is not it at all. After all, digital technology has been with us since the mid-20th century.[2] Instead, the questions posed for international law by developments in the political economy of digital data are something like the following. What might be made of digital-analogue cleavages in international legal work, if we were to focus on their instability rather than trying to wager on one or the other across the board? How might this instability be leveraged or levered open, given the ideological and material struggles in which international law is implicated? What possibilities could these schisms yet open up? So buckle up: that is where we are heading in this lecture, but first, let me back up and lay out the argument a little more slowly.

II. Digital and Analogue

When I speak of international law having predominantly an analogue logic, I do not mean to suggest that international lawyers always work according to a singular logic. They do not. Nonetheless, analogue logic and the logic of analogy have long been crucial to international law's framing of order among states. We all know that the 195 states of the world are incredibly varied. Yet we rely on analogy to treat them as legally comparable and to place them on a single,

[2] Andrew Piper, 'Digitization' in Ann Blair, Paul Duguid, Anja-Silvia Goeing and Anthony Grafton (eds), *Information: A Historical Companion* (Princeton University Press, 2021) 402–6.

common plane or, as is often the case, on a developmental continuum. States must be made analogous to one another to be made formally equal in law.

Thinking through analogy is one form of analogue logic. Not all instances of analogue logic entail resort to analogy, but to draw an analogy is to deploy analogue logic, much as a protractor, a ruler, a mercury thermometer or an accelerator pedal employs analogue logic. International law typically 'computes', so to speak, by reference to continuous variables and proportions, or by marking and moving between intervals along a spectrum. According to this analogue logic, each constituent unit of analysis can, in principle, be divided into ever smaller units without necessarily becoming useless or meaningless. The state may be historically pre-eminent, but it does not comprise an indivisible unit of analysis. Every international legal subject can be remade into others. Even the individual right-holder of international human rights law gets divided and recomposed by international law, recast according to gender, age, citizenship and so on. International law always understands its subjects, and its other units of analysis, in relation to one another and according to their resemblances and differences of scale and degree. On/off distinctions are not unknown to international law. Legal/nonlegal or national/international classifications sometimes take this form. But mostly they do not. Mostly, international lawyers talk, think and work along a continuum stretching from the less to the more.

We can contrast this with a digital logic. Let me say something about this logic in general terms before I turn to how digital logic is backpropagating instability in international law as we know it. There will be lots of 'real life' examples, I promise. But for now, I will first set out these differences in fairly abstract terms. As I do, remember that I am speaking schematically. In the day-to-day of international legal work, analogue and digital are frequently entangled and often concomitant.

What do I mean by digital logic? Well, borrowing from Anthony Wilden and others, digital logic works with discrete, non-divisible units in binary relation: one and zero, on and off, something or nothing.[3] Digital logic is discontinuous and presupposes gaps between elements—gaps that, in digital circuitry, must be spanned by wires, gates and latches. Digital significations are denotative and precise (which by no means implies that they are representationally accurate). They identify and delimit elements in a way that is opposable to all other elements. The digital is oriented towards either/or events as distinct from an analogue concern with both-and processes and more-or-less similarities. Not all contemporary computing or communication is digital; analogue computing has enjoyed something of a resurgence of late and quantum information theory has grown in prominence and promise over recent years. Nevertheless, digital logic looms large wherever information and computing technologies are deployed.

[3] Anthony Wilden, 'Analogue and Digital Communication: On the Relationship between Negation, Signification and the Emergence of the Discrete Element' (1972) 6 *Semiotica* 50; Anthony Wilden, *System and Structure: Essays in Communication and Exchange* (2nd ed, Tavistock 1980); Bernard Siegert, 'Coding as Cultural Technique: On the Emergence of the Digital from Writing AC' (2018) 70 *Grey Room* 8; Alexander R. Galloway, 'Mathification' (2019) 47(1) *Diacritics* 96.

This all sounds a long way from the scenes of day-to-day international legal work with which I began. So let me now flesh out the claim that digital logic bears increasingly on the practices of international law. I will do so, as promised, by attention to what the Montevideo Convention tells us are the four constituent elements of a state recognizable to international law.

III. Montevideo Redux

I return to the Montevideo Convention of 1933 not just because of its content. I return to it also as an earlier instance of international law undergoing a process of fundamental recodification—a process to which I want to draw a tactical analogy here. As Arnulf Becker Lorca has observed in his book *Mestizo International Law*, the Montevideo Convention comprised part of a concerted effort by scholars, governments, and scientific associations during the first few decades of the 20th century to 'modernize the classical legal order inherited from the previous century'.[4] This effort was driven, Becker shows, by Latin American states and other industrializing nations of the semi-periphery. To our eyes, the Montevideo Convention's stipulation of the formal requirements of statehood can seem staid and dusty. However, Becker reminds us that: '[s]een from the perspective of the semi-periphery, …[c]odification opened a precious opportunity for discussing and changing the basic structure of international law'.[5] What the Montevideo Convention delivered in this context was a 'blow to the standard of civilization'—that is, the requirement that would-be states and decolonizing peoples demonstrate that they are 'civilized' enough to attain membership of the international legal community.[6] More on that in a little while. For now, the Montevideo Convention is a helpful reminder that elemental transformation of the international order does take place periodically and may do so again.

The recodification of international law now underway is of quite a different kind to that brought about by the Montevideo Convention. What is being recodified is not doctrine but practice. The changes that I will describe do not pertain to the Convention's doctrinal gatekeeping about who might or might not qualify for statehood in a court or among legal advisors to foreign ministries. Rather I am talking about change in the day-to-day work of states maintaining their statehood. Nonetheless, the openings and instabilities that recent changes create in international law's analogue architecture go once again to the 'basic structure' renegotiated at the time of that Convention. And peoples and places in the semi-periphery and the periphery are once again crucial drivers and bearers of this change.

[4] Arnulf Becker Lorca, *Mestizo International Law: A Global Intellectual History 1842-1933* (Cambridge University Press, 2015), 305.

[5] Ibid.

[6] Ibid.

(a) Permanent Population

How, then, does the digital logic that I have described make trouble with international law's expectation of states having 'permanent populations' attributable to and governable by them? According to most international law commentary, the term 'permanent population' connotes a relatively stable, organized community of people that a state might call its own. In practice, it almost always implies a people counted by a census or through fiscal information-gathering. A population is a statistical category assembled for purposes of comparison—both internal comparison (between its constituent subcategories) and external comparison (among populations). Whether or not a state can rally a 'population' to call its own is really only a concern for international legal doctrine at the point of independence or secession. Nonetheless, international law maintains a working assumption that every state is answerable—albeit in different ways—to and for a more-or-less permanent population.

The way in which states lay claim to and purport to answer to a 'permanent population' is, however, changing. This is because states—especially states with limited resources—are increasingly looking to digital data to assist them in analysing their populations' characteristics and conduct. Likewise, states' international reporting on their 'permanent populations' are increasingly permeated with digital logic. And the digital aggregates that states assemble for analysis do not fit neatly into the statistical categories into which states and international organizations have traditionally apportioned people as 'populations'. The 'permanent populations' that states seek to govern are increasingly visualized in ever-shifting real time, not in classical demographic terms.

Think, for example, of some of the digital dashboards now used by states in the discharge of their governmental responsibilities. One of these is Haze Gazer: a real-time visualization and analysis dashboard for enhanced crisis management.[7] Haze Gazer was developed in 2015 by the United Nations' Global Pulse Lab in Jakarta to help the Indonesian government understand and respond to haze events—devastating spikes in air pollution associated with the burning of vegetation.[8] It has reportedly been integrated into IT systems in the Situation Room of the Indonesian President, Joko Widodo.[9] Haze Gazer enables users to track fire hotspots identifiable by satellite, relying on image sensors aboard NASA's Terra and Aqua satellites.[10] It also tracks air quality standards using the Air Quality Index China: 'the world's largest aggregator of real-time air quality data'.[11] On top of this, the dashboard visualises geolocated tweets featuring particular keywords suggestive of haze. The combination of these thermal, air quality, and social media data is overlaid on OpenStreetMap maps.[12] Those are freely downloadable digital maps

[7] Pulse Lab Jakarta, 'Haze Gazer' (Web Page) < http://hazegazer.org/>.

[8] Fleur Johns and Caroline Compton, 'Data jurisdictions and rival regimes of algorithmic regulation' (2022) 16 *Regulation and Governance* 63, 67–71.

[9] Ibid 70.

[10] Ibid 67.

[11] Ibid 68. See The World Air Quality Index Project, 'Real Time Air Quality Index (AQI)' (Web Page) <http://aqicn.org/>.

[12] Ibid 75.

assembled from volunteered data—an open-source alternative to Google Maps.[13] While the focus of Haze Gazer's initial case studies was Indonesia, its data visualizations are unconstrained by national or sub-national jurisdictional boundaries—its 'gaze' follows wherever data fitting its parameters are available. Mapping the impact of Indonesia's fire hot spots may encompass social media postings from people in neighbouring countries. And the whole platform is designed to be modular and adaptable. Last year, UNDP and UNICEF announced that they were developing a version of Haze Gazer for Mongolia.[14]

The way that the state perceives information through a dashboard like Haze Gazer is unlike the way states have historically tried to make their populations legible. The state is invited to 'see' and interact with those so visualised in newly discontinuous ways. Nate Tkacz has observed that dashboards tend to elicit a 'distributed form of attention', the ideal mode of which is 'continual but punctuated glancing'.[15] I have talked elsewhere about how states are now inclined to release a succession of policy and program prototypes and wait to see how they fly rather than rolling out fully developed policy positions.[16] Haze Gazer is one such prototype. And the dynamic disaster maps that it presents to its users serve as prototypes within a prototype. States seem increasingly captivated by these kinds of constantly shifting digital aggregates as expressions of the objects of their governance work.

As foreshadowed earlier, this moment-to-moment digital rendition of a state's constituents conflicts profoundly with the analogue notion of a population bequeathed to international law by several centuries of statistical thinking.[17] International legal work has long been concerned with rendering state-bound people formally equivalent and qualitatively comparable. This has been necessary to get populations to fit certain standardized legal roles (each having a head of state, for instance) and to imagine them being able to traverse sliding scales of legal obligation (such as the obligations imposed on states by some treaties to 'progressively realize' protections or 'take steps' towards certain outcomes).[18] Legal norms concerned with these roles and obligations work with an analogue logic of the sort that I earlier outlined: a logic of continuous scaling, sequencing and similarity. The digital aggregation of people-proxies by states entails, instead, the mapping of discrete entities and discontinuous on/off elements at a particular moment in time—like hot spots on a Haze Gazer dashboard. International law's expectation that every state holds a

[13] See OpenStreetMap Foundation, 'OpenStreetMap' (Web Page) <https://www.openstreetmap.org>.

[14] UNICEF, 'UNDP and UNICEF pilot new web-based platform focused on understanding air pollution impact on health and well-being of Ulaanbaatar residents powered by citizen generated data' (Press Release, 10 December 2020) <https://www.unicef.org/mongolia/press-releases/hazegazer>.

[15] Nathaniel Tkacz, 'Connection Perfected: What the Dashboard Reveals' (Keynote Address, Digital Methods Initiative Winter School, Amsterdam, 16 January 2015) 3 <https://www.academia.edu/12077196/Connection_Perfected_What_the_Dashboard_Reveals>. See further Nathaniel Tkacz, *Being with Data: The Dashboarding of Everyday Life* (John Wiley & Sons 2022).

[16] Fleur Johns, 'From Planning to Prototypes: New Ways of Seeing Like a State' (2019) 82 *Modern Law Review* 833.

[17] Fleur Johns, 'Governance by Data' (2021) 17 *Annual Review of Law and Social Science* 53.

[18] Robert E. Robertson, 'Measuring State Compliance with the Obligation to Devote the "Maximum Available Resources" to Realizing Economic, Social, and Cultural Rights' (1994) 16 *Human Rights Quarterly* 693.

population more-or-less stable in relation to its government remains unchanged. However, the way that states maintain that relation—and the form of the cohort so rallied—are now routinely riddled with digital-analogue tensions.

(b) Territory

What, then, of defined territory? If permanent populations are giving ground to impermanent digital projections of the peoples that states aspire to govern, are those people not still mapped to a delimited patch of the globe for international legal purposes? Well, yes and no. It still matters, when determining international legal rights and responsibilities, in which state's territory a person was born, resides and does business. That has become all-the-more apparent in the current global pandemic. Nonetheless, the way that territory is understood and analysed is being fundamentally reconfigured. This is occurring as states turn more and more to the automated analysis of the earth's surface employing massive, distributed, digital data streams and a vast, globally dispersed infrastructure to store and transmit them.

In short, territory is being increasingly 'datafied' in international legal work.[19] At the same time, the territorial location of digital assets and infrastructure is of growing significance in international legal affairs—data, in other words, is ever more unevenly territorialized.[20] Once again, this brings practices of international law into tension with its conventional analogue architecture.

Of course, the practice of rendering territory as data for international legal purposes is not a wholly new phenomenon. The division of a spherical world into evenly spaced meridians using latitude and longitude, for example, is of ancient provenance, although it was not until the eighteenth century that these were reliably measured.[21] Furthermore, it was through a late nineteenth century international conference and treaty regime that one such meridian became a common point of reference for locational, surveying and time-keeping purposes.[22] Datafication in these modes has long been vital to the projects and potency of international law.

The representation of territory in and as digital data has, however, intensified to a very significant degree with the advent of orbital satellites, the satellite-based radio navigation system known as the global positioning system (or GPS), and technologies of automatic sensing, Google mapping and the like. A profusion of sensor networks, and advances in their sophistication, have fostered aspirations to seed the planet with continuously operating data-collection and data-generation nodes. Digital transmission from these nodes has an all-or-nothing quality that can be appealing for international organizations operating under conditions of global uncertainty. Digitally encoded images

[19] Fleur Johns, 'Data Territories: Changing Architectures of Association in International Law' (2017) 47 *Netherlands Yearbook of International Law* 107.

[20] Ibid.

[21] Nel Samama, *Global Positioning: Technologies and Performance* (Wiley, 2008) 8–11.

[22] William Gordon Perrin, 'The Prime Meridian' (1927) 13(2) *The Mariner's Mirror* 109; Rebekah Higgitt and Graham Dolan, 'Greenwich, Time and "The Line"' (2010) 34(1) *Endeavour* 35.

or sounds can be transmitted in near-perfect reproduction up to the point where the noise level (or the amount of unwanted signal interference) wipes out a significant number of bits, at which point their transmission will completely fail. In regulating nuclear testing, for example, the Comprehensive Test-Ban-Treaty Organisation operates a global network of seismic stations, hydroacoustic centres (detecting sound waves in the oceans), listening stations for atmospheric infrasound and radionuclide detecting stations.[23] With digital data so collected, they seek to determine when and where a nuclear device of any size is detonated and to evaluate the lawfulness of that detonation under applicable international law.

Territory so 'datafied', and thereby made actionable for law and policy decisions, still performs bounding, distributive and placement functions for international legal purposes. Yet it does so in a distinctively digital mode. State territoriality becomes a matter of managing and maintaining a dynamic, time-sensitive 'planetary skin' of digital data. The term 'planetary skin' here references the work of the Planetary Skin Institute: a non-profit organization co-founded by Cisco and NASA in 2008 with the goal of building a platform for planetary eco-surveillance.[24] NASA has since made available online an opensource virtual globe, compatible with multiple operating systems, through its NASA WorldWind initiative.[25] All of these projects depend on the discrete partitioning and the ordering and naming of cells for unique spatial indexing.

Territory so digitized is less predisposed to fencing and bounding in the manner conventionally required to sustain states' territorial claims and property rights. Analogue borders on the global plane are typically presumed to be continuous and unbroken, barring inter-state disputes. Analogue property rights in international law tend to vary by degrees along a spectrum—from sovereign rights of exclusion and immunity to variable rights of exploration and extraction in different domains. Digitized territory has more of a pixelated quality; it allows for much more granular differentiation between this piece of territory and that. Digital representations of territory suggest that states' international legal authority can be switched on or off in precise locations and at particular times. As a result, the task of patrolling state boundaries is becoming more and more about data collection, distribution, curation and personalization. That is the case even though state fencing and policing of physical borders continues apace; indeed, physical and digital bordering are advancing in mutually reinforcing ways.[26] For these reasons, states worry as much about their access to digital infrastructure—to undersea cables and orbital satellites—as they do about maintaining and defending their physical borders.

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[23] Muhammed Zulfakar Zolkaffly and Faisal Izwan Abdul Rashid, 'The Comprehensive Nuclear-Test-Ban Treaty (CTBT): Seismic Monitoring' (2019) 555(1) *Materials Science and Engineering Conference Series* 012010.

[24] Jonathan D. Stanley, 'Planetary Skin Institute ALERTS: Automated Land Change Evaluation, Reporting and Tracking System' (2011) *Proceedings of the 2nd International Conference on Computing for Geospatial Research and Applications* Article No. 65. <https://dl.acm.org/doi/10.1145/1999320.1999388>

[25] NASA, 'WorldWind' (Web Page) < https://worldwind.arc.nasa.gov>.

[26] E. Tendayi Achiume, 'Digital Racial Borders' (2021) 115 *AJIL Unbound* 333.

Meanwhile, international law offers relatively few means for states or others to contest digitized boundaries, or to raise concerns about transboundary incursions or exclusions of a digital kind. In the past few years, the International Court of Justice has ruled on many traditional boundary disputes recently including disputes between Bolivia and Chile and between Costa Rica and Nicaragua. However, in 2010, just before Costa Rica instituted proceedings against Nicaragua in the border dispute to which I just alluded, Nicaraguan military and government officials admitted to an 'accidental' invasion of Costa Rican territory involving Nicaraguan troops taking down a Costa Rican flag and erecting a Nicaraguan flag on Costa Rican territory. The invasion was attributed by the Nicaraguan troop commander to an error on Google Maps that misrepresented the location of the border between the two countries by some 2.7 kilometres.[27] This didn't come up explicitly in the ICJ proceedings—perhaps it was a bit too embarrassing for all concerned. Nonetheless, satellite image data were tendered in support of Costa Rica's claims that Nicaragua had been illegally dredging their territory.[28] As it happened, the court found this evidence 'insufficient' because it was unclear; some images were obscured by the tree canopy.[29] The court did go on to chart the land and maritime boundaries between the two countries.[30] Yet it had nothing at all to say about the way that the two states should manage conflict in these boundaries' digital expression. Nor did the court set any limits on these states maintaining a virtual presence in each other's territory through remote sensing activities. My point is not that international lawyers should rush to try to plug these gaps. My point is that this kind of gappiness might open prospects for international law's radical reordering. More on that in a moment.

In so far as international law does speak about territory in informational terms, its conventional guidance may be unreliable when regard is had to the expansive digitalization of territory and the uneven territorialization of data. Early in the Cold War, addressing a dispute between Communist Albania and the United Kingdom in the *Corfu Channel Case*, the International Court of Justice famously stated that 'it is every State's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States'.[31] This raised the prospect of states being held legally responsible—and potentially vulnerable to countermeasures—for activities traceable to their territory that unlawfully harm other states. In effect, the ICJ was treating state territory as a data repository and presuming that territorial sovereignty and data sovereignty typically travel together. The digitalization of territory has, however, broken these things apart. Digital data's reproducibility, combined with differential access to national legal and economic support for digital platforms, have seen a small number of digital harvesters acquire data volumes and analytical capacity that far outstrip those of most states. Most of these dominant data harvesters are private

[27] Ethan R. Merel, 'Google's World: The Impact of "Agnostic Cartographers" on the State-Dominated International Legal System' (2015) 54 *Columbia Journal of Transnational Law* 424, 425–426 and 442–445.

[28] *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua) and Construction of a Road in Costa Rica Along the San Juan River (Nicaragua v. Costa Rica) (Judgment)* [2015] ICJ Rep 665, 701 [79]-[80].

[29] Ibid 701 [81].

[30] Ibid 740 [229].

[31] *The Corfu Channel Case (UK v Albania)* [1949] ICJ Rep 4.

corporations, but some states, like Bahrain, China, Norway, India, Israel and the US, are immense data hoarders as well.[32] As a result, some companies and states have vast repositories of digital data pertaining to much of the world's territory. Meanwhile, other states have less data about activities ongoing on their territories than large commercial digital platforms do. This data deficit is often treated as a mark of some states' 'unwillingness and inability' to govern and used to justify even more intrusive surveillance and data-gathering on their territory, thereby entrapping them in a downward spiral of digital-data-borne domination.[33]

We are now halfway through the Montevideo Convention's four criteria for statehood and you can already see the pervasiveness of the digital-analogue conflicts with which the day-to-day work of international law is riddled. International legal institutions—such as courts and tribunals—persist in their efforts to manage a global chessboard of equal sovereign states, each with a defined territory and a permanent population. Meanwhile, the edges and contents of those state territories are being re-expressed in digital formats of which international law has little grasp. This is taking place under hybrid regimes of public and private law and the de facto jurisdiction that large digital platforms enjoy.[34] These digital dynamics often conflict with the predominantly analogue assumptions of international law.

(c) Government

What does this all make of the governmental capacities that international law expects of its member states? This is the third of the 'qualifications' that the Montevideo Convention demands of a state: a state should have a government.

It is important to note that this expectation has never been incompatible with the delegation of governmental powers to private or hybrid public-private actors. Practices of states contracting in and out for the exercise of governmental powers were certainly well known to the states who gathered in Montevideo in 1933.[35] Even so, the contemporary practice of 'government' around the globe has taken on dimensions that would never have been anticipated in 1933. Some of these involve the intermediation of digitality.

Digital technology increasingly mediates states' interactions with their employees, citizens and residents through automated systems. Data scientists are now routinely involved in the production of official government statistics and the UN has championed this through its Global Working Group on Big Data for Official Statistics. By

[32] Steven Feldstein, *The Global Expansion of AI Surveillance* (Working Paper, Carnegie Endowment for International Peace, September 2019) <https://carnegieendowment.org/2019/09/17/global-expansion-of-ai-surveillance-pub-79847>; 'Bahrain, Kuwait and Norway Contact Tracing Apps a Danger for Privacy', *Amnesty International* (16 June 2020) <https://www.amnesty.org/en/latest/news/2020/06/bahrain-kuwait-norway-contact-tracing-apps-danger-for-privacy/>.

[33] Ntina Tzouvala, 'TWAIL and the "Unwilling or Unable" Doctrine: Continuities and Ruptures' (2015) 109 *AJIL Unbound* 266.

[34] Julie E Cohen, *Between Truth and Power: The Legal Constructions of Informational Capitalism* (Oxford University Press 2019).

[35] See, e.g., Jody Freeman and Martha Minow, *Government by Contract: Outsourcing and American Democracy* (Harvard University Press 2009) 25–39 (describing the long history of public-private governance in the US).

way of one example, specialists from the Asian Development Bank's Statistics and Data Innovation Unit have been working with the Philippine Statistics Authority, the National Statistical Office of Thailand, and the World Data Lab to examine the feasibility of poverty mapping using satellite imagery and associated geospatial data.[36] The goal of this work has been to address some of the limitations and costs of traditional poverty estimation techniques. A second aim has been to try to meet the expectation of the 2030 Sustainable Development Agenda that government development indicators will be disaggregated by location, gender, age, and income. To this end, automated analysis of satellite data to infer the intensity of night lights has been used as a proxy for economic development on the assumption that places that are brighter at night are generally more economically developed than those that are less well lit. Digital data is mobilized in the hope of refining reporting against an analogue scale. Poverty is made readable according to whether lights are off or on. Estimating poverty in this way is, however, not always sound, especially in large urban areas or low-density rural areas.[37] Because of this, satellite luminosity data is considered most promising for states where conventional data sources are worse or non-existent.[38] In these settings, for all its flaws, remotely accessed digital data may be seen as better than the alternatives. This is but one illustration of rationales underpinning the burgeoning digitalization of government on the periphery.

In the process of having growing recourse to digital data, state governments are being recomposed and reoriented. Many countries' governments now include chief information officer, chief technology officer, and chief innovation officer roles, as well as countless subordinate roles, such as the 'e-governance champions' that India has sought to embed in its line ministries.[39] In Australia, the InnovationXChange that operated within the Department of Foreign Affairs and Trade from 2015 to about 2020 was exemplary of these kinds of changes in emphasis and investment.[40] Governments' efforts of digitalization have seen a range of commercial actors become influential mediators of governmental and intergovernmental operations.

Palantir is one notable example. In 2019, the World Food Program (WFP) announced its entry into a five-year "partnership" with Palantir aimed at helping the WFP better use its data to streamline the delivery of food and

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[36] Asian Development Bank, *Mapping the Spatial Distribution of Poverty Using Satellite Imagery in the Philippines* (Asian Development Bank Report, 5 March 2021) <http://dx.doi.org/10.22617/TCS210076-2>; Asian Development Bank, *Mapping the Spatial Distribution of Poverty Using Satellite Imagery in Thailand* (Asian Development Bank Report, 20 April 2021) <http://dx.doi.org/10.22617/TCS210112-2>.

[37] Charlotta Mellander et al, 'Night-Time Light Data: A Good Proxy Measure for Economic Activity?' (2015) 10(10) *PLOS ONE* e0139779.

[38] Xi Chen and William D Nordhaus, 'Using Luminosity Data as a Proxy for Economic Statistics' (2011) 108(21) *Proceedings of the National Academy of Sciences* 8589.

[39] Payal Sharma and Anshumaan Mishra, 'E-Governance in India Is the Effectual and Challenging Approach to Governance' (2011) 2(5) *International Journal of Business Management and Economic Research* 297.

[40] Lisa Cornish, 'What Lies Ahead for Innovation in Australia's Aid Program?' *Devex* (Blog, 30 July 2018) <https://www.devex.com/news/sponsored/what-lies-ahead-for-innovation-in-australia-s-aid-program-93176>; Daniel Hurst, 'Julie Bishop's "hipster" Innovation Hub out of Fashion at Dfat', *The Guardian* (Australian online edition, 25 October 2020) <https://www.theguardian.com/australia-news/2020/oct/25/julie-bishops-hipster-innovation-hub-out-of-fashion-at-dfat>.

cash-based assistance in emergency relief operations.[41] This followed an initial pilot program in Iraq in which Palantir helped reduce WFP's food basket costs by more than 10 percent. It did so by making small changes in these baskets' content, without reducing nutritional values.[42] Much as automated securities trading arbitrages small differences in value that only become apparent through the processing of vast volumes of digital data, Palantir introduced a litany of small on/off adjustments into WFP operations—adjustments over which it will be very difficult for the WFP to gain a holistic, long-term view beyond the calculation of incremental cost-savings. In these and other ways, the practice of digitizing intergovernmental operations is making of government something other than it has previously been.

Let me be clear: the point is not that Palantir and its like are introducing a newly corporate, profit-making logic into international legal practices of government. Corporate logic has been pervasive throughout governmental work at home and abroad since the chartered companies of the 17th and 18th centuries.[43] The point is rather that Palantir is a prominent vector of digital logic now pervading practices of government at both national and international scales. And international law has not yet registered the many micro- and macro-transformations effected by those practices' digitalization.

(d) Capacity to enter into relations with the other states

What, then, of states' capacity to enter into relations with other states in their own right, without subordination to the control of any other state—an essential criterion for statehood according to the Montevideo Convention?

With the changes in government programs just mentioned, the techniques of state-to-state relations are also changing. Governments of the Global South especially must now figure out not just how to relate to other states, but also how to relate to a litany of data doubles that shadow them everywhere. By that I mean the digital representations of their polities, and visualizations of social and economic conditions within their territories, that are assembled by commercial actors in parallel with, and sometimes in lieu of, official state data.[44] This is not in itself new: governments of the Global South have long had to contend with donors' visions of their future. Nonetheless, the digital alter-egos with which these governments must now contend have proliferated and are being invested with greater authority.

[41] 'Palantir and WFP Partner to Help Transform Global Humanitarian Delivery', *World Food Programme* (News release, 5 February 2019) <https://www.wfp.org/news/palantir-and-wfp-partner-help-transform-global-humanitarian-delivery>.

[42] Ibid.

[43] Philip J Stern, *The Company-State: Corporate Sovereignty and the Early Modern Foundations of the British Empire in India* (Oxford University Press, 2011).

[44] Linnet Taylor and Dennis Broeders, 'In the Name of Development: Power, Profit and the Datafication of the Global South' (2015) 64 *Geoforum* 229.

IBM's Project Lucy, for example, mobilized a pan-African, evolutionary narrative to support a vast digital data extraction initiative. (The project took its name from the fossilized remains of a human ancestor uncovered in Ethiopia in 1974.) IBM committed to investing $100 million over 10 years with the goal of advancing IBM's cognitive computing capacities while also developing commercially viable 'solutions' to challenges faced by African states in healthcare, education, water and sanitation, human mobility, and agriculture.[45] Initiatives of this kind have tended, as Deval Desai has observed, to redirect the logic of reform away from technology transfer from North to South. Instead, projects like this tend to favour local feedback loops of site-specific reflexivity, optimization and resilience, often shepherded by commercial data harvesters.[46]

IV. Digitalized Inequality: The Standard of Datafication

These changes in the practices of government have material implications for global inequality. In the years following Project Lucy's 2013 launch, IBM reported a number of fairly modest government-related initiatives and pilot projects arising from it. These included working with Kenyan authorities on improving the country's metrics in the World Bank's Doing Business Index.[47] Then, in 2016, IBM working with a company called Equals 3, announced the launch of Lucy, a cloud-based cognitive companion built for advertising and media agencies in the US. Project Lucy, aimed at states on the periphery trying to improve their international ratings, spawned Lucy, an 'AI-powered knowledge management assistant' marketed on the other side of the world.[48] And this kind of state-sponsored cross-border transfer of data and data-driven resources, from the governmental domain in one state to the commercial sector in another state, registers not one blip on the international legal radar.

The business of accounting for oneself as a state in the world has become highly dependent on states gathering and serving up digital data. Independence in the traditional Montevideo Convention sense still matters immensely of course. Yet state-on-state dependence is just one among several modes of subordination with which political leaders must grapple. And the expectation embedded in the Montevideo Convention that a state will, by entry into lawful relations with other states, join them on an unbroken continuum of sovereign statehood—this misses how much states are subject to discontinuous classification and ranking in the day-to-day conduct of international affairs, in part according to their data collection and reporting capacities.

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[45] Jake Bright, 'In Africa, Watson's Sister Lucy Is Growing up with the Help of IBM's Research Team', *TechCrunch* (17 March 2016) <https://social.techcrunch.com/2016/03/16/in-africa-watsons-sister-lucy-is-growing-up-with-the-help-of-ibms-research-team/>.

[46] Deval Desai, 'Reflexive Institutional Reform and the Politics of the Regulatory State of the South' [2022] *Regulation and Governance* <https://onlinelibrary.wiley.com/doi/abs/10.1111/rego.12336>.

[47] Bright (n 45).

[48] Equals 3, 'Equals 3 Introduces IBM Watson-Powered Lucy™ Solution for Marketers', *Lucy.ai* (Blog) <https://www.lucy.ai/blog/press-release-lucy-launch>.

Let us take stock once again. States' insight into their 'permanent populations' increasingly requires those populations' recasting as digital aggregates. Territorial control no longer implies a commensurate level of informational control. Government operations move further and further into discrete, proprietary digital registers. A state's decision-making independence in foreign affairs is only as effective as its ability to marshal and deliver digital data. And all these shifts are manifest most acutely on the periphery and semi-periphery of international order.

Now it might appear that international law's analogue architecture is impervious to these provocations. I have been suggesting to you that international law has barely moved a jot in the face of them. And yet international law is challenged by this emergence of yet another dimension of global inequality. The cumulative effect of these cleavages amounts to a de facto reintroduction of something that recalls the 'standard of civilization'. You will remember that the 1933 Montevideo Convention was meant to put an end to that standard. Prior to that treaty, a wide range of international legal instruments endorsed the idea that a state could only be legally recognizable as such if it were "civilized" enough to be able to observe international law. The Montevideo Convention formally abandoned that requirement (although it has had an active afterlife, as many have shown).[49] Today, however, digital-analogue conflicts in international law are such that states are subject to a *standard of datafication* as a measure of their statehood's ongoing viability. States are expected to work continually towards data accumulation, access and control to demonstrate capability both to observe and to rely upon principles of international law. The requirement of datafication has strong echoes of the standard of civilization embedded within it. And yet it operates according to a distinct, digital logic. States could always be more-or-less civilized, but Kenya will only ever be placed in this place or that place in the Doing Business Index, depending on the data that it is able to deliver to the World Bank with IBM's help.

Precisely as would-be states have gained access to some of the conventional markers of statehood anticipated by the Montevideo Convention, the goal posts have moved into the digital sphere. And analogue gains do not necessarily translate into digital ones. Palestine attained non-member observer state status at the UN in 2012.[50] The Palestinian Central Bureau of Statistics has been running censuses (with difficulty) for several decades.[51] Yet the vast digital repositories and analytical capacities of the Israeli state make those markers of independence somewhat moot. Palestinians must be included in Israel's digital population registry in order to get electronic identification cards and passports necessary for internal and external movement. Likewise, the Saami Nordic Convention has been signed and awaits ratification in Finland, Sweden and Norway. Yet there is still no aggregate record of the Saami amid the extensive digital record-keeping of the Finnish, Swedish and Norwegian governments. In the digital domain, the Saami

[49] Ntina Tzouvala, *Capitalism As Civilisation: A History of International Law* (Cambridge University Press, 2020).
[50] UN Secretary-General, *Status of Palestine in the UN - Non-Member Observer State Status*, UN Doc A/67/738 (8 March 2013).
[51] 'Censuses', *Palestinian Central Bureau of Statistics* (Web Page) <https://www.pcbs.gov.ps/site/lang__en/1005/default.aspx>.

are either present or absent and so far, they are largely absent, whatever the Nordic Convention may promise.[52] In these and other settings, including here in Australia, racialized minorities and colonized peoples tend to experience a double digital bind: even as they may be under-represented in datasets enabling of political self-assertion and international engagement (as in the case of the Saami), they are often over-represented in the digital artefacts of policing and financial surveillance.[53] Uneven datafication engenders discontent.

V. What is to be done? International lawyers' improbable task

If, as I have argued, digital-analogue conflicts are more pervasive, more intense and carry higher stakes than ever before in international legal relations, what international legal work is being done on this? The predominant approach is to try to resolve these conflicts into an analogue scale—to trump the digital with the analogue—which is ironically a sublation of the analogue, because of its dependence on binary logic. The proposed EU framework on artificial intelligence, for example, tries to locate AI systems on a risk spectrum from 'unacceptable risk' systems to 'low or minimal risk' systems. Permissible AI systems that interact with humans are made subject to a transparency regime that is meant to enliven 'informed choice' among humans. That range of choice is meant to include an option of 'step[ping] back' from any interaction with AI.[54]

It will be immediately apparent this is not a regulatory model designed to address the kinds of transformations and conflicts explored in this lecture. This approach addresses digital technology like a harmful artefact or substance that can be whittled or diluted to a point of acceptability. It takes no account of the structural impact of digital logics or the awkwardness of their fit with the analogue. It takes no account of the material struggles around the globe in which proxy-representation within digital data is central. It takes no account of the impossibility for many of stepping back from being digitally sensed, ranked, and monetized, especially for those on the periphery or semi-periphery of international legal order.

International legal measures like these are incoherent in the face of the digital provocations to which I have alluded. They seek to place the discontinuous on a continuum, to make the discrete comparable, to synthesize the binary into a single, rational whole. As a result, such international legal measures tend to miss their marks, all while

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[52] Hugh Beach, 'Self-Determining the Self: Aspects of Saami Identity Management in Sweden' (2007) 24 *Acta Borealia* 1; Håkon Hermanstrand, 'Identification of the South Saami in the Norwegian 1801 Census: Why Is the 1801 Census a Problematic Source?' in Håkon Hermanstrand et al (eds), *The Indigenous Identity of the South Saami: Historical and Political Perspectives on a Minority within a Minority* (Springer 2019) 49–63; Laura Junka-Aikio, 'Can the Sámi Speak Now?' (2016) 30 *Cultural Studies* 205.

[53] Tamar Hoffman, 'Debt and Policing: The Case to Abolish Credit Surveillance Notes' (2021) 29(1) *Georgetown Journal on Poverty Law and Policy* 93.

[54] European Commission, *Proposal for a Regulation Laying down Harmonised Rules on Artificial Intelligence* (Policy Publication, 21 April 2021) <https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-laying-down-harmonised-rules-artificial-intelligence>.

affirming a hierarchy in which failures are derided as developmental—as if inequity and injustice were a consequence of insufficient dedication to innovation. This is, in my view, the wrong way to think about the provocations of the digital for international law. 'Catching up' ought not to be international lawyers' concern. And neither should international lawyers try to double down on either the digital or the analogue. For international lawyers to imagine themselves choosing between digital and analogue approaches is to partake of a non-choice because it presupposes the binary that it seeks the option of negating.

Revisiting and remaking relations among international law's constituent units and experimenting around and against prevailing approaches to global commoning: this is what the provocations of the digital prompt us to do.[55] The aim should be to expand the room for negotiation at the points of slippage between the analogue and the digital and thereby confront the global inequalities that this binary has been helping to harden to date. Digital-analogue conflicts, overruns and misreads might yet create room to manoeuvre in international legal affairs. At Montevideo in 1933, international lawyers tried to rework prevailing schemes of sensing-in-common and ways of marshalling and organizing political energies and resources. This is what statehood was and is about: both evoking and dividing sharable space and creating conditions under which action-in-common may take place, or not. The modernist recodification of statehood in 1933 sought to change the way that this was done, at least in part: it sought to reorient international legal effort away from civilizing missions and towards radical equality and anti-imperialism.[56] That radical equality was identified not with sameness but with the non-presence of a self-declarable statehood that could only be realized in relation.[57] In 1933, at a moment of global political and economic collapse, international lawyers gathered in Uruguay to undertake an improbable task: a task of restating the basic elements and objects of their work.[58] Today, before the provocations of the digital, whether we like it or not, international lawyers are being called upon to do that again.

[55] See, e.g., Vasilis Kostakis, 'In Defense of Digital Commoning' (2018) 25(6) *Organization* 812.
[56] Becker Lorca (n 4).
[57] Montevideo Convention (n 1), Art. 3.
[58] Ibid.