A Brief Report on a Research on the Materialisation of Data as a Critical Component of Neoliberal Capitalism

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[This note is a report of a collective research work in the Calcutta Research Group (CRG) undertaken by Ritajyoti Bandopadhyay (who worked on the history of the Indian Statistical Institute), Manish Jha, and Rishi Kumar (who worked on Belapur in Navi Mumbai as a hub of data centres), and Ritam Sengupta (who worked on the data centre of the West Bengal State Electricity Board). The report also draws upon the insights gained from the related writings of Brett Neilson, Sandro Mezzadra, and Ned Rossiter. The research was done in 2016-17 in collaboration with the Western Sydney University. CRG is indebted also to late Rajarshi Sengupta for his help in framing the research inquiry. –RS]

1. In the imagery of extraction, one of the most important features of neoliberal capitalism, Brett Neilson and Sandro Mezzadra speak of data "mining" in their *Politics of Operations* (2019). Following their lead my purpose in this note will be to show some of the features of this "operation", also to show at the same time, how the materialisation of data as a critical component of neoliberal capitalism inheres a particular logic of development of capital in the form of the input of the "public interest", "public institution", "public process", and "public finance" (in short the state), without which data as an element of capitalism would not have evolved. In other words, in the process of materialisation of data we have a double process, namely a process of extraction, mining, something primitive, we may say the early signs of accumulation, and a process of financialisation facilitated by public policies and institutions – the two laced with each other. This is one of the ways in which we can conceptualise capitalism as operations. The *operation* involves mixing, intermeshing, going beyond the singularity of a mode, and concentrating on materialising a process – in this case the process of realising data as an element of capital. How is this process secured? To gain an understanding of that we have to study data as operation. The three researches show how in postcolonial economy, capital often emerges as a public good. As earlier indicated, public management of data is more and more geared towards interface of various kinds of data in what we term as "public interest". One may say with the experience of *Aadhar*(Unique Identity Project) that the market of interlinked data management is taking form through public-private partnership in the generation of data. This history will throw light on transactions between individuals and various public and private entities at the national scale, which is crucial for the development of neoliberal capitalism.

2. Data centres belong to the logistical world involving issues of infrastructure, software, and digital and computing labour. Driven by developments of information technologies, data centres carry forward the logistical argument of management of economy and polity to a new level. They represent governance in one of its fundamental aspects, namely management of data and information. Data centres emerged at a specific juncture in the history of computing beginning with

mainframes to personal computers and the client server model to distributed computing and software as a service. With increase of data transfer capacity, operational efficiency about classification, processing speed of structured and unstructured data, speed of data retrieval, and the development of technologies like cloud/on-demand, we may say that data centres in some sense have transcended the preceding phase of network of semi-autonomous computing devices.

3.Data centres are not virtual existences. A data centre is a material reality with physical existence, concrete location, and concrete infrastructure. As such a data centre may be said to symbolise the combination of materiality and immateriality of information. In this context it will be important to enquire as to how the institution of data centre has come to symbolise at the same time the centralisation and decentralisation of data management and governance.

4.Data centres started developing in India in the wake of the so-called Indian GDP revolution (7-9 % annual growth over several past years), which has meant more than anything else massive expansion of electronic services owing to expansion of volume of trade, insurance and other financial services (and thus massive increase in trade related data), a new digital sphere of functioning of regulating bodies (including the existing bodies) like the SEBI (Stock Exchange Board of India), RBI (Reserve Bank of India), TRAI (Telecom Regulatory Authority of India), etc. All of these indicate there is an exponential increase in the volume of data in the wake of the expansion of trade and finance. This in turn requires ensuring robust practices of achieving new levels in data integrity, data safety, adoption of latest standards (such as ISO 27001: 2013 in information security management), management of comprehensive data set, and the accompanying ability to analyse information. Data centres denote development of greater integration of data architecture, the best example of which in India is the information generated through the Unique Identity Project to be integrated (and interchanged) with other stored data (such as financial data on bank accounts, recipients of subsidies, etc.). It means that task planning will be easier impacting on time planning as well. It will also mean rapid expansion of data storing, processing, analysing, retrieving, and transmitting leading to economies of scale. But this also implies increasing amount of unstructured data being handled, because of greater processing capacity. This is the basis of big data phenomenon, which curiously co-exists with sparse data syndrome. For instance, unavailability of granular and/or interoperable data, as well as context specificities of machine learning, may lead to lack of warning for instance in a situation where there is a requirement for immediate distribution of food grain in the country in order to arrest price rise or prevent hunger, or a requirement to have flexible warehouse utilization programme. These paradoxes are evident in the Indian scenario.

5.Several data centres (93 in 2017) located in different parts of India provide data centre services including dedicated server hosting, managed and unmanaged services, and co-location services. These data centres are usually spread across substantial chunks of land and have high capacity

servers. Because of cost-effectiveness, the data centres are especially favourable for start-up industries in the country, though these centres serve also clients abroad catering to their IT infrastructure needs such as data storage, data security, and interconnection. Real estate business firms, media and video streaming firms, IT and ITES companies, bulk messaging industry are often the clients, though the manufacturing industry too needs the data centres. These data centres represent technological advances in IT which ensure higher speed, greater power and capabilities with regard to data and IP communications including storage, retrieval, and transmission. High-speed global communications network and services are the raison d'être of the data centres, which are crucial for transmission of critical data at nearly the speed of light to where it is needed anywhere in the world. They provide the clients with fast, reliable IP communications and support the clients with services that are crucial for effective and efficient storage and multi-media services on social media like voice and mobile signalling, cloud, big data, etc. These service providers cope with rapidly changing market dynamics; flock towards emerging market growth opportunities, and are in perpetual hunt for end users needing communicating across multiple channels. In this way, digital evolution and the existing landscape of business mutually determine each other. Data centres also provide dedicated platforms that ensure privacy and security of the clients with synchronisation across data centres that ensure business continuity. Business firms can co-locate on their IT equipments and thus acquire cost-effective alternatives to building their own infrastructure. Co-location services provide regulated power, cooling and physical security for the server, storage, and networking equipment and allow enterprises connect to a network service provider of their choice., plus shared rack, dedicated rack, caged space, remote hands service, customer workspace, and reporting service. Clearly data centres in India are a mark of growing business environment in IT related particular fields. Their lives are related to trade cycles. They mark the centralization of the IT and ITES business and demonstrate the logistical dimension of the IT infrastructure. They create their own logistical territories. Belapur in Navi Mumbai may be considered as an instance of the aspects mentioned above.

6.Data centres also embody the risks, leakages, and the breaking points of the global communication apparatus. Concerns of fire hazard, piracy, business slowdown, imperfect installation, big data missing out certain crucial particularities, etc., drive data centres to develop disaster recovery planning and business continuity planning – something which calls for greater coordination of several authorities. Given the question of cost recovery in post-2008 uncertain times, management of risk would imply consideration of quality, cost, base factors, and systemic solidity. These measures also include ensuring information security, restrictions on software installation, security policy for supplier relationships, response to incidents impacting on information security, and other steps required as new controls under ISO 27001: 2013. These measures suggest that risks have become

part of normal planning. They also suggest greater reliance of environment, which will include among others greater public oversight.

7.The Indian experience prompts us to inquire if data centres can be seen as markers of a new mode of governance. While in information management some of the old modes of governance continue, data centres indicate new modes of governance. These new modes of governance are yet to fully develop, but we may find the rough outlines through new government initiatives in data management. On one hand it means more centralized handling of data, on the other hand it offers scope for decentralized or dispersed handling. It also means more data centric management of public life. More importantly, data management in India does not belong to purely private domains of data service providers and IT giants. Data governance draws from experiences of the postcolonial Indian state in dealing with the society, population groups, security needs, welfare needs, and territorial management. We can refer to the huge volume of data generated, processed, interfaced, retrieved in India in the context of both specialised public data collection institutions like the Office of Registrar General of India that conducts the decennial Census and the National Sample Survey Organisation on one hand, and sectoral data collection initiatives undertaken by national agencies and progammes like the Reserve Bank of India, various public sector banks, Securities and Exchange Board of India, National Crime Records Bureau, and Rural Employment Guarantee scheme on the other, besides of course the Unique Identification Authority of India that offers verification of identity as a service to other government and private agencies. The NIC (National Informatics Centre) has set up National Data Centres in Delhi, Pune, and Hyderabad, and 30 small data centres at various state capitals data centres. It also operates the open government data platform (https://data.gov.in/). Even a global company like the IBM has set up a public data centre in Chennai to tap intogovernment initiatives like Digital India and Smart Cities. The data centre will also reportedly enable the company to tap into data sensitive sectors like banking, financial services, and telecom that often mandate that data be hosted in local data centres.(http://www.thehindu.com/sci-tech/technology/ibm-sets-up-public-data-centre-in-chennai/article7757332.ece)

8.Public management of data is more and more geared towards interface of various kinds of data in what is called public interest. In India, highly developed in terms of keeping records, and with a long history of census keeping and census analysis as well as banking industry, the data management infrastructure draws a lot from the state history and state capability. Any study of the data centres in India has to take the twin factors of state capacity and state regulation into account. Such a study may also show how the state capacity may change or acquire new abilities or become dependent on private abilities in governing the informational world and shaping its own logistical ability. It is in this background that we have to critically analyse the nature of the regulatory regime of e-governance in the country, including data protection provisions, the Data Security Council of India, and the

Information Technology Act as a whole. This is important in the background of a large number of BPOs in India with access to large amount of data – commercial and personal.

9.This in turn has acquired a critical dimension, namely public-private partnership (PPP) in data management. Even though the model of PPP precedes the growth of data centres, the field of data management and the broad growth of IT infrastructure are inconceivable without the PPP, whose aspects may range from land allotment, tax rebates, collaboration in public data management, to budgetary provisions, and downright allowing access to commercial interests - public and private. One may say with the experience of *Aadhar* that the market of interlinked data management is taking form through public-private partnership. Trade journals, relevant policies, and other aspects of e-governance are windows to understand the dynamics of the PPP in data management in the country.

10.Still questions remain as to (a) the unknowable nature of certain risks (breach, piracy, and other risks mentioned in paragraph 6), (b) hazards of trade cycles and crisis like that of 2008, (c) limits of the context for which the data is geared, (d) the contradiction between the openness of the source (let us remember that much of the vital technological are driven by free and open source software communities) and the private nature of the holdings, (e) possibilities of abuse (such as corruption as happened in the US or directing the data to "other" purposes), (f) ignoring the human factor, and (g) related to the earlier point, the question of labour in the entire gamut of data industry – from collection to end use.

11. In a context marked by a PPP mode of governance, it will be important to see how the public institutions played a big role in realising India's own moment of big data. The CRG research included an inquiry into the history of the Indian Statistical Institute (ISI) in Kolkata. This pre-history of big data is located in the accounts of two inter-connected developments in the mid-20th century, i.e., the birth of the idea of an integrated "national economy" as a central object of the postcolonial governmentality, and the triggering of the cold war "big science" initiatives that required data management at a cosmic scale. The ISIwas one such site where these two developments interfaced in 1950s.The two decades after Independence were a key moment in the history of data in India, when the data-centric organization of public life was given a boost through the work of the ISI. Today, on the basis of huge amassing of data, new digital technologies have enabled a new regime of data analysis. But today's data centres would have been inconceivable without the organisation of data-centric exercises such as the ISI which made governance of data possible, and achieved what we may call the materiality of data, which in time came to constitute the data centres.

12. In the last decade of the last century there was a major reorganization of the existing diversity in e-governance through the introduction of 27 Mission Mode Projects that touched upon an

impressive number of “service delivery verticals” such as central excise, IT, e-Panchayat and various core and support infrastructures. The convergence of various e-governance initiatives presupposed an infrastructure to make data circulate among service providers and between the service provider and the citizen. The Mission Mode philosophy enabled corporate firms to win Mission Mode Projects and open captive data centres to ensure the accumulation and circulation of data. WIPRO, TCS, and others won mission mode projects to open data centres in states like Maharashtra, West Bengal, and Gujarat. Now state governments are vying with one another to offer free trade facilities to the digital companies, and the state and central governments are themselves owners and operators of several important data centres. According to a recent Report on the global data centre market and India’s share into this emerging domain, India’s data centre market is likely to be the second largest in the Asia Pacific Region by 2020. The report mentions that the boom is caused by the increase in smartphone use, growing popularity of social networking sites as internet becomes cheaper and accessible and the inroad of ecommerce companies, and of course, Government’s initiatives to connect with citizens through electronic means. Currently, India’s data centre market is dominated by big Telecom firms such as Reliance and TATA Communications and few third-party service providers. Contemporary data centres have created the infrastructure both of storage as well as processing – the “interoperability” that has given big data the “bigness” and its currency. This interoperability has allowed for a particular kind of marketization of data, enabling corporate control over data process.

13. Yet, if this was the pre-history of the process in which big data presaged the development of data centres, how did the data centres actualise? Below we give the example of Belapur in Navi Mumbai, which has grown into a data centre hub.

14. As site of capitalist production and expansion, modern cities demonstrate deployment of technologies and management of network in its fold. Since the fifties and sixties of the last century South Asian economies had been implementing the model of satellite town and zone to control and decongest the uncontrolled sprawling of their metropolitan populations, provide housing and jobs for low-and-middle-income groups and immigrants and for the simultaneous specialised expansion of the urban production centres. Satellite township model or peripheral expansion model appeared as the state’s blueprint to deal with the issues of the urban in the South Asian economies. Following the trend, the Indian government also introduced several satellite townships around its largest metropolitan centres and established six town rings around the National Capital Territory-New Delhi, four around its silicon city-Hyderabad, three around its biggest southern city-Chennai, two around eastern metropolitan-Kolkata and one in conjunction with its financial capital-Mumbai, called the Navi Mumbai. We face three major questions here:(a) First, how did Navi Mumbai evolve and transmute into the spatial, economic, demographic form of a financial data processing hub after its

inception? (b) Second, in what ways does Navi Mumbai's contemporary economic base function and facilitate the advance forms of IT infrastructures like data centres and the emergence of a new form of security-economic-administration complex? (c) And finally, in what ways does the policy of making of Navi Mumbai reflect the neoliberal path of city-making?

15.To allure the growing IT-based industries, the general concessions for IT industries included exemptions for VAT, stamp duty, e-duty, tariff subsidy, escort tax, local body tax and Octroi tax, entry tax and other cess and taxes. FSI, reduced property tax for IT and ITeS units same as residential and incentives for Integrated IT Townships (IITT) and new types of data infrastructures like Data Centres located anywhere in the state. Further, restrictive land use through zoning techniques was reworked and IT and ITeS were allowed to open in any zone and permitted to work. Sector-specific concession included infrastructures like approach roads, services free from any encumbrances and any form of contagious elements, and in certain caseslibera ted land use norms for up to 60% use. Furthermore, in order to intensify IT-based industries in TTC (Trans Thane Creek), mega and ultra-mega projects were incentivised up to 100% of their fixed capital investment. To reduce the technical and administrative hassles, single window clearance was introduced. In this way a number of large and small IT and ITES firms developed. Policies, such as the New Economic Policy, Telecom policy, etc., further influenced and propelled high skill service sector industries in Navi Mumbai, which now accounts for the maximum work and industrial spaces. Since its inception in the 1970s until 2008-09, CIDCO had invested INR 109.8 billion in infrastructure development and had helped creating an alternative new city as a counter magnet to Mumbai. The massive investment to create a "double" of Mumbai was based on the premise that CIDCO's consistent development expenditure would have the multiplier effect in the creation of a host of industrial, commercial, construction, and trading activities, the ultimate outcome of which could be seen in its present form. As a double of Mumbai's CBD, Navi Mumbai CBD is located in the heart of the city and is, 575 hectares, 20 times larger than the area of Mumbai's CBD-Nariman Point. Its commercial infrastructure is spread over 6 lakh square feet International Infotech park at Vashi, 10 lakhs square feet International Technology Centre at CBD Belapur, 140 hectares SEZs which aims to offer 8,25,000 high skilled service sector jobs in near future, establishing a trend that the zone is well equipped with the future needs of the IT-based service sector. These economic spaces function as bureaucracy-free, deemed to be a foreign territory and are exempted from most of the economic laws of the land besides incorporating world-class infrastructure. With an access to the skilled workforce, social infrastructure and an investment of project cost of 6300 Cr. and private investment potential of 25,000 Cr., securitised environment with military and naval bases mutually offer collaborative juncture in which the contemporary IT and ITES infrastructure function. The decentralisation of responsibilities helps the emergence of what can be called a 'city-state', which offloads its burdens of civic management to NMMC.

16. Located in the Electronic Zone in the TTC of Navi Mumbai and surrounded by many IT and ITES industries, CtrlS has been developed ground-up to be a data centre. It is now one of the top data centres in India. Headquartered in Hyderabad, and developed on a piece of barren land with software industries (non-polluting industries) surrounding it, the facility reflects its autonomy with respect to its establishment, operation and management. Taking advantage of a long-term lease (99 years) of land, the facility has been constructed with an elevation of 3.5 meters from the ground level, eliminating any chances of flooding. Special permission allows the facility to maintain high walls defending its perimeter. Its location also allows maintaining a safe distance from the suburban railways, road transport, polluting industries and offices of public interests, hence, maintaining security and anonymity. Located within the technological zone,the strategic choice of the site has enabled the facility to maintain safe distance from industries that emanate hazardous chemicals, fumes, smoke or effluents. The site enjoys oblivion. It is like a warehouse from outside. With less human inflows in and out the service in order to keep it free from the local politics, political blockades, and any forms of challenges of resource supply. Further, the facility is located in a no-fly zone to avoid any crash damage and is located 30 kilometres inland from the sea. Earthquake resistance infrastructure and external concrete shield insure it from any form of damage from outside. CtrlS comprises of eight levels or zones of security and is a like a militarised zone with a combination of anthropocentric, mechanical, electronic, software based mechanisms. Zone one comprises of the crash-proof entrance and perimeter security; zone two consists of armed guards staged around the building and on the watchtowers; zone three comprises of card-based entrance to the facility; inside the facility, zone four employs physical and digital security checks (like baggage scanner and metal detectors); zone five constitutes of man-trap; zone six comprises card-access to elevators connecting server areas; zone seven ensures biometric security for main data centre area; and zone eight ensures biometric security for data racks. CtrlS also employs high level 448 Bit military strength encryption protection for its servers. Beyond the spatial and software mediated security, employed encryption technology needs an average of 1 billion guesses per second for the hacker or the intruder to get access to the servers, hence, making it impossible to breach. A mix of physical and software-based security infrastructure ensures logistical, material (servers, network, and physical applications), virtual and cloud facilities of the facility. Recognised by several parameters and certificates (HIPAA, PCI, etc.), its security strategies deliver end-to-end assurance, from the perimeter to the core of the data centre and a network of these provide real-time insight across data, applications, servers, networks and physical infrastructure.

17. Owing to the power-hungry characteristics of the data centres, TTC is supplemented with dual power supply from two active power stations - a fossil fuel power station and a hydropower station. Uninterrupted power supply is ensured through dedicated electrical supply ducts between the

transmission station and the facility that is further intermediated by express feeder equipment that ensures no fluctuation and stable supply. Additionally, the facility adds power redundancy with high power dual generator sets with a power back of 96 hours, dedicated space for bio-gas plant and a contract with the local fuel station for supply within 4 hours of the demand. CtrlS consumes more than 35 MW of electricity. The facility also has world-class water cooling tower, each point in the cooling system, heat rejection, cooling source, distribution pump, distribution piping, and the final node has 2+2 piping for fail-proof cooling at every location round the clock. The facility has additional space and possibilities for infrastructure expansion to add two more cooling systems making the facility future ready for the next decades. With each floor differently customised, designed and engineered,CtrlS ensures the issue of ticket generationby client and the service provider, self-correction, maintenance, and redundancy, fast collocation-rack dimensions, pre-configured racks for different inflow and outflow routes in the facility for the infrastructural, technical, and management needs. CtrlS operates as an infrastructure with multiple tenants rented or housed in different locations. It contains thousands of working components like security systems, network providers, servers – with all these functions monitored from the Network Operations Control (NOC) room accompanying real-time dashboard of the entire DC critical functions, managed by four teams of administrators who work 24*7*365 and rectify faults in case of a breakdown. In this way, CtrlS constitute a space, which is partially shared and partially oblivious, partially material and partially immaterial, partially technology-driven and automatic and partially anthropocentric and human-controlled.

18. The staffs associated with the specialised operations reside in the close vicinity of the facility (within 5 kilometres) so as to maintain uninterrupted availability and dependence in case of an emergency. The staffs are recruited, supervised and administered through specific human resource, technical and marketing firms that are monitored by core teams of CtrlS. Through this multi-level governance of the workforce, CtrlS maintains its specific privacy, security and human resource needs. Many of the clients (majorly internet banking, e-commerce, etc.) have the option of the secured work environment for their employees who work within the facility to simultaneously work for their specific needs, making it a fully functional business location. The “variegated sovereignty” of the zone provides kinds of exception that create opportunities, usually for the minority, who enjoy accommodations and conditions not granted to the rest of the population. In these highly altered landscapes of neoliberalism, labour standards and work conditions are managed and administered through international and inter-institutional guidelines that ensure flexible work conditions, comparatively higher pay packages coupled with strenuous psycho-social conditions of workplace and work anonymity, and strict guidelines ensuring zero breach of security and access. These spaces also enable the international clients to recruit cheaper IT and HR professionals on Indian origins for

certain human-data interfaces. Beyond infrastructural dependences on its surrounding city spaces, data centres maintain their recognition and validation through various certifications from global institutions that validate the parameters of data centres.

19.Most of the organisations working in financial services, banking, e-commerce, etc., depend for their functionson “Infrastructure as Service” (IaaS) model – outsourcing of infrastructure, software, management and operations components of servers and data hosting, storage and maintenance, todata centres. The system enables hassle-free outsourcing of the maintenance and management of the internal infrastructure and freeing the internal IT staffs and the resources for focussing on software solutions and innovation that ultimately generates business growth and value. The model also offers multiple services like storage as service, network as service, dynamic scaling of the services, resource subscription models like pay-per-use and pay-per-resource, that delivers optimised services to its clients based on usage linked billing. Ubiquitous access and availability of services from any location and from any device and eliminates organisational costs on investment in hardware, software and other associated infrastructure. IaaS offers services at no capital costs on the establishment, whereby organisations pay for hiring the IT infrastructure from the data centre, which incurs only operating costs along with IT personnel support, further reducing the operational cost. Also, for the first time user enterprises, majorly small scale manufacturing units, CtrlS with complete infrastructure solution – infrastructure, migration, virtualisation, automation, software solution – enables them to pick services as per their specific requirements, hence reducing the operational costs, adding cost-effectiveness to the operations management, business continuity and product management. While, CrtlS has offered up to 100% uptime in the last few years, the redundancies and advanced disaster recovery and business continuity models saves its clients from losing mission critical data within justifiable recovery time.While a considerate number of DC exists in Navi Mumbai, CtrlS, being one of the most prominent in Navi Mumbai and in the country, hosts more than 100 organisation’s servers and their data. Among over 100 clientele are leading banking organisations viz. national banks (like State Bank of India) and international banks (like National Bank of Singapore), private nationalised banks (like Axis Bank and HDFC Bank), digital wallet supported major e-commerce businesses (like Paytm and Alibaba), Infotech companies (like L&T Infotech, Tata Services and Cognizant Business Consulting), India’s public sector undertakings (like NTPC), medical research organisations (like Rajeev Gandhi Cancer Institute and Research Centre), infotainment initiatives (like Muse Art Gallery), machinery and automobile giants (like Mahindra and Mahindra and Mercedes-Benz), manufacturing sector leaders (like Nagarjuna Fertilisers and Deepak Fertilisers and Chemicals), logistics companies (like Gati Corporation), insurance companies (like HDFC Life Insurance), power sector companies (like Reliance Power), multi-company brands (like Siro Group of Companies) and business solution consultants (like Parallels, Research in Motion (India), ISpace Global Services (India)

and Essel Propack), investment banking companies like (Ask Investments) and government departments (like BMC and MCGM).Finally, we can briefly touch upon the banking sector as one instance. Technology-driven banking and financial sector is linked to changing business models, online banking services and transactions in the wake of core banking options, rapid services like NEFT, RTGS, and core banking solutions, and international fund transfers and financial services. The introduction of smart-phone technologies, mobile banking services, and banking kiosks in rural areas has added extra business opportunities. Population coverage has improved,so have improved services through customised IT and software-based products, and India's banking sector is expected to become the fifth largest banking industry in the world by 2020 and third largest by 2025 through internet-based new-age banking. This is and will be increasingly more based on collaboration among service providers with financial institutions partnering with telecom, technology, and consumer product providers. No wonder the CBD of Navi Mumbai has seen various banking and financial firms shifting or opening their headquarters there (like State Bank of India, Axis Bank, HDFC Bank), owing to the availability of premium infrastructure and prime location at subsidized tariffs, and the spatial advantage with the proximal location of their data centres and recovery data centres. Test and pilot run of new products and services, bureaucratic control, sharing and flux of their IT workforce or staffs between their core teams and their DC have added to the overall advantages. It is important to note that the Asia-Pacific has emerged as the strongest business-to-consumer (B2C) e-Commerce region in the world with sales of around 567.3 billion USD, a growth of 45% over 2012, ranking ahead of Europe (482.3 billion USD) and North America (452.4 billion USD). As an effect, Mumbai, known for its textile mill-to-mall culture, has already seen the closure of as many as 11 malls between 2010 and 2015. E-commerce processes are conducted using software applications and online catalogues and shopping carts that connects the users with the online retailers, payment platforms either by banking institutions or e-wallet payment portals or services, internet-based instant bill generation, information and convergence with logistical and warehouse partners. Furthermore, such a system depends on continuous data flows between the users, sellers and the intermediate agencies like the logistical, warehouse, HR and maintenance divisions that are not only spread across the geographical tangents but are also controlled, administered and managed by different agencies like the seller, courier partner, payment banks, and users.

20. Belapur in these and other ways has advanced far beyond the original vision of Navi Mumbai as the other city of Mumbai relieving the latter of some of its problems. The operation of the "public good" symbolised by the State, operation of capital, and operation of data – these three processes are congealed in this history of the place.

21. The idea of data as public good is strengthened through what is construed as "public concern", which also legitimises the data centres. As indicated in the beginning, data centres have spread to

various states, with state governmentscreating their respective data centres to make government undertakings efficient and cut losses. Measuring and reducing “transmission and distribution” loss in electricity generation and distribution (that is the difference between the amount of energy entering the network post generation and that which is expended at the consumer’s end) is an instance of ongoing concerns within grid-thinking on a global scale. The concern is more important for developing countries where a significant “human” component of theft/unaccounted-for usage combines with“technical” dissipation. Thus, getting a grip over management of loss through continuous monitoring of data and calculating possible scenarios with new data has become a part of a data centreled centralised operations of the WBSEDCL (West Bengal State Electricity Distribution Company Limited). The new data regime has been foundational to the recently initiated centralised mode of operation of the company in which data helps WBSEDCL’s bureaucracy acquire more accountable targets of operational and bureaucratic efficiency via the compulsions produced in course of operating through a centralised data centre. Data has also been essential to calculative procedures that work at improving the technical efficiency of the network by factoring in elements like unaccounted-for usage and theft that can be potentially debilitating to the ‘health’ of an electricity distribution system. In significant ways, it is these kinds of incessant data-fed calculation and consequent, anticipatory technical enhancement/planning support that complements the ambition of providing universal, 24x7, quality power in contemporary West Bengal. Yet it is important to note the extent to which the professed liberalization of economy facilitated through improved data operations has to depend on the materialization of concepts like “loss”, “actor-network dependence”, “sustainable production and distribution targets” etc., - all of which depend in turn on bigger sets of multi-parameter data.

22.Thus, data centres form one major instance of the governance of supplychains on the basis of real-time key performance indicators measured withinenterprise resource planning software and feedback of externalities.In the end, the question that haunts this report is not about whether the formulation of neoliberal capitalism as operation is universally applicable. Investigating the dynamics of operation through frames of labor and logistics offers a way of making sense of the co-existence of capitalism’s variegated accumulation modes and forms, and the crucial place of the state in making this combination in the form of operation possible. It involves the prominent fields of capitalist activity, such as finance, extraction, circuits of infrastructure, and labour. Again, without the state and the idea of the “public”, this would not have been possible. Of course, the question is: Do these contribute in any way to a resultant “extra-statecraft”. The tentative answer is no. The concerns of a national scale combine with the territorial logic of data infrastructure in the form of variously stacked orders of virtuality – zone, nation, region, empire, cloud, etc. Taking into account the context of the tangible bearers of capital in the form of information technology (like data centres), concerns over

data protection in countries like India are like reflections ofcertain material conditions in the production of data and data mobility, appearing in the form of citizenship claims. The state has not withered away. The constant reference to the “public” indicates the nature of the operation of capital in our time.