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# The deep interface of the effectuated voluminous territories: gates, smooth and striated spaces, and the royal science in the Air Silk Road

Chao Yao <sup>a</sup> and June Wang <sup>a</sup>

## ABSTRACT

While the scholarship on volumetric territory is now gaining momentum, our knowledge of the in-betweens of spheres is still limited. This paper studies the voluminous territory through a new lens: the deep interface as a destabilizing ontology that invites, enables and disciplines movements across the different spheres. The conceptualization of the deep interface unfolds in three layers: (1) an effective territory that treats territory as formed by the mobility of disruptive object–spaces; (2) a deep interface constituted by a series of gates distributed in various spheres for the succession of a relay along particular paths; and (3) the striation of smooth space by imposing the ‘royal science’ on the moving things, translating voluminous space to be a vector of political–rational calculations. Tracing the moving aeroplane as the disruptive object–space, we demonstrate how the three gates of the Air Silk Road scheme, Dara Sakor Airport and the mangrove forests constitute a deep interface after the construction of their interdependence by instantly allied forces.

## KEYWORDS

voluminous territory; effective territory; deep interface; smooth and striated space; Air Silk Road

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## 1. INTRODUCTION

Scholarship on the volumetric turn of the territory is now gaining momentum (Billé & Battaglia, 2020; Elden, 2013b; Peters et al., 2018; Squire & Dodds, 2020). In his seminal paper ‘Secure the volume’, Elden (2013b) calls for scholarly attention on an emerging area of volumetric territory, drawing on studies that have transcended the traditional terrestrial surface to the subterranean realms (Weizman, 2007) and aerial spaces (Adey, 2010; Gregory, 2011; Williams, 2007). A new research agenda is to explore a more comprehensive and coherent volumetric framework; as the territory is no longer to be treated as a flat surface but as a volume with verticality, heights, depths, densities, capacities and more. Heeding Elden’s call, geographers have increasingly engaged with the three-dimensional realms such as underground bunkers, air, oceans and outer space (Bennett et al., 2020; Dunnett et al., 2017; Hung & Lien, 2022; Woon, 2020), examining their materiality, spatiality and socio-technical construction of their second nature (Baghel & Nüsser, 2015; Forman, 2020; Lin, 2020; Peters & Steinberg, 2019; Squire & Dodds, 2020).

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Explorations into these new areas have continuously unravelled new layers or spheres of securitization and commodification, amounting to an expanding 'list of spheres that now envelop the planet' (Shaw, 2017, p. 885). However, these spheres are frequently treated as disparate, segregated enclosures of their own (Shaw, 2017). The treatment of spheres as 'insular zones of protection and exclusion' can be a major hurdle in political geographers' investigation of three-dimensional security (Campbell, 2019, p. 13). As Clark (2018, p. 81) reminds us, 'the uppermost layers of the Earth's crust are in constant interaction with the swirling mobility of air, water, and life at the planet's surface'. Understanding the trans-sphere interactions is crucial for us to arrive at a new kind of geography of the volumetric territorial whole – 'a kind of geography of air and sky which does not see air divorced to a ring around the planet' (Adey, 2015, p. 57). Our knowledge of the in-betweens, or what Elden (2017) calls the interface, is still limited.

An ontological configuration of the voluminous, territorial whole in its constantly active, strata-forming processes is useful here (Peters et al., 2018). In her revisit to Sloterdijk's conception of spheres, Campbell (2019, p. 13) reiterates that spheres are actually 'relational entities, as life-worlds co-created within topological and fluid networks of connectedness which always comprise multiplicities'. Mobile aerial prostheses are thus 'ontologically disruptive object-space' that are 'existential structures of our airport earth' in our attempts to explore air and sky as part of the voluminous territorial whole (Adey, 2010; Shaw, 2017, p. 893). The question, then, is: How to understand the interface through the mobility of disruptive ontological object-spaces that are constitutive of the incessantly active, strata-forming of the volumetric territory?

Our attempt to conceptualize the interface draws insights from two major studies: Deleuze and Guattari's (1987 [1980]) conception of the striation of smooth space by imposing rules of royal science to moving things, and the interface of the networked platforms by Bratton (2015), both of which are distilled from the motion of things transcending different spheres. We propose a concept of deep interface, the conceptualization of which unfolds in three layers.

First, we argue for an effective territory to understand territory through Foucault's (2007) security of space, which refers to the voluminous space surrounding mobile things. Territories are relational entities, the shapes of which are extended, disrupted or recreated by the motions of their ontologic elements, much like the motions of pieces in the Chinese game Go (Deleuze & Guattari, 1987 [1980]). The three-dimensional security is thus embodied by the mobile, disruptive object-spaces (Shaw, 2017), such as aeroplanes in this study. Situated in the process, the deep interface is a destabilizing ontology that invites, stimulates, enables and disciplines movements across the different spheres.

Second, the destabilizing interface ontology serves the flows transcending different material spheres. It entails a series of tangible and intangible gates and switches, distributed in various spheres of the voluminous territory for the succession of a relay (Bratton, 2015). The ontology of interface forms the conjuncture space 'configured of intersecting spatialities, materialities, and temporalities' (Peters & Steinberg, 2019, p. 302).

Third, the destabilizing interface ontology serves the flows transcending spaces of different natures – the unruly, smooth space and the ruled, striated space. The interface imposes particular rules, or what Deleuze calls the 'royal science' on the moving things, translating voluminous space to be a vector of political-rational calculations (Deleuze & Guattari, 1987 [1980]; Elden, 2013a, 2013b).

We will elaborate on our concept of the deep interface with the case of the Coastal City – a Chinese-invested aviation hub in Cambodia in the broader context of the Air Silk Road, which is a new scheme that adds a vertical dimension to China's Belt and Road Initiatives (BRI) (Alff, 2020; de LT Oliveira et al., 2020; Lin et al., 2019). In this case, following the mobile aeroplanes allows us to unravel three gates of the deep interface. The first is the institutional gates through diplomatic moves on international aviation coordinations. The Air Silk Road, launched by the Civil Aviation Administration of China (CAAC), re-renders itself as one member of the Asian family by rearticulating the International Civil Aviation Organization's (ICAO) No

Country Left Behind (NCLB) programme, in an attempt to ally with the ASEAN. The second gate is Dara Sakor International Airport, which serves as a new model of air and earth complex that connects aviation highways, airports and special economic zones. The development of special economic zones, however, encountered resistance from the mangrove conservation zone that the project attempted to commodify. Mangrove forests along the Koh Kong coast of Cambodia become the third gate between earth and water, putting the special zone project into a state of temporal stagnation. Following the moving things transcending spheres, we open up a new frame of thinking about spatial practices in a dynamic, tumultuous, voluminous whole, as if throwing a pebble into the water and observing how it breaks through the static understanding of the surface and its underlying spheres. The multiplicity of the deep interface is to be understood through how the interface stitches together the biological, the material and the atmospheric through a succession of relays.

The rest of the paper is structured as follows. After the conceptual endeavours on the ‘interface’ of effectuated, voluminous territories, the paper then turns to an empirical exploration of the air–earth development through its three gates. Data deployed in this study were collected through on-site observations in Cambodia, and semi-structured interviews with Chinese airport planners in this project, professors from Cambodian universities, governmental officials from the Council of Development of Cambodia and the Ministry of Foreign Affairs and International Cooperation, and a number of Cambodian residents. Field trips to Cambodia and Tianjin in China were conducted between April 2020 and April 2022, supplemented with communications on social media during the pandemic. The study also includes intensive analyses of a large number of archives, including policies, reports, meeting minutes and memos by ICAO and CAAC, internal presentations and reports by the Union Group, and media reports in both China and Cambodia.

## 2. INTERFACE IN THE VOLUMETRIC TURN OF TERRITORY

Epistemological effort to reinvigorate, redirect and reshape the volumetric territory as a dynamic, turbulent, voluminous whole has been observed in micro, macro and plural (foam) space (Campbell, 2019; Peters & Turner, 2018; Shaw, 2017). Studies on elementary geography have been fruitful in the micro-space (Squire, 2015; Squire & Dodds, 2020). In an effort to break through the terrestrial thinking that treats ice and water as another ‘dry land’, Dodds (2019, p. 1125) argues for investigations into the material form of volume as assembled from multiple elements. Steinberg and Peters’s (2015, p. 247) concept of wet ontology is insightful in borrowing the property of liquids to stress the chaos and turbulence of matter, which constitutes a vertical world of volume that is ‘voluminous, stubbornly material, and unmistakably undergoing continual reformation’. The notions of turbulence and motion bring in important dimensions that are not exclusive to liquids, but have also been acknowledged in studies on the macro and plural spaces (Adey, 2010; Campbell, 2019; Shaw, 2017). Likewise, the correlations among spheres of air, earth and water are observed in many studies. Remapping takes place with changing coastlines, submerged islands and melting glaciers (Baghel & Nüsser, 2015; Gerrard & Wannier, 2013; Schofield & Freestone, 2013). Shaw’s (2017) interrogation into the military and economical enclosure of the atmosphere by drones is thought-provoking in rethinking the interface in the constant (re-)configurations of institutional arrangements, material forms, techniques, and their dynamic entanglements and interactions. The mobile ‘armada of aerial actors (as) ontologically disruptive object–spaces’, constitutes a dynamic, turbulent, ontological volume of ‘our airport earth’ (Adey, 2010; Shaw, 2017, p. 893). Following the disruptive object–space, we argue for an interface with depth for the voluminous territory by revisiting Deleuze and Guattari’s striation of smooth space and Bratton’s interface.

## 2.1. The effectuation of territory

Ever since Agnew's (2005, p. 441) caution against the territorial trap, scholars have attempted a relational shift of territoriality toward the laborious agency of effectuating sovereignty through 'networks across space with distributed nodes' (Allen & Cochrane, 2010; Jonas & Moisiso, 2016; Wang, 2019, 2021). The Foucauldian conception of governance as 'the right disposition of things' is inseparable from his other concept of 'space of security', which foregrounds the dynamic process of mobilizing and immobilizing human and non-human things (Foucault, 2007). The centrifugal logic renders the security of the mobile population the very pathway for the prince to reconstruct his territory, from what was once defined by the surface possessed by the crown to the milieu surrounding the moving population, which is always in a dynamic process of reaching out (Foucault, 2007). The Deleuzian (Deleuze and Guattari, 1987 [1980]) conception of effective territory, which did not exist prior to, but comes into effect through, the movements of things, is of great utility for thinking about territory as a dynamic, turbulent, voluminous whole.

Deleuze and Guattari (1987 [1980]) deploy the Chinese game of Go to illustrate how territory is effectuated through the movements of things. Like many other games, Go is also a battle between two opponents, but there is no pre-subjected terrain or pieces. The battlefield is divided into a grid of 19\*19 lines, resulting in 361 identical points. In this open field, Go pieces are 'pellets, disks, simple arithmetic units' carrying no predefined characteristics (Deleuze & Guattari, 1987 [1980], p. 325). The major objective of the game is to expand one's territory, not by direct confrontations of two pieces, but by encircling the opponent's pieces spatially and depriving them of any possibility of expansion – as the Chinese name calls it, a game of *Weiqi* (encirclement of pieces). The territory is set up through the arrangement of a series of pieces by occupying neighbouring areas of the opponent in order to shape, limit and redirect the next move of the opponent. It is a race about the spatial reach of two opponents, full of reactions and improvisations. As Deleuze writes: '[These identical *Weiqi* pieces] have only an anonymous, collective, or third-person function: "It" makes a move ... it is a question of arraying oneself in an open space, of holding space, of maintaining the possibility of springing up at any point' (Deleuze & Guattari, 1987 [1980], pp. 352–353). The game of *Weiqi* proceeds with territories mapped out through a highly interactive and relational process of positioning pieces.

## 2.2. Interface as a destabilizing ontology

Situated in this process of effectuating territory, the interface is a destabilizing ontology that invites, stimulates, enables and disciplines movements across the different spheres. Traditional wisdom frequently treats the interface as a singular place or point between two systems, from Pratt's (2003) contact zone to the *Cambridge Dictionary* entries. Understanding territory as a voluminous whole urges for an epistemological turn to unveil the interface with depth.

For Bratton (2018), the new epistemological shift is from a telescoped gaze upon the contacting zone/point between two systems toward chain-effect thinking on a relay of moving things that transcends an array of gates. In this light, the interface is not a singular, stand-alone entity, but an assemblage that entails multiple tangible and intangible gates, programmed by the chains of interfacial effect for 'the succession of relays through an intended pathway of connections' (Bratton, 2015, p. 230). First, the series of gates and switches are heterogeneous and distributed in various spheres of the volumetric territory. Taking an example of the relay of information for online shopping, the digital interface actually entails an ever-elastic list of components, from human hands, 'screen-based icons, protocols, anatomical sensations, chips and sensors' to 'buildings and roads, airport terminals, warehouses and continental shipping ports, transoceanic supply chains, open and closed production cycles, forensic analytics, geographically particular store shelves, individuated instances of consumption, and so on' (Bratton, 2015, p. 230). This ever-



elastic list of components, of different natures and existing in different forms, are distributed in a variety of sites, so as to stitch together a logistic system for the circulation of objects (Langley & Leyshon, 2021; Pollio & Cirolia, 2022). For the interface to function as a destabilizing ontology that invites, stimulates and enables movements across the different spheres, it requires more than a loose collection of distributed gates in different sites, but also an articulation of the interdependence between sites (Nail, 2017; Wang, *forthcoming*). In that sense, gates and switches are both embedded and disembedded in the two sites it aims to bridge, featuring intersecting materialities of both in the conjunctural geography (Graham, 2020).

Second, the interface is not just a passive, material setting to support the mobility of things, but a functional assemblage that imposes particular rules on the moving things, embodying particular ways of securitization and commodification of the space (Shaw, 2017). By setting up gates and switches, the state ‘captures flows, regulates circulations, and relativises movement of subjects and objects’ (Deleuze & Guattari, 1987 [1980], p. 385). By conditioning the motions in terms of speed, direction and relays, the state translates the smooth, unrulled space effectuated by free-moving objects, to the striated, disciplined space effectuated by regulated movements of objects. The interface thus operates as the ‘in-between’ of the smooth, unrulled space and the striated, disciplined space, which allows the state ‘establish a zone of rights over an entire ‘exterior’, over all of the flows traversing the ecumenon’ (Deleuze & Guattari, 1987 [1980], p. 385; Dunn, 2020).

The application of ‘royal science’ translates volumetric space into a vector of political–rational calculations (Elden, 2013b). Issues such as reach, instability, force, resistance, incline and depth matter, all of which have physical, geometric and political aspects (Elden, 2017). As such, the gate of cities for the management of the public ways entails intangible infrastructures, such as ‘the levies and duties ... [in the control of] the fluidity of the masses’ (Virilio, 1986, pp. 12–13). Technical terms invented for measuring volume, for instance, capacity, have evolved from Euclidian measure of verticality to a socio-political construction of gravitas. This non-geometric way of thinking about volume allows seemingly scientific, geometric terms to be reshaped, moulded, reformed and stretched in different scenarios by different actors (Peters & Turner, 2018).

To sum up, we propose a destabilizing ontology of interface that constitutes multiple material and immaterial gates distributed in conjunctures geographies of the various spheres, and which enacts, channels and disciplines the directions and speeds of things moving between different spheres. Following the Deleuzian conception of effective territory, we propose to treat the aeroplanes as ontological, disruptive object–space, the movement of which through multiple gates will walk us into the incessantly active processes of space striation, as an output of the constant interactions among the earth, air, water and life. We will then illustrate our concept of the deep interface through three gates: the gate of the Air Silk Road initiatives, the gate of the Coast City Special Economic Zone and the gate of mangrove forests. These gates are not programmed systematically. Instead, each has its own agenda, implemented by different actors in different time-spans. Nevertheless, they either triggered changes in the others or were appropriated by the others through improvised allies, building up an interdependence with each other and allowing each to function as a gate for the succession of relays.

### 3. STRIATING THE AIR: THE GATE OF CIVIL AVIATION RIGHTS

Since its promulgation by the International Civil Aviation of Organisation (ICAO) (2006) in 1944, the Convention on International Civil Aviation (also known as the Chicago Convention) has gradually dominated the civil usage of airspace of its 193 member countries. Given the lack of agreements on the vertical extent of sovereign airspace, the Chicago Convention is not concerned with a Euclidean sense of airspace measured by the altitude of different airways. Instead, what is

central to it is the nine degrees of ‘freedoms of air’, which basically striate the rights of a country’s airlines to enter and land in another country’s airspace. The first two freedoms concern ‘the passage of commercial aircraft through foreign airspace and airports’, while the other freedoms are about carrying people, mail and cargo internationally (ICAO, 2006). Wherein the first two freedoms of air have been shared commonly under normal circumstances, the fifth one is the privilege that is sought after by airlines, as it entitles the contracting country to embark and disembark passengers and cargoes as an intermediate point in an airway to a third country (ICAO, 2006). Framed in this way, the ‘freedoms of air’ place down the fundamental building blocks of the international civil aviation route networks, defining, first of all, the horizontal path of the flying relays of aeroplanes and, second, where the aeroplanes may land on the earth. The aviation route networks are volumetric in their nature. The Chicago Convention is also formulated owing to the disagreement over the US’s open sky proposal. Instead, freedoms of the air are accessible only through multilateral and bilateral treaties. In this circumstance, the adoption of technologies about aeriality’s capacities, for instance, the methods in air traffic management and vertical surveillance, are still at the discretion of sovereign countries (Lin, 2016).

In 2014, the ICAO (2014) launched another initiative, ‘No Country Left Behind (NCLB)’, which was advocated as a technical aid in the implementation of ICAO Standards and Recommended Practices (SARPs) for safe and reliable air transport. In comparison with the Chicago Convention, the NCLB scheme is less tolerant of the ‘huge disparities’ in different countries, which is, as stressed by the scheme, of great danger to the safety of the international aviation industry. Thus, the scheme foregrounds its main objective to standardize criteria for performance assessments and uniform aviation practices in different countries. Dividing countries into two groups, the ‘developed countries’ and the ‘developing countries’, the scheme renders the latter as those needing intervention by the former, revealing itself another attempt to impose rules from the global north after the failure of the open sky proposal. Against this backdrop, China initiated diplomatic moves to bid for the leadership of the transnational organization of ICAO. Liu Fang, the former chief of CAAC, took the position of Secretary-General of ICAO in 2015. China began to push for concrete outputs of bilateral collaboration agreements in aviation development. A convincing new narrative emerged, which depicts China as one of the ASEAN siblings to embody a ‘situated vision’ of the region. Liu stressed that China could play an influencing role in implementing the NCLB scheme (Yu, 2020), not as a member of the advanced category, which easily triggers the memory of colonization, but as one of the Asian siblings, who have just gone through years of struggles to rise out of the post-colonial context. As argued by Liu and many Chinese intellectuals, China is full of still-fresh lessons and experiences in the past decades of self-advancement; thus, perhaps a better candidate who understands the pains and challenges of those still in the category of developing countries (Liang & Ma, 2018). This is perhaps more imperative for ASEAN countries at their preliminary stage of aviation development. The proximity of China to these neighbouring countries also renders China’s experience more situated in the same regional, geopolitical and geoeconomic context. A new imaginative geographic region of the BRI countries is then deemed necessary for ASEAN countries and China to ally for ‘an integrated plan for the aviation industry’ in the region (State Council Information Office, 2018).

The narrative of situated vision fleshes out China’s effort to highlight a new geographical focus of the NCLB scheme in Asia: the BRI region. A buoyant geopolitical network, which seems to move beyond a terrestrial referent, is woven together through a number of diplomatic actions (Billé & Battaglia, 2020; Ong, 2020). In May 2017, ICAO signed the Letter of Intent in Aviation Cooperation with CAAC on the Belt and Road Forum for International Cooperation. One month later, Xi Jinping officially introduced the term ‘Air Silk Road’ in his meeting with Luxembourg Prime Minister Bettel, as a new direction to deepen cooperation in finance and production capacity within the framework of the ‘Belt and Road Initiatives’ (Qiao, 2019). The term



was soon adopted by the Aviation Industry Corporation of China (AVIC), a Central Enterprise (in Chinese, *yangqi*) in China, with a plan for the Air Silk Road Alliance. The planned alliance has two layers: first, a cross-sectoral alliance linked by a full chain of the aviation industry, which is constituted by aviation equipment manufacture, aviation infrastructure construction and aviation operating services; and a cross-boundary alliance that channels the 'going abroad' of the domestic aviation industry and capital (Liang & Ma, 2018). As of 2017, China has signed bilateral agreements on aviation transportation with 62 Belt and Road-related countries and has conducted direct air routes with 43 countries (CAACNEWS, 2018).

The diplomatic moves and the positioning of a Chinese official in the transnational authority of ICAO, similar to positioning *Weiqi* pieces on the game board, worked to let the geopolitical infrastructure penetrate the country level. China signed a memo with ASEAN for the Firth Freedom of Air of the region as early as in 2010 but registered no concrete progress to attaining the country level (ICAO, 2019). In 2014, the agreement was updated with an extended list of commercial aviation service provisions to include new sectors such as air service provision and maintenance of air security and safety. In 2016, Cambodia's National Assembly eventually passed the ASEAN-China Aviation Cooperation Framework (ICAO, 2019).<sup>1</sup> These inter-state agreements give China the opportunity to break into the air and earth of the ASEAN member states and, more importantly, the opportunity to participate in the rule-making process for transnational aviation standards and practices.

Governed by the prevailing standards of the ICAO, the capacity of this moving object-space is about the geographies of the aerial routes through its mobility, how far it can travel and how many stops it can land to load and unload passengers, namely, the flying relay. This is a new type of mobile enclosure, the mobility of which produce monetary values, whereas making it mobile requires technological and geopolitical interventions.

The reconfiguration of an ontological territory, in this case, unfolds with the diplomatic initiatives to position Chinese professional elites in the transnational authority of ICAO. Here the gate of aviation rights consists of individual elites, transnational organization and their rules, which pave a particular pathway for the aeroplanes to take off from China, enter the ASEAN airspace horizontally and land on their terrain vertically, as 'existential structures of ... our earth' on their journey of takeoff and return (Shaw, 2017, p. 893). The gate interrupted into the airspaces that were at the discretion of two sovereign countries, therefore relationally smooth, and introduced a new stripe with the new institutional path for the aeroplanes traveling between the two countries. The intangible, geopolitical networks are more than buoyant, but substantiate the image of the Air Silk Road by developing interaction with its terrestrial reference. In the diplomatic activities between the sovereign countries and the transnational organization, the NCLB scheme's narratives on aviation safety and China's narrative of Asian siblings for a situated vision wooed Cambodia into the bilateral treaties for air service operations. The so-called integrated plan of the aviation economy brings in new interventionism on the part of Chinese enterprises, from those in aviation products and services to aviation professional training, from supporting facilities to aviation economic zones.

#### 4. STRIATING THE EARTH: THE GATE OF THE AIRPORT

Surprisingly or not, China's endeavours of reaching out to airspace in ASEAN countries were most passionately echoed by Chinese land-development developers who were not on the initial list of beneficiaries. A new type of land development, an aviation special zone with an airport at the core, has emerged in this circumstance and developed at a surprising speed. Exemplary is the Coastal City Resort Developmental Zone, a joint special economic zone development between the Union Group, a Chinese developer based in Tianjin, and the Royal Government of Cambodia. Starting in 2008, the Union Group joined the race of land-development projects after the

Cambodian government adopted the special economic zone model as the major strategy for industrialization and urbanization (Jiang & Waley, 2022). Spreading along the coast of Dara Sakor, the Coastal City was initially planned as a resort development to appropriate the natural resources along the coast, such as the world's second-largest mangrove forest and the Botum Sakor National Forest Park. The initial master plan entailed hotels, vacation villas, marinas for yachts, and golf courses, exemplifying a typical resort-style property development. However, the project stagnated for several reasons in the following years. Echoing the Air Silk Road Scheme, the Union Group swiftly redesigned the vision of the Coast City to be the regional aviation centre of ASEAN, with a new airport of the second top standard.

#### 4.1. Narrating the trans-sphere relay

The airport proposal rejects the usual method of estimation based on passenger throughputs of regional airports (Union Group, 2018). Instead, it portrays a future-oriented image of a soaring tourism economy after the resort project and, based on this, offers predictions for the future markets of the civil aviation industry, the behaviours of mature airline companies, the degree of freedom of air required, as well as the design of the airport, and its operation (interviews, 2021).

The proposal starts with an optimistic prediction of tourist figures in the near future, by citing the total of 5 million overseas tourists in 2016 and the explosive growth of Chinese visitors, the speculation made on the successful lobbying effort with the Ministry of Culture and Tourism of China (Union Group, 2018). As the proposal predicts, the resort development along the coast will appeal to the same group of overseas tourists from Asian, European and American tourists who visited Angkor Wat, and thus redirect them from the northern part of the country to its southern coast. Thus, the proposal predicts the figures for tourists to be 1.6 million in 2025 and 7.5 million in 2045, according to which the capacity of the new airport, measured by annual passenger throughputs, is to be designed.

After settling down the scenario of carrying 1.6–7.5 million tourists from Asian, European and American countries, the proposal illustrates the mode by which air services will operate by international airlines that have been recognized as 'safe, effective and efficient' in the ICAO toolkits. In ICAO and NCLB toolkits (ICAO, 2004, 2014), the safety and efficacy discourse lets the scheme promote a number of indicators such as 'carrying capacity' and 'airport reference code'. To fly the large volume of visitors from Asian, European and American countries, international airlines will 'naturally' use multi-stop, long-haul flights. As the ICAO and NCLB documents explain, such services would require airlines to be granted the Fifth Freedom, and deployment of wide-body aircraft, for their large carrying capacity and long flying distances, with more stopover points. The Airbus 380 or Boeing 747 are named, for they can accommodate more than 400 passengers, with their longest routes reaching 16,105 km to support an air route from Cambodia to the US/EU. Following that, the proposal foregrounds the technical parameter of the ICAO airport reference code that defines the relationship between aircraft and airport, which states:

a two-part categorisation of aircraft types that simplifies the process of establishing whether a particular aircraft would be able to use a particular aerodrome. The reference code allocated to an airport is usually based on the runways and taxiways system of the particular airport. (SKYbrary, n.d.)

According to this simplified and convenient toolkit, Airbus A380 can only land and take off safely in 4F class airports – the highest standard, whereas Boeing 747 can use 4E class airports – the second-highest standard – and above. The proposal thus concludes that the international Dara Sakor Airport is to be planned with a 4E flight zone in the short and middle terms, which is expected to expand to a 4F flight zone in the long run. The runway is planned to be

3200 m long, with a 45 m-wide road surface and 7.5 m-wide shoulders on both sides, which will accommodate aircraft such as Boeing 747-400, and Airbus 340-300 and 340-600 with a full load in the near, middle and long terms, respectively.

At the same time, an ensemble of instantly allied forces was formed for the transformation, comprising the Union Group, Aviation Industry Corporation of China (AICC) and China Airport Construction Group Corporation (CACGC), with the assistance of Zhang Gaoli, former Secretary of Tianjin Municipal Government and then Member of the Standing Committee of the Political Bureau of the CPC Central Committee (interviews, 2021). The instant allies let the Union Group claim a trustful middleman in delivering airport design and operation with Chinese experience. Framed in the same narrative, the relevance of the China Experience, which is both recent – full of still-fresh lessons and experiences in the past decades of self-advancement – and situated – a proximate neighbour who understands the local situation, looms large. The proposal suggested that China could be taken as a reference in the aviation industry, from Chinese aviation techniques to China standards. This was followed by a field trip to Beijing Capital International Airport in 2017, which was ranked top among all airports in China in terms of annual passenger throughput and take-off and landing sorties, and ranked second in the throughput of cargo and mail in China. Whereas CACGC and Shanghai Civil Aviation New Era Airport Design Corporation (SCANE) were invited to assess the proposal for the Dara Sakor Airport, China Aviation Planning and Design Institute, the subsidiary of AVIC, was invited to design the Airport (interviews, 2021). As a matter of fact, the three firms are licensed by the Chinese authority to practise the design and construction of aviation-related projects within China, which are by no means recognized in Cambodia. The eligibility issues are nevertheless circumvented by the proposal, which renders the mobility of China standards a sharing event by a benevolent collaborator and, through them, the authentic, fresh China experience lessened by leading experts from the host country (Wang et al., 2016; Wang & Zhang, 2020). As a result, the Dara Sakor Airport proposal was approved by the State Secretariat of Civil Aviation (SSCA) of Cambodia to design in line with Chinese standards, that is, the Chinese Code for Master Planning of Civil Airport,<sup>2</sup> on the condition that it complies with the aviation standards of Cambodia at the same time.

Following the first gate of institutional initiatives that direct flights from China to ASEAN countries and, in particular, Cambodia, the second gate of Dara Sakor Airport conditions where the aeroplanes will land and what/who will be eligible to join the journey. The gate of the airport is not well planned as an inherent part of the Air Silk Road. Rather, it is an improvised action by the Union Group to grasp a new opportunity for their stagnant resort development project. The formation of the gate is spontaneous, accidental and contingent, pulling in a range of sociotechnical forces, from the developer, the aviation association, the airport, to the technical rules. The articulation of a technical, scientific interdependence of the air and the land is centred on two ontological things, aircraft and airports, both of which are imagined along a logistics chain. As the articulation goes, the capacity to use one's airspace is not merely a matter of aviation techniques one adopts, but more a matter of smooth and efficient cooperation of all sectors at different stages of the relay, which has been reiterated as a transnational safety issue in the ICAO and NCLB repertoire.

The discourse on smooth and efficient cooperation necessitates the application of 'royal science' to discipline the motion of objects and translate the smooth space to a striated one. In this case, the relay is open to particular actants only, the moving behaviour of which is also prefixed – much like what Deleuze calls the transforming the game of *Weiqi* to chess, wherein both the pieces and their moving behaviours are institutionalized, regulated, coded (Deleuze & Guattari, 1987 [1980]). Eligible ones include Asian (Chinese), European and American tourists who visit the southern coast of Cambodia; international airlines granted the Fifth Freedom for multi-

stop, long-haul trips; wide-body aircraft with extraordinary carrying capacity; airports with 4E to 4F flight zone; and the China standards. The articulation of the interdependence of these selected actants weaves together a logistic chain, a smooth function of which depends on a particular conjuncture space, namely, the airport, for the interaction between the air and the earth, despite the unverified validity of the ICAO reference code for the pairing of airports and aircraft (Lin, 2016). The striating of the air is completed by the gate of the Dara Sakor Airport. In other words, the movement of aeroplanes is not simply in the air, but very much requires physical gates on the land – the conjuncture space of air and land (Graham, 2020).

The design, construction and operation of the Dara Sakor with China standards is a strategic move toward effective territorialization. Much like the mobile operating systems in the Internet of Things industry, such as iOS or Google Home, the bounding of tangible objects and intangible codes, standards, and operation systems, will always draw a boundary between family members and otherwise, no matter how implicit it is. Dara Sakor Airport may always perform better with Chinese firms, from airlines, and aeroplanes, to the management, given a better match in the practice codes and thus a better capacity for sustaining the high density of aerial activities. In co-creation, the airport, China standards and China experience have formed a part of the fabric of the places. Dara Sakor Airport embedded itself in the territory of Cambodia and dis-embedded itself from the Cambodian governing system.

## 5. STRIATING NATURE: THE MANGROVE GATE

With the gate of Dara Sakor Airport directing tourists to the coast of Cambodia, the Coastal City project resumed its resort development in the mangrove forests. Land reclamation is planned to build hotels, clubs and theme parks for tourists, whereas small yacht tours, winding through the mangroves, are carried out as the signature projects. The intruding bodies of tourists, small yachts, and the cement, steel and wooden frames that have shipped to the shore have disturbed the ecological system of the mangroves. With the land reclamation and building construction projects, the first direct impact is observed in several villages that were forced to relocate after their land had been acquired. This was followed by adjacent villages, where fishermen were deprived of access to the sea (interviews, 2020). When new development plans result in the forced relocation of villagers in a particular area, the impacts are still bounded within the zone of resort development. However, the indirect impact on the mangrove ecological system radiates in all directions.

The mangrove forest is the result of long-term interactions among water, oxygen, sand and the plants themselves. Mangrove grows in a specific tidal area, the conjunction place of water and land. It calls for certain forces to bed down seedlings and holds the root in place below the horizontal surface. Thus, only small waves can create a growing environment for mangroves. The movement of water, intertwined with oxygen, creates a force that is capable of maintaining the movements of sand in multilateral directions. The flow of the sand follows the water but does not ebb with it. Attenuated forces of tides contribute toward the deposited sand and mud, which form the foundation that holds the roots of the plant. The occupation of the offshore space violates the movements of sands and water, and reduces the tidal area and tidal volume of the bay. These changes in the tidal power cause different flows of sediment flushing, destroying the topography of the coast and changing the natural properties of the sea. The huge waves carry away the sand and mud and wash away the seedlings, making it difficult for mangroves to form. Marine animals such as fish, crabs, shrimp, oysters and squid, which rely on the mangroves, have been affected. The damaged water environment have resulted in fewer squid and crabs that can be found close to the shore, thus the fishermen have to travel further out to sea (Samean, 2022; Flynn, 2021; Keeton-Olsen & Ry, 2021). The drastically reduced income pushes fishermen to

other jobs, such as manufacturing factories in Koh Kong, resulting in the loss of population along the coast (Samsen & Chanboreth, 2006).

With the influx of cement, yachts and tourists to the mangrove forests along the planned pathways, outflows of villagers and marine animals are observed in multiple directions (Peters & Steinberg, 2019). The underlying churn of the ocean matters here. The nature of water as liquid transforms the linear propagation of force into a diffuse, volumetric one that fills the body of water as far as it can reach. The mobilities of sands, seedlings, fish, shrimps, and nomads of villagers, just like the *Weiqi* pieces, 'becomes perpetual, without aim or destination' (Deleuze & Guattari, 1987 [1980]). They leave, move to somewhere else and construct a second, adjacent territory. The deterritorialization and reterritorialization of nomads unfold reactive forces of different natures and uncontrollable, unpredictable paths of force propagation.

Demonstrators blocked the road to the headquarter of the Union Group, and villagers' representatives protested in front of the Chinese Embassy, and provincial government offices in both Koh Kong and Phnom Penh, and appealed to the Interior Ministry for assistance (Ratio Free Asia, 2019). Several non-governmental organizations (NGOs) in different disciplines joined the resistance and voiced their concerns, such as the Cambodian Human Rights and Development Association (ADHOC) and the Union Youth Federations of Cambodia (UYFC) (Keeton-Olsen & Ry, 2021; Samean, 2022). Under the guidance of the Executive Board for Mangroves for the Future (MFF) in Cambodia, Koh Kong was chosen as the Mangrove Priority Conservation Area of Cambodia, giving special attention to counter-deforestation in 2016 (MFF, 2013). Multiple conservation projects have been performed since then, including mangrove plantation and logging reduction, and sustainable farming practices (Su, 2021). Another volumetric parameter of carrying capacity, tourism carrying capacity, is deployed this time by environmental activists to highlight the vulnerability of mangrove habitats. This is particularly crucial for the Mangrove Priority Conservation Area of Koh Kong, where breeding projects are located. Calling for a 'full conservation', *Mother Nature*, a Cambodian NGO, launched the campaign of 'Save Koh Kong Island' from commercial exploitation (*Mother Nature*, 2021). In June 2020, environmental activists began a five-day bicycle march, eventually delivering a petition letter to the government at the end, to raise awareness on mangrove conservation (*Rainforest Rescue*, n.d.). Activities further question the inadequacy of environmental protection and natural resources management law and the loose jurisdiction system that supervises conversation zones. Questions are raised on the ways in which the Union Groups managed to get official approval for carrying out property development projects in this area. As a result, the Cambodian government re-demarcated a buffering zone for the mangrove forests again, which measured 100 m from the coastline, and banned all commercial activities therein to sustain the water environment for fishing. The turbulent mangrove forests turned out to be surprisingly defensive, re-engineering villagers and environmentalists pacified in the preceding times. It is yet to conclude whether the mangrove forest successfully holds space and maintains its capacity to spring up. Mangroves create a gap between their habitat and the very event of their enclosure, slowing down the processes of striation.

Smooth and striated spaces always exist in a mixture, as Deleuze and Guattari (1987 [1980], p. 474) write, while 'smooth space is constantly being translated, transversed into a striated space; striated space is constantly being reversed, returned to a smooth space'. The gate of mangroves is evidence in this case, which slows down the mobility of tourists and construction materials along the planned path, meanwhile stimulating a variety of deterritorialization and reterritorialization actions by villagers, marine animals, human rights activists and environmentalists. These actions are guerrilla warfare-style in spatial terms, which are emergent, distributed, unpredictable, uncontrollable and thus perpetual (Dunn, 2020; Wang & Chen, 2019).



## 6. THE EFFECTUATED TERRITORY

Through the three gates of institutional arrangement, the material setting of the airport, and the ecological habitats for the mangroves, the flying relay of aeroplanes completes its journey from China to Cambodia. The three otherwise disparate gates, which operate in different atmospheric, terrestrial, and biological spheres and involve different actors and policies, constitute one interface to invite, facilitate, regulate, or resist the succession of the relay. The three sites are not naturally related to each other but function as a series of gates along the same chain of effects, after their interdependencies are constructed or conditioned by the contingently allied socio-technical forces. The three sites then formed an interface transcending the spheres of air, earth and water.

The interdependence between the two gates of aviation arrangement and airport makes the moving aeroplane disruptive object–spaces like *Weiqi* pieces, tearing apart the original spatial configuration of the aerial system and triggering a series of reorganizations. In Cambodia, the privatization of airports by overseas companies is not news. Since 1995, all three existing major airports in the country have been privatized by the French firm Vinci Airport (VINCI Concessions, 2021). The NCLB scheme and the Cambodian scheme of ‘an integrated plan of the aviation industry’ triggered another wave of competition for airport privatization and aviation-led development open to new bidders. In 2016, Vinci completed the airport extension work in Phnom Penh and moved to the Sihanoukville Airport expansion project, extending its runways from 2800 to 3300 m (*Khmer Times*, 2020). Another Chinese firm Yunnan Investment Group signed the contract on the Siem Reap Angkor International Airport Project, which is planned as a top standard Airport (Mao, 2017).

The effective territorialization on the earth, in return, triggered the reorganization of the regional aerial networks in the air. From 2017 to 2018, the regional committee on aviation routes for the Asia Pacific Region organized four meetings in Mongolia, Kazakhstan, China and Cambodia, wherein a variety of proposals were submitted by different allies. The U.S. allied with Indonesia to replan the aerial route between Australia and Asia, whereas the plan by Cambodia was put on hold by Thailand and Vietnam. It is no wonder that the project of the top-standard airport project in Cambodia drew critiques from many countries. The US Treasury Secretary Steven Mnuchin questioned the rationale behind the longest runway in Cambodia, which is ‘favoured by fighter-jet pilots’ (Kimseng et al., 2020). The US alleged corruption on the part of military personnel in the Coast City project, imposing financial sanctions and visa restrictions. These allegations were echoed by local opposition parties (Dara, 2019). Cambodia, in this case, may be understood as an interface between the two superpowers, as observed by a local scholar, when they ‘start to compete, push, and splash water at each other’ (Kimseng et al., 2020).

We trace the moving ontological object–space in a dynamic, turbulent, voluminous whole, the physical motions of which stir interplays of spheres. The placements of aeroplanes, much like the *Weiqi* pieces, embody territorial imaginations. The territorial imagination of the Silk Air Road is empty and abstracted, if the substances, such as aeroplanes are stripped away from the networks of aviation routes and bilateral treaties on the freedoms of air, or airports are stripped away from the terrain of Cambodia, which has become a hotbed for aviation-hub economic zones among several overseas investors. It is both the connected spheres and the embodiment of particular rules that give effects to a turbulent, ontological, volumetric territory.

## 7. CONCLUSIONS

This study examined volumetric territory through a new lens: a deep interface, constituted by a number of gates distributed in the conjuncture spaces of air, land and water for the circulation of



objects and subjects transcending different spheres. Serving the vast distribution of circuits across the smooth and striated spaces: populations, commodities or commerce, money or capital, etc., the interfaces are not only part of the conduits of circulation but also condition the translation of the motions in terms of speed, direction and relays.

We follow the conception of ‘effective territory’, which is formed by the spatial motion of things, as if arraying *Weiqi* pieces on the board of the Chinese game of Go and understand the territorial activities as a process of striating the smooth space, by regulating the movements of things and projecting them to particular paths. The spatial movement of things functions as a territorial strategy to extend the reach of the state. Tracing the pieces of *Weiqi* compels scholars to pay special attention to their reach to other spheres, the resistance they may encounter and the subsequent instability of the ontological territory. Such a fundamental concern foregrounds the imperative tasks of constructing the interface, where the two modes of motion – absolute and disciplined movements – are translated.

In the case of Coast City and the Air Silk Road, the territorial intervention operates through a form of an array of tangible and intangible gates, including senior diplomatic officials, the NCLB scheme with China experience, the physical structure of the airport with its runways and taxiways coded by ICAO toolkits and China standards. The intersection of diplomatic moves, industrial codes and standards, and physical structure establishes the interdependence of different spheres for the moving object–space, paving particular transnational aerial networks for the relay.

The epistemology of rule construction is never uniform or standardized, or to put it bluntly, scientific, but has always been shaped by the actors involved, namely the application of different political–legal technologies (Elden, 2017; Martin & Secor, 2014). The interface is shaped by the encounter of ontological object–spaces and epistemological rules, whereas the conversion of smooth and striated space is relational. Our studies also reveal the ‘contingencies that prompt disconnectivity and inoperability (Shaw, 2017). Conjunction space is also where defensive forces may be engineered. Exemplar is the gate of mangrove forests and their liquid habitat, wherein trees signal with their roots in the tubulating waters and sands, might reverse the process of being disciplined. The translation of smooth and striated spaces is bi-directional, although uneven relationships are evident in the competing circulation of power.

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## DATA AVAILABILITY

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials.

## DISCLOSURE STATEMENT

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## NOTES

1. The actual practice of the fifth air rights remains to be negotiated between the airline enterprises and local governments. Since May 2019, a number of airports in China have successfully launched their aviation routes with Fifth Freedom, such as the airlines flying between Indonesia–Singapore–China (Haikou) and China (Lanzhou)–Cambodia–Nepal/Pakistan (*Khmer Times*, 2021).
2. A number of planning codes have been applied to the design, as cited in the design documents of the airport: Code for Master Planning of Civil Airport (MH5002-1999), Civil Airport Project Construction Standards (105-2008), Civil Airport Engineering Construction Standards Mandatory Provisions (243), and Civil Airport Flight Area Technical Standards (MH5001-2013).

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