Digital Sovereignty, Data Infrastructures, and Structural Inequality: Artificial Intelligence and Global Governance.

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Abstract- Digital autonomy has become one of the main policy answers, which offers independence, regulation, and the progress of development. However, its distributive implications are not properly theorised. This article constructs a conceptual framework that connects digital sovereignty to infrastructural political economy and global stratification basing the theoretical ideas on South India as a theoretically generative location. Its revisions the concept of sovereignty based on international political economy, science and technology studies and critical data scholarship as infrastructural bargaining power embedded in the world systems of production. Data localisation, digital public infrastructure, and regional artificial intelligence innovation ecosystems are sovereignty claims that are implemented in South India. These policies improve the local capacity and policy alignment, but are structurally entrenched in concentrated cloud markets, semiconductor supply chains, and asymmetry in the foundation model building. Digital sovereignty is thus emergent, multi-dimensional and partial instead of absolute. The article redefines artificial intelligence governance as a multi-scalar struggle of material capacity and rule-making power by locating the regional infrastructural development in transnational technological hierarchies. It posits that in the absence of redistribution of compute resources and collaborative standard-setting processes, sovereignty discourses will distort structural inequalities in the world AI order.

I. INTRODUCTION

There is growing integration of artificial intelligence, in the institutional structure of world governance. Machine learning systems influence border control, financial markets, health systems and security infrastructures. Artificial intelligence has become a strategic resource that is at the heart of economic competitiveness and geopolitical power in states. Meanwhile, tier-one data, cloud infrastructure, and model development have been left under the control of the private companies. This two-sided dynamic

has restructured authority both at the level of publicity and privately. Disagreements about governance have thus become less about ethical issues, and more about power, hierarchy, and institutional design (Crawford, 2021; Zuboff, 2019). Different arguments on governance have been fuelled by the speed at which artificial intelligence has spread. The compute capacity is centralized into few firms and jurisdictions with the major ones being the United States and China (Ahmed and Wahed, 2020). Innovative semiconductor manufacturing is also concentrated into chokepoints, which have become the focal points of geopolitics today (Miller, 2022). These hierarchies are strengthened by data extraction and platform intermediation, which instil what Srnicek (2017) describes as platform capitalism in the global markets. International agencies have reacted by setting out principles to credible AI, but these approaches lack strong enforcement provisions and seldom are concerned with material infrastructural inequality (OECD, 2019; UNESCO, 2021). By consequence, the artificial intelligence governance exists in a stratified order where the technological capability and regulatory power is not evenly distributed.

In this situation, the digital sovereignty discourse has gained popularity. To defend localisation of data, national cloud policies, and industrial policy in artificial intelligence, governments are citing sovereignty more and more. Digital sovereignty is seen in the European Union as strategic autonomy in data and platform governance (European Commission, 2020). Algorithms and platform control are associated by China with the power of the state and political stability (Creemers, 2018). The digital initiatives of building the public infrastructure in India are also presented in the language of national capacity and developmental autonomy (Government

of India, 2018; Nilekani, Shah, and Rajan, 2019). However, digital sovereignty has not yet been conceptually resolved. It swings between legal jurisdiction, economic autonomy, and infrastructural authority (Pohle & Thiel, 2020). The term tends to hide material dependencies which support technological systems.

The study of international political economy has traditionally stressed that structural power networks and production networks mediate between sovereignty (Strange, 1996). Modern arguments on data governance apply this observation. According to UNCTAD (2021), data flows only contribute to global inequalities without redistributive mechanisms. The same point is made by critical data scholars, who emphasize the role of extracting data in the peripheral areas to support core platform economies (Couldry & Mejias, 2019). Infrastructure is perceived as a place of politics but not neutral background in science and technology research (Star, 1999; Edwards, 2003). These literatures all lead to one point that is control over infrastructures is one of the powers. In artificial intelligence, these infrastructures are data centres, cloud services, semiconductor fabrication and foundational model architectures. It is impossible to separate governance and material arrangements, whereby the current literature on artificial intelligence governance has concentrated on the strategies of states, international norms, and self-regulations by corporations (Cath, 2018; Floridi et al., 2018). Although this work has brought clarity on normative frameworks, it tends to abstraction on infrastructural political economy. Recent studies admit that compute and model development are concentrated in several companies (Bommasani et al., 2021), but not a significant number of studies consider these assumptions in global governance theories. The outcome is a biased narrative which favors regulatory speech over the material capacity. Sovereignty is viewed as legal power and not infrastructural leverage.

Digital sovereignty is understood best, therefore, as a subject of dispute, which finds its place in the production networks of the world. It indicates attempts by states and regions to remake their place in capital, data and compute hierarchies. This dynamic is found in semiconductor supply chains.

The production of hi-tech chips relies on a limited group of organizations and jurisdictions, which develops strategic interdependences that predetermine diplomatic and trade policy (Miller, 2022). Cloud infrastructure is also concentrated to few providers and poses an asymmetric interdependence whereby the states that depend on foreign platforms (Bratton, 2016). Platform capitalism enhances these asymmetries through an integration of data mining, analytics, and market mediation in vertically integrated ecosystems (Srnicek, 2017). The issue of digital sovereignty claims should be evaluated against these structural conditions, therefore, artificial intelligence governance is a multi-scalar phenomenon. Power is spread against the local innovation systems, domestic regulation systems, multinational companies, and international organizations. The normative standards are stated by the Organisation for Economic Co-operation and Development and UNESCO (OECD, 2019; UNESCO, 2021). The World Trade Organization deals with the flow of data in the trade systems. Technical interoperability is affected by private standards organizations. The subnational governments are funding data centres and research parks to lure AI capital. The process of governance can be seen as one where the interactions circulate across all these scales and not as a unified global regime. Subnational regions have become important nodes in this topography. Metropolitan and local authorities are trying to win the location of data centres, semiconductor plants, and AI research hubs. Bengaluru, Hyderabadi, and Chennai have risen as important technology centres in south India, where multinational companies and local start-ups are located (Athreye and Kapur, 2009). Tamil Nadu has declared data centre policies and electronics manufacturing policies, which are intended to bring in the cloud infrastructure and semiconductor investment (Government of Tamil Nadu, 2021). The technology policy frameworks of Karnataka also focus on artificial intelligence and data infrastructure (Government of Karnataka, 2020). These technologies are also part of the larger digital public infrastructure policy, such as Aadhaar and the Unified Payments Interface (Nilekani et al., 2019). South India, therefore, is a subnational location, where digital sovereignty is practiced not only

through national legislation but by means of infrastructural development.

However, despite this dynamism, subnational digital sovereignty is seldom analysed in the global artificial intelligence governance despite the underlying scholarship. The literature on the digital transformation of India centers on the governance of the digital platform or the policies on a national scale (Arun, 2019). The study of international political economy usually occurs on a state or international level. Critical data scholarship emphasizes extractive processes yet tends to make regions in the Global South homogeneous categories (Couldry and Mejias, 2019). Little theoretical effort has yet to place subnational infrastructural strategies in global ranks of compute and capital. The artificial intelligence infrastructure political economy is thus poorly developed, especially as applied to new technology hubs. The gap in this article is filled by developing a relational, multi-scalar approach. Instead of endowing digital sovereignty with the autonomy, it imagines it as infrastructural bargaining power. The bargaining power is based on the ability to host, control or exploit key infrastructures of the world production chains. In South India, there is a partial leverage in the investments in data centres and electronics manufacturing. However, these infrastructures still rely on foreign cloud companies, imported semiconductor technologies and global integrated capital markets. Sovereignty is therefore superimposed and conditional. It is practised not externally, but internally, through transnational technological systems. The main research question used to drive this investigation is as follows: Can sovereignty claims to emerging technology regions substantially restructure structural hierarchies in the governance of artificial intelligence? This query re-positions digital sovereignty as a structural change issue as opposed to a rhetoric assertion. It appreciates the fact that emerging regions can be able to increase their bargaining power without reversing existing asymmetries. The article constructs a theory of partial sovereignty through placing South India in geopolitics of compute concentration, semiconductor geopolitics, and platform capitalism. This sovereignty is not just an illusion or something transformative. It is an agreed position in a stratified order.

The contribution has been tripled. To begin with, the article combines the perspectives of global politics economy, science and technology, with critical data studies to project infrastructure as the site of sovereignty. Second, it broadens the national regulatory model of debates on artificial intelligence governance to subnational infrastructural politics. Third, it develops a relational perspective of technological hierarchy that equates regional development strategies with global systems of capital and compute. This way it opposes the accounts that recognize digital sovereignty either as emancipatory or futile. Rather, sovereignty is a dynamic kind of infrastructural bargaining enshrined within the global inequality. Artificial intelligence governance cannot be approached through normative principles or formality of regulatory authority. It is made up of material infrastructures and networks of production that define the ability of who is enabled to develop, deploy and govern advanced systems. The technological aspirations of South India shed light on how geographies on the rise traverse this landscape. They aim at building infrastructural capacity and at the same time being stuck in transnational attachments. The argument emerging in the analysis below establishes digital sovereignty in the political economy of global artificial intelligence. This paper is theoretical and conceptual as opposed to empirical. It does not produce or process original field data. Rather, it builds up an analytical paradigm to connect digital sovereignty to the infrastructural political economy and global stratification of the governance of artificial intelligence. It is a synthetic and relational methodological orientation. It combines the traditions of established theoretical schools of thought in the field of international political economy, science and technology studies, and critical data scholarship to create structural relationships at scales. The design is directed by explanatory refinement but does not test causally. The design follows an analytical synthesis. Analytical synthesis entails an organized combination of conceptual resources beyond most disciplinary borders to create a thorough explanatory framework. The international political economy adds to the structural realisation of power, production, and interdependence. The science and technology studies offers the means of mapping infrastructure as a place of politics and control. Critical data scholarship predicts imbalances in the

data retrieval and platform mediation. The study recreates the common assumptions of materiality, hierarchy and institutional mediation of these literatures instead of treating them as parallel conversations. This is a synthetic practice that builds upon a long tradition in political economy that sees the world order as being organized by production networks and structural power, instead of the formal sovereignty (Strange, 1996).

II. METHODOLOGY

The relational methodological orientation is clear. Relational political economy denounces methodological nationalism and unit analysis. It has a conceptualisation of regions, states, and firms that are constituted by structured interdependence. The orientation is based on the analysis of global production networks and their territorial representation (Coe and Yeung, 2015). The artificial intelligence systems are thus not considered as national assets but as a result of distributed supply chains, capital flows, and technical standardizations. The sovereignty claims are understood as the strategy in relational areas of constraint and opportunity. This relational orientation is operationalised through multi-scalar analysis as it places digital sovereignty in the dynamic forms of dependence as opposed to it being a property of delimited units. Governance is also discussed on a subnational, national, and global level. The subnational level encompasses regional level development of infrastructure, innovations and state-level industrial policy. Regulatory regimes, strategic technology policy, and positioning of trade are captured in the national level. The global level includes semiconductor supply chains, cloud service concentration, platform capitalism and multilateral norm production. This stratified approach is not aimed at completeness of the description but at analytical coherence. It shows that infrastructural choices made at a particular scale are predetermined by limitations and opportunities produced at different scales. Through this, the framework extends the scholarship that conceptualises data and digital infrastructures as part of global economic hierarchies (Sadowski, 2020). South India is a theoretically generative locale within this design. This is a strategic choice as opposed to a representative one. Generative sites clarify larger structural processes

because of how they are in systems of the world. South India is where the technology cluster, data centre development, electronics manufacturing projects and platform integration are highly intense. These changes happen as part of the overall globalization of information technology services and India into digital transformation. The region thus represents the way in which actors at the subnational level pursue accumulation of infrastructural capacity though they are still integrated within transnational production networks. The theoretical way of doing this resembles case-based theoretical elaboration in political economy, but specific locations elucidate structural processes instead of offering generalisation (statistically) (Jessop, 2016). South India is not handled exceptionally, but as analytically disclosure of multi-scalar sovereignty formation.

The framework contextualizes the local infrastructural development in the context of transnational supply chains through the mapping of the dependencies constituting the production of artificial intelligence. Imported semiconductor components and worldwide cloud structures are dependent on data centres. The manufacturing of semiconductors requires equipment of a highly specialised nature and a high degree of concentration in expertise. Platform ecosystems incorporate local streams of data into worldwide distributed computational systems. These associations are theorised as institutional asymmetries. The model is thus differentiating between infrastructural presence and infrastructural control. Hosting infrastructure is not the process of dictating its upstream inputs or downstream standards of governance. This difference is the main point in the conceptualisation of digital sovereignty as bargaining power and not as autonomy. Multilateral artificial intelligence governance regimes are introduced as another layer of relations. The process of infrastructural investments is also defined by norm production, technical standards, and trade rules. Nevertheless, the framework also considers these regimes to be situated in material hierarchies as opposed to external adjudicators. This action is an indication of the knowledge in global political economy, which highlights the reciprocal constitution of the institutional authority and the productive capability (Phillips, 2005). The analytical chain thus goes in the

direction of infrastructure to governance instead of the other way round. In these structured environments, the sovereignty claims are evaluated in connection to the material leverage. Conceptual modelling in this study is based on the logic of abstraction. Abstraction separates fundamental mechanisms of empirical complexity to demystify the relationships between them. The model makes no effort to list all the policy instruments, or institutional actors. It instead recognizes three analytically different yet interrelated domains which are infrastructural capacity, supply chain positioning and involvement in governance. These areas are considered as relational variables, which precondition the range of the claims on sovereignty. It is an iterative framework that is internally consistent. All of them are based on well-known theoretical propositions in the mentioned literatures and merged into a single explanatory architecture. Table 1 demonstrates the basic domains of the analysis and their conceptual dimensions.

Table 1

Analytical Domains in the Relational Framework of Digital Sovereignty

Domain	Conceptual Focus	Structural Question
Infrastructural Capacity	Data centres, compute resources, regional innovation ecosystems	Who hosts and operates critical AI infrastructure?
Supply Chain Positioning	Semiconductor fabrication, cloud architectures, hardware inputs	Where does the region sit within upstream and downstream dependencies?
Governance Participation	Standards-setting, trade regimes, regulatory authority	How does infrastructural position translate into rule-making influence?

The model has indicated that bargaining power comes at the point of intersection of these domains. The absence of the leverage of supply chain creates infrastructural capacity that generates partial sovereignty. The lack of governance participation in supply chain integration restricts the regulatory impact. The structural improbability of complete autonomy in globally integrated production systems is a genuine fact. The multi-scalar integration within the framework is shaped by relational methods which hold structural power as uneven even though distributed (Strange, 1996). Table 2 details the multi-scalar integration of this framework.

Table 2

Multi-Scalar Integration of Digital Sovereignty

Scale	Analytical Unit	Relational Linkages
Subnational	Regional infrastructure and industrial policy	Embedded within national regulation and global supply chains
National	Strategic technology governance and trade positioning	Dependent on global capital, standards, and hardware ecosystems
Global	Production networks and multilateral regimes	Structured by concentrated firms and transnational institutions

These tables conceptualise the architectures. They explain the functioning of the abstraction on levels without reducing them. The methodological addition is the combination of the infrastructural analysis with the relational political economy to theorise sovereignty as a stratified and contingent one. The research advances theory on the topic of artificial intelligence governance and global inequality by building a coherent analytical framework instead of creating empirical measurements.

III. RESULTS

The conceptual framework constructed in this paper redefines digital sovereignty as infrastructural bargaining power entrenched in stratified world production systems. Instead of conflating sovereignty with formal jurisdictional power authority, the model finds productive leverage in the ability to host, influence, and strategically position important infrastructures in the transnational technological networks. This re-evaluation puts an emphasis on regulatory pronouncement to material capacity. Only when they change the location of a region in concentrated architectures of compute, capital and platform intermediation, sovereignty claims gain force.In the given context, sovereignty is not absolute or territorial. It is relational. Interdependence, positioning of supply chain and control over infrastructural nodes condition authority. Areas can amass bargaining power without necessarily gaining independence. Digital sovereignty thus seems to be fragmented and stratified. It acts in differentiated forms of leverage at various dimensions and not in a single sovereign command.

The sovereignty claims are practised in the South Indian context in three intertwined mechanisms, which are data localisation policies, digital public infrastructure, and regional artificial intelligence innovation ecosystems. All of the mechanisms are a unique modal of infrastructural positioning that overlap. The policies of data localisation are an indicator of an effort to territorialize data storage and data processing. With the need to have some types of data under national and subnational jurisdiction, the policymakers aim to ensure that value creation lies within national and subnational borders. Localisation will create infrastructural requirement of home data centres and other related services. Nevertheless, localisation does not supplant the use of cloud providers with global dominance whose capital, skills, and hardware supply chains form the basis of much of the computational ecosystem. Digital infrastructures are hybrid networks of corporate and state power as it is argued by Plantin and Punathambekar (2019). Localized storage requirements thus create infrastructural density without, in any way, relocating upstream authority in semiconductor design, fabrication equipment, or hyperscale cloud designs. One second mechanism of

sovereignty is digital public infrastructure. The digital identity and payment architecture of India has shown that the state is able to coordinate a massive interoperable platform. These systems form the basis of growing digital service ecosystems and data flows in South India. Public platforms will be able to discover standards-setting force and establish home-grown innovation opportunities. They also provide an example of state mediated infrastructural organization which is the opposite of sheer dominance of the platform by a few companies. However, digital public infrastructure works in global technical conditions. Hardware, cloud computing and sophisticated machine learning applications are frequent sources of transnational companies. The platform capitalism is thus entrenched in the infrastructural base with Srnicek (2017) conceptualising it as data extraction and network effect characterised. Religion is practiced publicly with concentration being carried out privately.

A third form is regional artificial intelligence innovation ecosystems. In South India, there are technology clusters, research centres and start up networks which bring local talent into international production networks. These ecosystems initiate formation of capabilities and may further boost the bargaining power of an area, by bringing investment and skilled labour to the area. However, the creation of frontier models is still confined to several companies that can access enormous compute power and owned data (Bommasani et al., 2021). Access to the global foundation models, cloud credits and supplying chain of semiconductors is hence structurally required to regional innovation. The imbalance in access to compute limits the transformational capability of the regional development of AI.It is the incorporation of these mechanisms of sovereignty into global monopolistic structures that can be considered the most explanatory element of the framework. There are only a few providers of cloud markets with the global integrated infrastructures. The semiconductor supply chains are both geographically centralized and full of technology to yield bottlenecks that influence strategic dependence (Kaplinsky & Morris, 2016). The foundation models need huge computation and specific hardware, which is strengthening the focus towards the top of the AI value chain. The characteristics of these structures restrict the possibility of subnational infrastructural growth to yield systemic autonomy. The relational model is thus indicative that sovereignty is dependent on infrastructural location in hierarchies of production. Data centres can be hosted increasing local revenue and jobs. The creation of online public platforms can improve regulatory coordination. The development of innovation ecosystems can enhance the density of human capital. However, concentrated control over advanced chips, hyperscale cloud architecture, or foundational model training pipelines can still be overcome independently by each of these mechanisms. Sovereignty is thus layered. The regulatory power can be strong nationally, but infrastructural dependency exists at the hardware level and the compute level.

Table 3

Analytical Matrix of Digital Sovereignty as Infrastructural Bargaining Power

Form of Sovereignty Claim	Primary Mechanisms	Source of Leverage	Structural Constraints	Resulting Bargaining Position
Regulatory Sovereignty	Data localisation mandates; compliance requirements	Jurisdiction over domestic data flows; rule-setting authority	Dependence on foreign cloud providers and hardware inputs	Moderate leverage over domestic operations; limited upstream control
Infrastructural Sovereignty	Data centre expansion; public digital platforms	Physical hosting capacity; interoperability standards; ecosystem coordination	Reliance on imported semiconductors and hyperscale cloud architectures	Enhanced negotiation capacity within national context; constrained global influence
Developmental Sovereignty	AI innovation clusters; talent formation; startup incentives	Human capital density; regional investment attraction	Asymmetric access to frontier compute and proprietary models	Incremental bargaining gains; continued dependency on foundation model providers
Strategic Sovereignty	Integration of industrial policy with digital infrastructure	Alignment of regional capacity with national strategy	Exposure to global supply chain chokepoints	Layered leverage mediated by national and transnational structures

This stratified arrangement is consistent with the views of digital capitalism that focus on infrastructural centralisation despite the geographical dispersion (Graham and Dutton, 2019). It also indicates widespread changes in the power of the state in circumstances of global interdependence (Farrell and Newman, 2019). States and regions exert influence by leveraging networks as opposed to territorial insulation. South Indian infrastructural investments and political endeavours create bargaining space in the national and international level of negotiations. Upstream technological dependencies and downstream market integration is however the mediation of that space. The findings of the conceptual modelling thus define four attributes of digital sovereignty in artificial intelligence regulation. To begin with, sovereignty is relational. It appears because of placing in the production networks instead of the legal labelling. Second, it is layered. Regulatory level authority can be combined with hardware or model-development level dependency. Third, it is partial. Increased bargaining power is gained through gains in the capacity of infrastructures without eradicating structural asymmetry. Fourth, it is dynamic. The positions of bargaining change with the changes in the supply chains, compute architecture, and governance regimes. South India is an example of those dynamics, but not its reduction. The growth of its infrastructures shows that subnational areas aspire to gain leverage in the world AI systems. However, its incorporation into cloud and semiconductor layered outlines the constraints to localisation and platform orchestration as sovereignty methodologies. The conceptual framework resets digital sovereignty thus as a graded status created through infrastructural embedding. Hierarchy is not dissolved by claims of sovereignty. They negotiate it.

Table 4

Multi-Scalar Dependency Framework in AI Governance

Scale	Infrastructure Position	Governance Authority	Dependency Exposure	Strategic Capacity	Structural Limitations
Subnational (South India)	Hosts data centres and innovation clusters	Limited formal regulatory authority; influence through policy implementation	Dependent on national regulation and global cloud and chip supply chains	Ability to attract investment and talent	No control over semiconductor fabrication or frontier model training
National (India)	Expanding digital public infrastructure; regulatory jurisdiction	Legislative and policy authority over data and AI	Reliance on imported advanced chips and foreign cloud services	Capacity to negotiate trade and technology partnerships	Constrained by global hardware concentration and capital flows
Transnational (Cloud and Chip Supply Chains)	Concentrated hyperscale cloud and semiconductor production	Corporate governance and proprietary technical standards	Exposure to geopolitical contestation and supply disruptions	Control over critical inputs and compute scaling	Vulnerable to regulatory fragmentation and strategic decoupling
Multilateral Governance Regimes	Norm-setting and coordination forums	Soft-law influence; limited enforcement capacity	Dependent on member state compliance and corporate participation	Ability to shape global discourse and standards	Lack of direct control over material infrastructure

These organized findings indicate that the digital sovereignty of artificial intelligence governance can be most adequately viewed as infrastructural bargaining power existing as multi-scalar hierarchies. It is not an illusionary or trans figurative thing. It is a bargained status in a stratified international order being made by concentrated compute, capital and platform power.

IV. DISCUSSION

It is an article that continues a reconceptualisation of digital sovereignty as the infrastructural power of bargaining that lies within stratified global systems of production. The framework places effective authority in the ability to locate, host, and exploit critical infrastructures in transnational technological networks instead of viewing sovereignty as the juridical autonomy or regulatory command. The analysis shows that sovereignty claims in emergent technology areas work to operate via stratified and partial manifestations of leverage that are still mediated by cloud concentration, semiconductor chokepoints and asymmetries in the formation of foundational models. This reframing adds to the discussions in the field of artificial intelligence governance by displacing the seat of sovereignty out of rulemaking into infrastructural control. The implications of the theory go further than that of South Indians. To begin with, the results make traditional descriptions of the technological hierarchy in the world complicated. The academic literature about dependency and uneven development has put stress on structural imbalances in the production of industry. In digital capitalism hierarchy is not confined to trade or finance but also to data mining, computing power and platform ecosystems. The mode of value concentration of platform capitalism is based on network effects and vertically integrated infrastructures that disaggregate the status of the public and the state (Srnicek, 2017). The

foregrounding of the mediating role of these platforms on state capacity is the conceptualisation of sovereignty as infrastructural bargaining power. Regions can gain regulatory competence and yet be materially reliant on corporate cloud architectures and model pipeline proprietary models.

Second, the discussion enriches the insights on infrastructure power. Infrastructures are not amenable substrates; they organize the agency and constraint distribution. Here, the differentiation of the despotic and infrastructural power as explained by Mann (1984) comes in handy. In the contemporary states, they do not have the same despotism in digital markets, but they pursue to increase infrastructural power by using data centres, state-owned and publicly available digital platform and industrial policy. The framework that was constructed in this article demonstrates that the infrastructural power is further stratified in global supply chains. Hosting facilities do not translate into dominating upstream semiconductor design, or downstream model domination. The sovereignty thereby comes as a bargained result of infrastructural dependence. Third, relational account can be used to contribute to the discussion of digital dependency. Digital dependency analyses regularly depict the Global South actors as passive observers of the technological systems that are created elsewhere. This story is complicated by the South Indian case. Subnational governments exert strategic investments, develop ecosystems of innovation and conform to national technology priorities. These activities create room of bargaining in multi-level governance structures. Meanwhile, dependency exists in the form of hardware imports, dependency on hyperscale cloud providers, and their inability to access frontier compute. This duality is consistent with the learning about networked interdependence which emphasizes constraint and leverage in global systems (Farrell and Newman, 2019). The claims of sovereignty are neither emancipatory nor illusory, but manoeuvres of relations in hierarchies.

The framework also reinvents classic conceptualizations of sovereignty in international political economy. Classical accounts define sovereignty as the territorial power that is supported by the legal right. The present digital governance demonstrates a more fragmented set up. Power is decentralized between subnational territories, national governments, transnational businesses, and various standards agencies. The forms of governance are networked, which makes the state the only site of rule-making irrelevant. According to Slaughter (2004), this change is the creation of a disaggregated state that functions in trans governmental networks. The current discussion goes further on this observation by illustrating that disaggregation is not institutional only but infrastructural. The exercise of sovereignty is carried out by nodes in digital architectures and not necessarily by formal treaties or statutes only. Within artificial intelligence governance, the input is the change in the analytical focus by placing ethical principles in the second fiddle and material capacity in the first fiddle. A significant portion of the literature has focused on normative frameworks, accountability mechanisms and regulatory harmonisation. Although these dimensions are not insignificant, they are impossible to separate out of the political economy of compute. Availability of advanced chips, big data, and training facilities such that actors can flexibly influence the results of governance. The article incorporates the scope of governance discussions with the studies of production networks and technological concentration by the means of the conceptualisation of sovereignty as infrastructural bargaining power. It explains why regulatory ambition is usually greater than structural capacity.

South Indian case sheds more light on how subnational agency can and cannot be possible. The subnational areas are empowered to be entrepreneurial in world technology markets. They are capitals, talent developers, and the coordinators of digital infrastructures of the people. Through this, they transform the national policy directions and also play a role in international negotiations. The agency of them, however, is mediated by structures. The production of semiconductor is still geographically concentrated. Formation of foundation model demands very large amounts of computational resources and proprietary datasets. Control of key nodes and flows is exercised as Castells (2009) contends in the network society, power. The infrastructural development of South India is boosting its communication with the rest of the world

but is not placing it at the centre of these networks. The process of developmental ambition occurs on unbalanced structures. The implications of these findings on the global AI governance are normative. To begin with, they highlight the significance of public compute initiatives. In case access to large-scale computational resources is what defines the bargaining power, then redistributive strategies will have to deal with the infrastructural concentration itself. Extreme asymmetries could be alleviated in the public or cooperative compute infrastructures. Second, collaborative regional setting of standards can be useful in terms of leveraging collective power over concentrated platform actors. Making fragmented claims of sovereignty multi-scalar coordination might convert such claims into negotiated blocs that are more influential. Third, developmental sovereignty discourses need to be scrutinized. Growth in infrastructure does not disperse structural inequality on its own. In the absence of solving upstream hardware dependence and proprietary model dominance sovereignty rhetoric can lead to excessive advocacy of transformative capacity. Simultaneously, the framework has theoretical shortcomings. It gives preference to structural analysis and can underestimate the importance of discursive politics in the formulation of sovereignty claims. Digital autonomy stories shape investment choices, electioneering and legitimacy in the society. The next generation of studies can include discourse analysis to explore the mobilisation of sovereignty language and the construction of policy decisions. The framework also focuses on the concentration of infrastructures at a given point in history. There is evolvement of technological architectures. Dependency patterns may change due to open-source model development or the change in semiconductor manufacture. Generalisability of the relational model and assumptions testing would be done through comparative studies across regions. Future studies are needed on cross-regional relations among subnational technology hubs. These alliances can create new spheres of collective bargaining at the global governance environments. The model would also be further explained by the empirical research into the infrastructural investment to the negotiation outcome. Lastly, the cross-example of political economists and computer scientists may clarify the way of technical design choices having a governance implication of early model development. To sum up, reconceptualisation of digital sovereignty as a infrastructural bargaining power will transform the argument in artificial intelligence governance. Sovereignty is stratified, entangled, and is dependent on the locating in the world technological orders. The case of South Indian illustrates the agency or emergent technology regions as well as the long-term burden of structural asymmetry. Responses to effective governance should therefore be based not only on regulatory coherence but also on distribute compute, hardware capacity and infrastructural control. In the absence of this, the digital sovereignty will continue to be an incomplete approach to a skewed world order.

REFERENCES

[1]   Ahmed, N., & Wahed, M. (2020). The de-democratization of AI: Deep learning and the compute divide. arXiv preprint arXiv:2010.15581.

[2]   Arun, C. (2019). AI and the global south: Designing for other worlds. In Proceedings of the 2019 AAAI/ACM Conference on AI, Ethics, and Society (pp. 291–297). ACM.

[3]   Athreye, S., & Kapur, S. (2009). Introduction: The internationalization of Chinese and Indian firms—Trends, motivations and strategy. Industrial and Corporate Change, 18(2), 209–221.

[4]   Bommasani, R., Hudson, D. A., Adeli, E., et al. (2021). On the opportunities and risks of foundation models. arXiv preprint arXiv:2108.07258.

[5]   Bratton, B. H. (2016). The stack: On software and sovereignty. MIT Press.

[6]   Castells, M. (2009). Communication power. Oxford University Press.

[7]   Cath, C. (2018). Governing artificial intelligence: Ethical, legal and technical opportunities and challenges. Philosophical Transactions of the Royal Society A, 376(2133), 20180080.

[8] Coe, N. M., & Yeung, H. W.-C. (2015). Global production networks: Theorizing economic development in an interconnected world. Oxford University Press.

[9] Couldry, N., & Mejias, U. A. (2019). The costs of connection: How data is colonizing human life and appropriating it for capitalism. Stanford University Press.

[10] Crawford, K. (2021). Atlas of AI: Power, politics, and the planetary costs of artificial intelligence. Yale University Press.

[11] Creemers, R. (2018). China's social credit system: An evolving practice of control. SSRN Electronic Journal.

[12] Edwards, P. N. (2003). Infrastructure and modernity: Force, time, and social organization in the history of sociotechnical systems. In T. J. Misa, P. Brey, & A. Feenberg (Eds.), Modernity and technology (pp. 185–225). MIT Press.

[13] European Commission. (2020). Shaping Europe's digital future. Publications Office of the European Union.

[14] Farrell, H., & Newman, A. L. (2019). Weaponized interdependence: How global economic networks shape state coercion. International Security, 44(1), 42–79.

[15] Floridi, L., Cowls, J., Beltrametti, M., et al. (2018). AI4People—An ethical framework for a good AI society. Minds and Machines, 28, 689–707.

[16] Government of India. (2018). National strategy for artificial intelligence. NITI Aayog.

[17] Government of Karnataka. (2020). Karnataka digital economy mission policy framework. Government of Karnataka.

[18] Government of Tamil Nadu. (2021). Tamil Nadu data centre policy 2021. Government of Tamil Nadu.

[19] Graham, M., & Dutton, W. H. (Eds.). (2019). Society and the Internet: How networks of information and communication are changing our lives (2nd ed.). Oxford University Press.

[20] Jessop, B. (2016). The state: Past, present, future. Polity Press.

[21] Strange, S. (1996). The retreat of the state: The diffusion of power in the world economy. Cambridge University Press.

[22] UNCTAD. (2021). Digital economy report 2021: Cross-border data flows and development. United Nations.

[23] UNESCO. (2021). Recommendation on the ethics of artificial intelligence. UNESCO.

[24] Zuboff, S. (2019). The age of surveillance capitalism: The fight for a human future at the new frontier of power. PublicAffairs.