

The Smart City of Gaza

Technologies of Containment
and the Urban Condition

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Declaration of Authorship

I, Francesco Sebregondi, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

30 March 2020

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Abstract

Central to this thesis is a counter-intuitive proposition: the Gaza Strip constitutes an extreme example of smart urbanism.

Under blockade for over a decade, on permanent humanitarian life-support, and regularly destroyed by the Israeli military, the Palestinian coastal enclave is undoubtedly a devastated territory. However brutal the contrast of its current appearance with the carefully branded image of the “smart city”, a closer look at the urban technology at work in Gaza reveals an uncanny resemblance with the one underpinning the fast-spreading model of an optimised urban future. Through the inverted lens of Gaza, the application of smartness at urban scale reveals one of its lesser known purposes: to efficiently *contain* an urban population that is considered as both surplus and threat. So far, the critique of smart urbanism has tended to reduce the problem posed by its ongoing worldwide diffusion to one of unequal access to the privilege of smartness. The main goal of the thesis is to reframe this critique: in parallel to generating islands of technologically enhanced urban privilege, smartness is also widely used to manage and to consolidate delimited zones of urban exclusion. The notion of technologies of containment is therefore introduced as a means to highlight the dialectics of upgrade and downgrade, of fast-tracking and side-lining, of capacitation and debilitation that is not only reinforced, but also largely automated by the rise of smartness as a new dominant urban paradigm.

Informed by the author’s long-term practice with Forensic Architecture (a research agency using spatial and media analysis to investigate state and corporate violence), the thesis examines how smart technologies are currently deployed in one of the most militarised frontiers of the urban condition. Processes and circumstances identified in Gaza are set against parallel urban trends that are observable around the world. The aim of this study is to question the implications of the global drive towards the networked, logistical, responsive, resilient, and optimised city. As an efficiently managed containment zone for a fast-growing population of two million outcasts, does Gaza form a blueprint for smart urban solutions to the social and ecological breakdowns of tomorrow?

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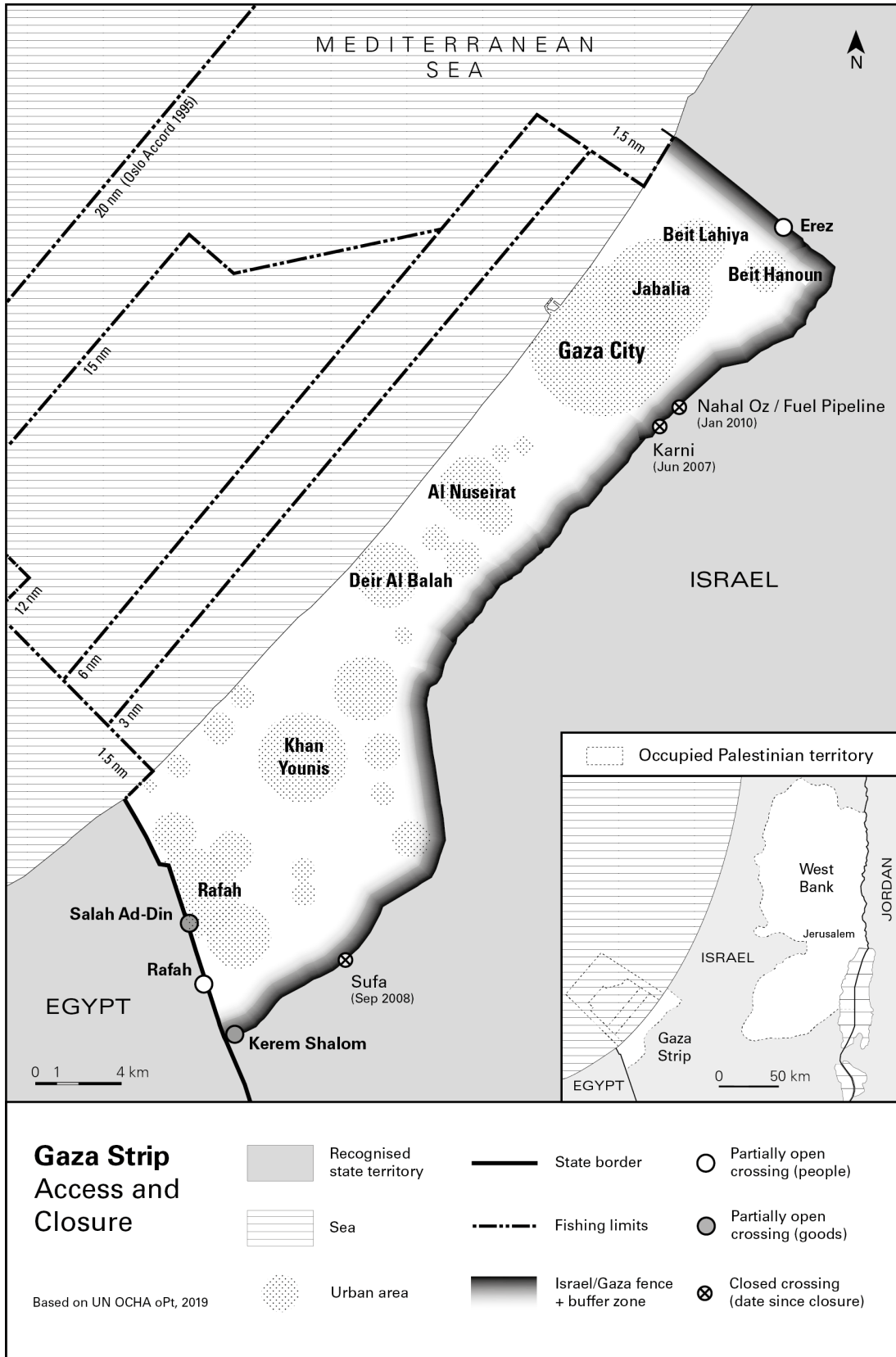


Fig. 1—Map of the Gaza Strip by the author (2019)

Introduction

Monitor and Contain

The future is already here. It's just not very evenly distributed.

–William Gibson

Knowledge must become capability.

–Carl von Clausewitz

Target Hit

On the 1st of August 2014, at 10.53am, an Israeli airstrike hit the dense residential neighbourhood of al-Tannur, in Rafah, at the southern edge of the Gaza Strip. Several buildings were completely destroyed, and many more damaged, within a hundred-meter wide impact area. While the buildings themselves were mostly empty by the time of the hit, at least sixteen Palestinian civilians were killed on the street as they were trying to flee the area. The strike took place on a day that came to be known as “Black Friday”, during which more than a hundred civilians were killed, as bombs rained down on Rafah and its outskirts. That day, in turn, marked a peak in the violence unleashed by the 2014 Israeli operation in Gaza. Code-named “Protective Edge”, it was not only the deadliest of the three full-scale operations carried out by the Israeli military in Gaza since 2008; it also stands out for the extent of the destruction it brought about to the built environment of the Palestinian coastal enclave.

If I can write about the al-Tannur strike in such level of detail, it is because I was part of a team of forensic investigators that produced a thorough report about the events of the 1st August 2014 in Rafah. Since 2011, I have been working as a researcher at Forensic Architecture, a project-turned-agency which uses spatial and media analysis to investigate multiple forms of

state violence.³ Produced in close collaboration with Amnesty International, our 2015 “Black Friday” report reconstructed the unfolding of events in Rafah and provided strong evidence that war crimes were committed on that particularly deadly day.⁴ To do so, we pieced together the many traces that Israel’s heavy use of firepower had left behind, not only in the urban environment of Rafah, but also on a range of media records: from satellite imagery to news footage or social media posts. Among the details that we were able to establish about the al-Tannur strike was the type of munition used. At a few seconds of distance, two US-made MK-84 bombs, each loaded with a one-ton charge of high explosive, hit the same two-story building—leaving two craters of approximately 15 meters in diameter only a few meters apart from each other.

The fact that two different bombs hit the exact same area nearly simultaneously leaves little doubt about the deliberate targeting of that specific building by the Israeli military. Yet the MK-84 is, by default, a “dumb bomb”: nothing but a steel casing filled with Tritonal high explosive. In order to be used for targeted strikes, the MK-84 must be equipped with a precision guidance kit. Among the different ones currently available on the weapons market, Israel’s own kit is widely considered as the best in class. Developed by Rafael Advanced Defense Systems, the “SPICE”—an acronym which stands for “Smart, Precision Impact, Cost Effective”—is a combined electro-optical/GPS guidance kit that can hit a target with a Circular Probable Error of only three meters. As a way to introduce the particular understanding of smartness that I will develop throughout this thesis, I will refer to an extract of a review of the SPICE kit in a defence technology journal:

“During a mission plan, whether in the air or on the ground, target data consisting of target coordinates, impact angle and azimuth, imagery and topographical data are used to create a mission for each target which the pilot allocates to each weapon before release. (...) The SPICE munition is released outside a threatened area, and performs midcourse navigation autonomously using its INS/GPS to home in on the exact target location with the predefined impact angle and azimuth. While approaching the target, SPICE’s unique scene-matching algorithm

3 “About”, Forensic Architecture, accessed 30 March 2020, <https://forensic-architecture.org/about/agency>.

4 “Black Friday: Carnage in Rafah During the 2014 Israel/Gaza Conflict”, accessed 30 March 2020, <https://blackfriday.amnesty.org/>.

compares the optronics image received in real-time via the weapon seeker with mission reference intelligence data stored in the weapon's computer memory. In the homing phase, the system locates the target using scene-matching technology and uses the tracker to hit it.”⁵

What makes a SPICE bomb smart, therefore, is its capacity to function within a networked system, to acquire information about its environment of operation, and to adjust its behaviour accordingly, in real-time, with a relative degree of autonomy. In short, smartness refers to the capacity of a system to self-optimize its performances according to the programme it is designed to run—regardless of the value, or deadliness, of that particular programme.

The story told in this thesis starts at the point of impact of a smart bomb with a densely populated urban environment. I use this particular event as a special lens to examine the ongoing, globally diffuse process of enmeshing of the urban condition with smartness. Prompted by my practice with Forensic Architecture, I began this research by de-zooming from the particular case of the al-Tannur airstrike. In the process, my focus shifted from the explosive violence of warfare, to the structural violence of the context within which war recurrently erupts in Gaza—namely, the enduring regime of the blockade.

First established as an exceptional measure, the sea, land, and air blockade of the Gaza Strip has now been in force for over twelve years; today, nothing seems to indicate that it may be lifted anytime soon. As a result, two million people find themselves trapped inside a narrow strip of land that is roughly the same size of Malta, while virtually no one on the outside is allowed to enter Gaza.⁶ By reducing the inflow of life-sustaining resources to a bare minimum for the survival of its captive population, the blockade has created a form of collective subjugation that is unparalleled around the world. While it has no foundation *de jure*, the blockade nonetheless constitutes the *de facto* regime that has been determining the conditions of life and death inside the Gaza Strip for over a decade. Not only is the blockade widely recognised as the structural trigger of each of the recent wars in Gaza, but also, I argue, its durable upholding is to be understood as the main strategic objective of every military operation launched by Israel in the Strip. How, then, does the blockade work?

⁵ “Dumb Bombs With Graduate Degrees”, Armada International, accessed 30 March 2020, <https://armadainternational.com/2017/04/dumb-bombs-with-graduate-degrees/>.

⁶ For comparison, Malta, the most densely populated country in the European Union, counted less than 450,000 inhabitants in 2013, for a total area of 316 km².

The research conducted for this thesis examines the architecture of the Gaza blockade. I have tracked the intricate process of reconstruction since 2014, studied the variable geometry of the Gaza border, analysed the logistical flows that maintain the blockade regime in place, and observed the fabric of agencies on both sides of the fence that take part in managing Gaza's permanent crisis. What I found in common to all those different processes is the pervasive logic of smartness, now extended much beyond the realm of targeted airstrikes. From surveillance to logistics, through energy supply, coordination, or environmental management: all operations that sustain the blockade of Gaza ought to be *optimised*. They are designed to be constantly readjusted to a whole set of surrounding parameters so as to maximise their effects while minimising their costs—independently of the effects pursued or the costs considered in this equation. Smartness actually forms, I argue, the key operational logic of the blockade.

Far from considering it a territorial exception left behind by a globally advancing urban condition, I propose to approach Gaza as a frontier where some of the defining spatial and political technologies of our times are experimented in radical forms. In particular, the ongoing blockade of the Gaza Strip forms a unique and quite literally ground-breaking deployment of smartness at urban scale. The hypothesis from which the following study has emerged is that one of the most extreme realisation of the “smart city” project may actually be found in the Gaza Strip. With a focus on the relation between smart technology and contemporary urban warfare, the thesis thus aims to repose the question of smartness by observing it through the prism of the Gaza blockade. With this project, I aim to contribute to the emerging scholarship on smart urbanism, while advocating for an expansion of its critical frame. Specifically, the critique I set out to outline aims to account for the crisis-ridden, smartly managed urban containment areas of which Gaza forms a radical paradigm. In order to understand how lethal, constraining, and overpowering smartness can turn out, it is critical to examine how it is currently deployed in the militarised frontiers of the global urban condition.

To begin developing this argument, I shall start by clarifying my specific approach to Gaza as a *frontier*. Considering the general militarisation of urban environments globally, I will then discuss how frontiers such as Gaza constitute sites of experimentation with urban technologies at large, including those generally regrouped under the umbrella term of smartness. Narrowing down the focus on the deployment of smartness for the efficient management of securitised environments, I will introduce the notion of *technologies of containment*, which the thesis will unpack through a detailed examination of the Gaza blockade. I will conclude the introduction with an outline of the thesis structure.

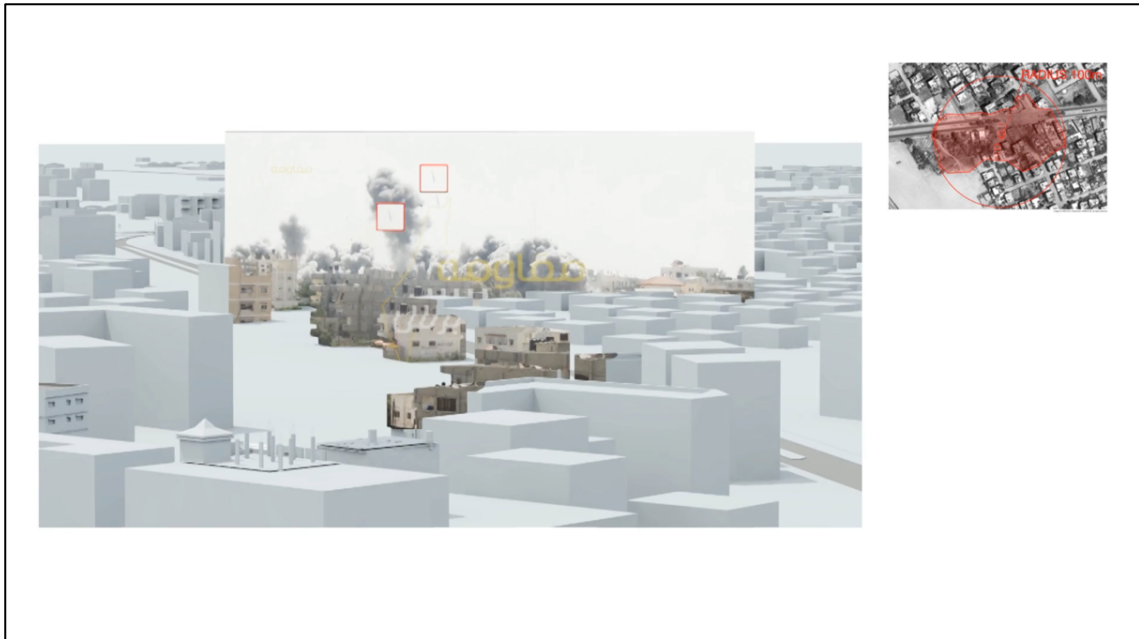


Fig. 2—View of the two MK-84 bombs used in the targeted airstrike on the Al-Tannur building, Rafah, Gaza Strip, 1 August 2014. Extract from the “Black Friday” report (Forensic Architecture/Amnesty International, 2015)

The Gaza Frontier

The blockade of Gaza is illegal under international law.⁴⁴ There is no precedent in history, nor any other example around the world today, for the mode of occupation to which it has been subjected for the past decade—namely, an “occupation at a distance.”⁴⁵ For this reason, be it in academic literature, humanitarian discourse, legal analysis, or the press, one of the notions most often employed to approach the case of Gaza is that of *exception*.

44 Prof. Nigel White, ‘Expert Opinion on the Legality of the Gaza Reconstruction Mechanism (GRM)’, 26 January 2015. In this confidential expert opinion, White lists a number of texts of international law that establish the illegality of the blockade of Gaza, such as Article 43 Hague Regulations (1907), or Article 59 of the Fourth Geneva Convention (1949). The full text of this expert opinion was leaked and made available at: <https://electronicintifada.net/blogs/ali-abunimah/un-database-gaza-aid-may-give-israel-targets-attack-secret-memo>. (accessed 30 March 2020).

45 James Eastwood, *Ethics as a Weapon of War: Militarism and Morality in Israel* (Cambridge University Press, 2017), 15.

“Sovereign is he who decides on the exception” famously declared the jurist and political theorist Carl Schmitt, after Thomas Hobbes, as the opening line to his *Political Theology*.⁴⁶ In his argument, if sovereignty is a constituted legal order over a territory, then the sovereign himself lies outside of the law—in as much as he is able to suspend it, should he deem order itself to be under threat. While a limit-concept to the rule of law, the exception, Schmitt continues, is also a fundamental element of the structure of modern sovereignty. This is made clear as soon as the author turns his original proposition on its head: “For a legal order to make sense, a normal situation must exist, and he is sovereign who definitely decides whether this normal situation actually exists.”⁴⁷ Underlining the primacy of ‘rule over law’, which for Schmitt is constitutive of sovereignty in modern nation-states, the social theorist Paul Hirst further comments: “Normalcy’ rests not on legal or constitutional conditions but on a certain balance of political forces, a certain capacity of the state to impose order by force should the need arise.”⁴⁸

In an influential essay published in 2005—the year of the so-called Israeli *disengagement* from Gaza, consisting in the unilateral withdrawal of its settlements and military outposts from the Strip—the philosopher Giorgio Agamben returns to Schmitt’s discussion of exception and sovereignty with a declared objective: to make sense of the pervasive state of exception that characterises life under the global war on terror—or, as the author designates it, the “global civil war.”⁴⁹ Situating the problem within a long historical perspective, Agamben revisits Walter Benjamin’s significant warning, written in 1940, that “the state of emergency in which we live is not the exception but the rule.”⁵⁰ Renewing the latter’s critique of the fundamental reversibility of the rule/exception binary, Agamben observes that the state of exception has become “the dominant paradigm of government in contemporary politics”, “including [in] so-called democratic [states]”—one that, as such, must be opposed everywhere it is invoked.

46 Carl Schmitt, *Political Theology: Four Chapters on the Concept of Sovereignty* (University of Chicago Press, 2010), 1.

47 Schmitt, 14.

48 Paul Hirst, “Carl Schmitt’s Decisionism,” *Telos* 1987, no. 72 (June 20, 1987): 15–26, <https://doi.org/10.3817/0687072015>.

49 Giorgio Agamben, *State of Exception* (Chicago: University of Chicago Press, 2005).

50 Agamben.

State of Exception being the third book in the *Homo Sacer* series, Agamben's argument cannot be detached from his wider account of the prevailing form of the political today as a generalised "biopolitics"—a concept he borrows from Michel Foucault.⁵¹ By suspending the law and producing a juridical void, the state of exception is presented as the sovereign mechanism to reduce "political life" to "bare life": to strip the body of political subjects from their rights, and to turn them into mere bodies to be kept alive or disposed. The applicability of Agamben's model of biopower to the case of Gaza has been widely discussed and, to a large extent, accepted. "Excluded, surrounded and isolated, the existence of the Strip's inhabitants has been reduced in the eyes of the ruling power to the mere presence of mouths to be fed with the barest minimum," write for example the media theorist Ariella Azoulay with the philosopher Adi Ophir.⁵² More generally, since the meticulous account of a "politics of de-development" at work in Gaza, diagnosed by the political economist Sara Roy as early as 1987 and regularly updated ever since,⁵³ the process of subjugation of the people of Gaza appears to be primarily approached as one of subtraction of formerly existing conditions. In this perspective, it is as if modernity had been progressively unraveled from this narrow territory—taking away its laws, its resources, its infrastructures; as if Gaza was being returned to a pre-modern condition, relegated, in the absence of more sophisticated ruling principles, to the Manichean violence of mere survival or death.

Agamben's model bears a fundamental problem: it focuses on an absence, a suspension, a shortage. What it describes as a resulting regime—biopolitics—is defined through the essential simplification of a form of power which, no longer encumbered by law, would attain directly to life, "without any mediation."⁵⁴ Such focus on what is *missing* from a postulated normal picture prevents from seeing and describing what has actually emerged within the juridical void created

51 Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978–1979*, ed. Arnold I. Davidson, trans. Graham Burchell, 2008 edition (New York, NY: Palgrave Macmillan, 2010).

52 Ariella Azoulay and Adi Ophir, "Abandoning Gaza," in *Agamben and Colonialism*, by Simone Bignall and Marcelo Svirsky (Edinburgh: Edinburgh University Press, 2012), 147.

53 Sara Roy, "The Gaza Strip: A Case of Economic De-Development," *Journal of Palestine Studies* 17, no. 1 (1987): 56–88, <https://doi.org/10.2307/2536651>.

54 Agamben.

by the state of exception, what kind of spatial and political technologies have materialised in place of a “juridico-discursive” model of power.⁵⁵

In the introduction to their edited survey of *Contemporary States of Emergency* around the world, the anthropologists Didier Fassin and Mariella Pandolfi outline an analysis which, while indebted to Agamben’s theoretical model, starts to confront the specific modalities by which it materialises on the ground: “The state of exception mobilises technologies in the legal, epidemiological, and logistical fields, and even a form of technicality, which neutralizes political choices by reducing them to simple operational measures.”⁵⁶ As a radical example of a place locked into a “temporality of emergency” and a “spatiality of exclusion”⁵⁷—two features that the authors identify as typical of the ground conditions where such exceptional power structures are deployed—a careful examination of the Gaza exception may set us on track to “map a new normal” of biopolitical sovereignty and its spatial expressions.⁵⁸

More explicitly evocative of a nexus between Gaza and its outside, another notion frequently invoked to approach it is that of the ‘laboratory’. In a powerful essay published soon after the Israeli *disengagement*, the legal scholar Darryl Li argued that the “Gaza Strip can be usefully seen as a ‘laboratory’ in which Israel fine-tunes a dubious balance of maximum control and minimum responsibility”.⁵⁹ Distinguishing “the Gaza Strip and the West Bank as representing two different phases of a common process of segregation, confinement, and surveillance”, in his view “[t]he ‘disengagement’ from the Gaza Strip marks the most advanced stage of this process yet witnessed.”⁶⁰ For Li, maximum control is achieved through the complete fencing of the territory, the enforcement of deadly buffer zones, and the extensive use of airpower for surveillance and targeting inside Gaza; while minimum responsibility towards its inhabitants is made

55 Michel Foucault, *The History of Sexuality, Vol.1: An Introduction*, trans. R. Hurley, New edition (London: Penguin, 1990), 82.

56 Didier Fassin and Mariella Pandolfi, *Contemporary States of Emergency* (New York: Cambridge, Mass: Zone Books - MIT, 2010), 16.

57 Fassin and Pandolfi, 15.

58 Benjamin H. Bratton, *The Stack: On Software and Sovereignty*, 1st edition (Cambridge, Massachusetts: The MIT Press, 2016), 4.

59 Darryl Li, “The Gaza Strip as Laboratory: Notes in the Wake of Disengagement,” *Journal of Palestine Studies* 35, no. 2 (2006): 38–55.

60 Li.

possible through the legal argument put forward by the State of Israel—and since invalidated by an overwhelming majority of international legal experts—that the withdrawal of troops and civilians from the ground effectively ended the occupation of Gaza. Reckoning with this new radical form of remote-control occupation that is largely reliant on infrastructures and technologies of security, Li ponders the plausible scenario in which Gaza would form a “proving ground” towards a further fragmentation of the West Bank into “an archipelago of isolated Gaza Strips.”⁶¹

In Li’s “laboratory”, the experiments conducted are only meant to apply to the Israeli-Palestinian context. Yet a number of other writers have described how Gaza serves to test a wide range of methods and techniques—in the fields of military strategy, international law, humanitarianism, or surveillance—the conclusive results of which are later exported around the world.⁶² Reporting on the booming economy of Israel’s high-tech homeland security sector, the author and activist Naomi Klein portrays the occupied Palestinian territory, and especially Gaza, as “laboratories where the terrifying tools of our security states are being field-tested.”⁶³ The same argument was later brought to the screen by the documentary film-maker Yotam Feldman with his film *The Lab*.⁶⁴

While a vivid piece of journalism, Klein’s article may also show the limits of the laboratory metaphor for use in research. On the one hand, Palestinians in Gaza and in the West Bank are not the “guinea pigs” that she identifies, just as they are not Agamben’s “homines sacri,” as Azoulay and Ophir remind us.⁶⁵ Both images imply the “passivity of the forsaken Palestinian”, while the deployment of evermore advanced technologies of security in the occupied territories is better understood as “a response to active, persistent, and often painful Palestinian resistance.”⁶⁶ As a corollary, neither the State of Israel nor any of the enterprises partaking in its far-reaching security apparatus are likely to fit the role of a scientist conducting experiments in

61 Li.

62 Naomi Klein, “Laboratory for a Fortressed World,” *The Nation*, June 14, 2007, <https://www.thenation.com/article/laboratory-fortressed-world/>.

63 Klein.

64 Yotam Feldman, *The Lab*, 2013, <http://www.imdb.com/title/tt2419246/>.

65 Azoulay and Ophir.

66 Azoulay and Ophir.

the Gaza lab, under conditions of quasi-total control. If primarily focused on the American case, the study of the “ecology of powers” of the global War on Terror by the philosopher Brian Massumi insists on the essential role of contingency and unpredictability in shaping contemporary security practices.⁶⁷ As military and police activities become inextricably entangled, they both learn to “go kinetic” and to operate in conditions of “ontological uncertainty.”⁶⁸ In Gaza like elsewhere, the irreducibly uncertain nature of the *threat* is precisely what gives technologies of security their essentially protean character.

Neither exception nor laboratory, Gaza is best understood as a frontier. The frontier has an essentially dynamic nature: always on the move, at times expanding and at others contracting, it is produced through conflict and confrontation. At the difference of the laboratory, understood as a neutral backdrop inside of which experiments are conducted, the frontier doesn’t exist prior to a meeting of opposite forces; it moves and takes shape through their clash, at the same time as it mediates their encounter. The Gaza Strip has been a frontier from the very beginning of its brief history: as a territory, it was born out of the ceasefire of the 1949 Arab-Israeli war.⁶⁹ While the Green Line and former frontline has not moved since it was first established, the frontier of the State of Israel, in contrast, has gradually thickened outwards to the point of covering the whole of the territories that the Green Line surrounds. Fundamentally colonial in nature, the geography of Palestine both manifests and mediates the profound transformations of an enduring colonial rule: from the British Mandate, to the Zionist project, into the increasingly transnational apparatus of our “colonial present.”⁷⁰

With this controversial term, the geographer Derek Gregory reaffirmed the implicit commitment in post-colonial studies to address the problem of historical continuities and colonial legacies: “While they may be displaced, distorted, and (most often) denied, the capacities that inhere within the colonial past are routinely reaffirmed and reactivated in the colonial present.”⁷¹

67 Brian Massumi, *Ontopower: War, Powers, and the State of Perception* (Durham: Duke University Press Books, 2015).

68 Massumi, 5.

69 Jean-Pierre Filiu, *Gaza: A History* (London: C Hurst & Co Publishers Ltd, 2014).

70 Derek Gregory, *The Colonial Present: Afghanistan, Palestine, Iraq*, 1st edition (Malden, MA: Blackwell, 2004).

71 Gregory, 7.

As he narrates three stories located in Afghanistan, Palestine, and Iraq—all pivoting around September 11, 2001—Gregory frames “the global ‘war on terror’ [...] as one of the central modalities through which the colonial present is articulated.”⁷² The case of Palestine vividly demonstrates the argument of an “intrinsically colonial modernity” still in full operation today, which “produces its other, verso to recto, as a way of at once producing and privileging itself.”⁷³ The story retraces how Israel seized the opportunity of 9/11 to justify its crushing of Palestinian resistance during the Second Intifada by equating it with the US military campaign in Afghanistan. The casting of Palestinians as *terrorists* has since been a recurrent trope in the rhetoric used by the Israeli state to defend its persistent use of indiscriminate violence in the occupied Palestinian territory. In the Gaza frontier in particular, the recurrent bombardments of densely populated urban neighbourhoods that killed thousands of civilians over the past decade are regularly justified by the Israeli military as legitimate targeting of “terrorist infrastructure”.⁷⁴

Throughout the thesis, my work will follow an approach that tracks the “boomerang effects of colonization.” This idea was originally formulated by Aimé Césaire in his “Discourse on Colonialism” and later taken up by Foucault. Césaire described colonial frontiers as places of radical experimentation with techniques of government and control by colonial powers. The metaphor of the boomerang denotes that, after having proved their value and efficiency, the most successful of these techniques tend to be re-imported in metropolitan contexts. The perspective of the colonial present functions as a call to track such boomerang effects today; to examine how the contemporary militarised frontiers of the global urban condition may still function as places where the latest technologies of power are developed, tested, and refined. While acknowledging the exceptional characters of the Gaza Strip as the territorial product of a unique history of struggle, my approach in this thesis will focus on what makes Gaza a *frontier*: a place where the persistent clash of opposite forces keeps on generating radical, cutting-edge techniques of both resistance and domination.

72 Gregory, 13.

73 Gregory, 4.

74 The expression ‘terrorist infrastructure’ has become recurrent in the official parlance of the State of Israel since Ariel Sharon. It is also prominently used in the communication of the IDF, as visible on its online blog: <https://www.idfblog.com/> (accessed 30 march 2020). See also Forensic Architecture’s investigations of war crimes in Gaza, to which the author has been participating since 2012 (‘White Phosphorus’, ‘Gaza Platform’, ‘Rafah: Black Friday’ projects).



Fig. 3—Israeli soldiers patrolling the newly constructed Gaza fence in 1994. (Photo: David Rubinger/Getty.)

War and the City

“Violence can erupt on a commuter train in Madrid, a house in Gaza City, a poppy field in Helmand or a street in Ciudad Juarez: such is the contrapuntal geography of the everywhere war.”⁷⁵ With this expression, Derek Gregory attempts to capture the geographical dimension of the enduring war on terror, understood in terms of an “increasing militarisation of the planet.” One of the ways retained by Gregory as a concrete manifestation of the everywhere war is the “replacement of the concept of the ‘battlefield’ in US military doctrine by the multi-scalar, multidimensional ‘battlespace’ with ‘no front or back’ and where ‘everything becomes a site of permanent war,’” as analysed by Stephen Graham.⁷⁶ While the author proceeds to examine some of the highly militarised “borderlands” of the world, his argument points primarily to the

⁷⁵ Derek Gregory, “The Everywhere War,” *The Geographical Journal* 177, no. 3 (2011): 240.

⁷⁶ Stephen Graham, *Cities Under Siege: The New Military Urbanism* (London ; New York: Verso, 2011), 389.

globally distributed and always latent character of war today—whereby the fragile façades of a peaceful local order can at any moment be shattered by the eruption of “military, para-military, or terrorist violence.”⁷⁷

After nearly two decades of war on terror, it is now common to feel that the distinction between war and peace is increasingly difficult to trace; instead, the historical and geographical contours of each seem to have blurred into “a diffuse and dispersed state of violence.”⁷⁸ Bearing this perspective in mind is important in order to disrupt a common cognitive map of the colonial present: the frontier and its violence are no longer necessarily located far away from the heartland today; rather, the frontier can cut right through the centre, and vice versa. This is nowhere more clear than in the particular case of Israel and Palestine, where the entanglement of coloniser and colonised spaces has been described by the architect Eyal Weizman as an “Escher-like [...] territorial hologram at six dimensions, three Jewish and three Arab.”⁷⁹ A nested approach to frontiers may be necessary here: on the one hand, Gaza is a frontier for the deployment of advanced security technologies which, after having been developed and tested in the Strip, tend to be applied much more generally, within and beyond the Israeli-Palestinian context; on the other, with its colonial geography of interlocked archipelagos and enclaves forming distinct yet contiguous realities, the whole of the land situated between the Jordan River and the Mediterranean Sea constitutes a frontier for a model of segregated territoriality that appears to be spreading at fast pace around the planet.⁸⁰

Such is the underlying argument in one of Judith Butler’s most recent work, where she draws a link between Gaza and Ferguson, around the figure of the “human shield.”⁸¹ The fatal shooting of black teenager Michael Brown by a white police officer, which sparked a popular uprising in the predominantly black suburb of Ferguson, Missouri, took place on 9 August

77 Gregory, “The Everywhere War,” 240.

78 Gregory, 241.

79 Eyal Weizman, “The Politics of Verticality,” *OpenDemocracy* (blog), April 23, 2002, http://www.opendemocracy.net/ecology-politicsverticality/article_801.jsp Accessed 30 March 2020.

80 Alessandro Petti, *Arcipelaghi e enclave: architettura dell'ordinamento spaziale contemporaneo* (Milan: B. Mondadori, 2007).

81 Judith Butler, “Human Shields,” *London Review of International Law* 3, no. 2 (September 1, 2015): 223–43, <https://doi.org/10.1093/lril/lrv011>.

2014—at the same time as, 10,000 km away, the violence of operation Protective Edge was raging in Gaza. Beyond the mere synchronicity of these events, what pushed Butler to examine them within a common critical frame were the numerous demonstrations of solidarity, on social media, between Black Lives Matter protesters and Palestinians civilians in Gaza. Such public gestures showed that the two groups themselves identified a connection between the forms of oppression and violence to which they were respectively subjected.⁸² In the context of a global militarisation of police forces that are, moreover, increasingly tasked with containing protests against social, economic, or racial inequalities, Butler questions how unarmed bodies come to be regarded as threatening instruments and legitimate targets. “There can only be a war crime against civilians in Gaza if there is an accepted civilian population, and there can only be unjustified police homicide if the person who is killed is understood as an innocent civilian. But if both of those populations are now recast as security risks, or threats, or if their bodies are understood as weaponised, the sphere of civic protection is displaced by the protocols of war.”⁸³ Across the contemporary urban landscape, a logic of segregation between people worthy of protection and threatening populations to be kept in check appears to be at the heart of the global process of reproduction of urban space. Brought to its extreme form—whether in the blockaded Palestinian enclave, or in the disenfranchised urban areas to which many non-white Americans are still confined—the slow violence of this segregation sometimes accelerates into explosive incidents whereby dividing lines may turn into actual frontlines.

Over the past decade, Gaza has regularly been a theatre of all-out war. Considering the military-grade killing and destruction tools employed by Israel during its operations in the Strip, the heavy infrastructure of material isolation that marks its perimeter, or simply the body count that results from a decade of sustained violence there, it is clear that the situation of Gaza is not equivalent to that of other places facing segregation and ghettoization policies, or police violence, even in militarised form. But this distinct character of violence itself does not necessarily entail that the conditions of violence in Gaza are incommensurable to that of other places. The approach developed in this thesis is to identify the spatial, technical, and political logics that

82 Angela Y. Davis, *Freedom Is a Constant Struggle: Ferguson, Palestine, and the Foundations of a Movement* (Haymarket Books, 2016).

83 Butler, “Human Shields,” 240.

trace a scalar relationship between, for example, Gaza and Ferguson.⁸⁴ While the intensity of violence in Gaza establishes a qualitative difference with other urban sites of conflict, understanding it as a frontier means approaching Gaza as an extreme manifestation of a rationality of power which is also at work elsewhere. The everywhere war manifests itself distinctively in Gaza, but the condition of contemporary living that the term describes is far from confined to the militarised borders of the Strip.

War, moreover, is primarily an urban phenomenon today. The generalisation of the state of exception as a paradigm of contemporary government finds its corollary in an everywhere war that permeates all aspects of *normal* life and, as such, penetrates its urban spaces of the everyday. With genealogical origins in the counter-insurgency operations of the past, contemporary urban warfare is not so much a relocation of war from the open fields to the cities, as it is the emergence of a new condition of violence. It entails a fundamental transformation of both the means and techniques by which war has traditionally been waged, and of the historical role that cities were designed to perform. The eruption of generalised urban warfare disintegrates both war and the city as they were known; it inaugurates a condition where both terms need to be redefined.

The significance of the urbanisation of warfare for the conduct of military operations has been widely examined; given its relevance to the particular context of the present research, it is worth summarising its main lines here. Since the late 1990s, US military research has primarily focused on the challenges of asymmetric warfare in urban areas—based on the broadly shared assessment that "modern urban combat operations will become one of the primary challenges of the 21st century."⁸⁵ As Weizman and other scholars have argued, the city functions as a great leveller of power between conventional armies and insurgent groups. Technological advantages such as airpower, aerial and satellite-based observation, radio communications, or heavy firepower, are considerably hindered by the materiality of the dense urban fabric—where lines of

⁸⁴ "Cornel West: Gaza Is the Hood on Steroids, Thanks to Israel," Portside, accessed April 29, 2020, <https://portside.org/2015-03-08/cornel-west-gaza-hood-steroids-thanks-israel>; Adrian Lahoud, "The Problem of Scale: The City, the Territory, the Planetary" (Doctoral dissertation, University of Technology Sydney, 2013).

⁸⁵ Defense Intelligence Reference Document (DIRC), 'The Urban Century: Developing World Urban Trends and Possible Factors Affecting Military Operations', MCIA- 1 586-003·9, Quantico, VA: United States Marine Corps, 1997, 11. Quoted in Graham, *Cities under Siege*, 19.

sight and fire are constrained, and where each party must be capable of moving fluidly through an essentially three-dimensional terrain.⁸⁶

Moreover, a key challenge for military forces conducting operations in densely inhabited urban areas is a legal one: namely to distinguish between combatants and civilians. As war infiltrates the civilian domain of the city, the problem of distinction becomes crucial; for this reason, the rise of urban warfare also constitutes an important factor in the development of international judicial practices and institutions since the 1990s.⁸⁷ Ill-equipped to regulate this erstwhile aberrant encounter, law itself is brought into crisis when war enters the city. As the formerly clear-cut categories of ‘military’ and ‘civilian’ become blurred, law loses much of its rigidity; it becomes plastic, malleable, open to a multiplicity of interpretations; as much a tool to justify the use of violence than one to oppose it.⁸⁸

In spite of the many techniques they have developed to overcome the spatial and legal limitations of waging war in urban settings, militaries tend to abhor cities. As Stephen Graham notes, at the intersection of military doctrine and right-wing neoconservative ideology one finds a profound “anti-urbanism;”⁸⁹ whereby cities, those unruly mazes teeming with motley and uncountable populations, are seen as breeding grounds for insurgents and terrorists. “If the point of the war against terrorism is to pursue the enemy into his sociological and cultural labyrinth,” writes the urban theorist and historian Mike Davis, “then the poor peripheries of developing

86 Eyal Weizman, “Walking through Walls: Soldiers as Architects in the Israeli–Palestinian Conflict,” *Radical Philosophy*, no. 136 (April 2006), <https://www.radicalphilosophyarchive.com/article/walking-through-walls>.

87 Cesare Romano and Francesco Sebregondi, “The Architecture of International Justice,” in *Forensis: The Architecture of Public Truth*, ed. Forensic Architecture (Berlin: Sternberg Press, 2014), 317–26.

88 The work of Forensic Architecture, which emerges originally as an inquiry into urban warfare, offers a number of examples of the seizure of international legal fora as an arena for politics. Forensic Architecture, ed., *Forensis: The Architecture of Public Truth* (Berlin: Sternberg Press, 2014).

89 Stephen Graham, *Cities Under Siege: The New Military Urbanism* (London ; New York: Verso, 2011), 27.

cities will be the permanent battlefields of the twenty-first century.”⁹⁰ Nonetheless, while militaries won't refrain from deploying their war machine upon the disorderly urban frontiers of the world, to them "the cities are the problem," and urban combat is "combat in hell."⁹¹

The response of military forces to the problem of the city is twofold. On the one hand, the last decade has been marked by a massive development of smart technologies in the form of drone and robotic warfare.⁹² Such remotely-controlled and, increasingly, artificially-intelligent killing machines present the considerable advantage of shielding one's troops from the risk of being killed on the frontline, thereby making the idealised doctrine of a 'zero casualties' war a real possibility.⁹³ Yet the safeguarding of troops is not the only rationale for the armies' turn to drones. Based on the development of US drone warfare over the past decade, the strategic objective pursued appears to be a *policing* one; namely, total control of urban areas suspected of hiding insurgents and terrorists through a swarming army of drones permanently loitering in the sky.⁹⁴ Before being a killing machine, the drone is a scopic device, an instrument enabling to survey wide areas in granular details. As such, the deployment of drones can also be understood as a military method to *pierce through the urban veil*: to artificially regain a clear field of vision by multiplying one's "eyes in the sky."⁹⁵ This point is directly connected to the second aspect of the military response to the problem of the city, namely that of its material transformation into a more suitable battleground.

90 Mike Davis, "The Urbanization of Empire: Megacities and the Laws of Chaos," *Social Text* 22, no. 4 (81) (December 1, 2004): 9–15, https://doi.org/10.1215/01642472-22-4_81-9.

91 Graham, *Cities Under Siege*, 2011, 32.

92 Grégoire Chamayou, *Drone Theory*, 1st edition (London: Penguin, 2015).

93 A twisted paradox is worth noting here: in drone-assisted urban warfare, only regular soldiers are truly safe, while the vast majority of those exposed to death and injury are civilians.

94 James Cavallaro, Stephan Sonnenberg, and Sarah Knuckey, "Living Under Drones: Death, Injury and Trauma to Civilians from US Drone Practices in Pakistan" (Stanford; New York: International Human Rights and Conflict Resolution Clinic, Stanford Law School; NYU School of Law, Global Justice Clinic, September 25, 2012), <https://law.stanford.edu/publications/living-under-drones-death-injury-and-trauma-to-civilians-from-us-drone-practices-in-pakistan/>; Chamayou, *Drone Theory*.

95 Gavin Hood, *Eye in the Sky*, Drama, Thriller, War, 2015, <http://www.imdb.com/title/tt2057392/>.

While there is abundant research on how war has changed through its encounter with the urban terrain, the reverse process is arguably still understudied; namely, how urban environments around the world are transformed by the direct or indirect effects of a diffused, everywhere war. With a prehistory in the doctrine of defensible space, the field of security-oriented urban design has grown substantially since the September 11, 2001 terror attacks.⁹⁶ The ultimate example of terrorism as a phenomenon of total reversion,⁹⁷ 9/11 durably marked the Western urban consciousness with one key message: it shall now be clear to anyone that every single bit of the city could potentially be weaponised against itself, making the violence of war erupt from within its civilised confines.⁹⁸

If 9/11, as an event, transfigured the city as a phenomenological space, its aftermath—the War on Terror—soon began to transform it materially. From the securitisation of sensitive urban sites with bollards, blast-resistant windows, spikes, fences; through the making of a transparent urban landscape, via the removal of all elements susceptible of hiding explosive devices and the swarm of surveillance sensors such as CCTV; to the vast upgrade of access control in urban environments, which progressively turned circulation within the city into a never-ending process of passing through gates and proving one's credentials; and finally to the massive deployment of human agents of security, from actual soldiers to private contractors patrolling the streets and passageways of the city; the defining architectural style of the first decade of the 21st century was undoubtedly a neo-medieval, technologically-enhanced defensive one.

Studies of the phenomenon abound and, arguably, need no further analysis along the converging lines that they together describe. Indeed, most of the corresponding research tends to focus on describing a superficial layer of security architecture that appears to have been laid over urban environments globally; the phenomenon is therefore essentially approached as *external* to the urban, as a peculiar modern-day appendage which modifies the outer appearance of cities

96 Michael Sorkin, ed., *Indefensible Space: The Architecture of the National Insecurity State*, 1st edition (New York: Routledge, 2007); Adrian Lahoud, Charles Rice, and Anthony Burke, eds., *Post-Traumatic Urbanism*, 1st edition (Hoboken, N.J: Academy Press, 2010).

97 Jean Baudrillard, *The Spirit of Terrorism*, trans. Chris Turner, 1st edition (London ; New York: Verso, 2013).

98 Leopold Lambert, *Weaponized Architecture: The Impossibility of Innocence* (Barcelona, Spain: DPR-Barcelona, 2013).

without affecting their underlying structure, layout, or logic of development. What is more, an enduring divide between urban studies of the Global North and of the Global South has tended to frame such security-oriented urban transformations as specific reactions to events and preoccupations within a given local or regional context.⁹⁹ Such assessments do not take sufficiently into account the global urban circuit within which fears, ideas, and techniques of security circulate.

Two notable exceptions within urban security studies will guide us in identifying an alternative line of enquiry to be pursued. The first one is the work of Stephen Graham, whose specific approach to the intersection of cities and violence consists in tracking exchanges between urban conditions across the Global North/South divide.¹⁰⁰ Graham's work builds a bridge between the violent urban frontiers that form the main theatre of contemporary warfare, and the urban heartlands of the states involved in such military deployments. As such, his work usefully de-isolates processes of urban securitisation from their immediate context, and instead starts sketching out a global geography across which the techniques of "military urbanism" are currently travelling. Nevertheless, Graham's research focuses on tracking how security devices and technology migrate, for example, from Baghdad to New Orleans, or from Gaza to the US-Mexico Border, through the intermediary of increasingly transnational firms within a "global military-security-industrial complex."¹⁰¹ For this reason, the notion of "military urbanism" that Graham derives from this tracking approach may be insufficiently wide in scope, in as much it remains, above all, a phenomenon *impacting* cities. In contrast, this thesis attempts to excavate a deeper, coextensive relation between war and urbanisation today.

This theoretical horizon is akin to a generalisation of the argument put forward by Eyal Weizman with regard to the particular context of the West Bank.¹⁰² Published in 2007, his

⁹⁹ Jon Coaffee and Lee S. Boshier, "Integrating Counter-Terrorist Resilience into Sustainability," 2008, <https://doi.org/10.1680/udap.2008.161.2.75>; Coaffee and Boshier; Austin Zeiderman, *Endangered City: The Politics of Security and Risk in Bogotá* (Durham: Duke University Press Books, 2016); Claire Bé-nit-Gbaffou, "Unbundled Security Services and Urban Fragmentation in Post-Apartheid Johannesburg," *Geoforum*, Placing Splintering Urbanism, 39, no. 6 (November 1, 2008): 1933–50, <https://doi.org/10.1016/j.geoforum.2007.10.011>.

¹⁰⁰ Graham, *Cities Under Siege*, 2011.

¹⁰¹ Graham, 45.

¹⁰² Eyal Weizman, *Hollow Land: Israel's Architecture of Occupation*, 2nd Revised edition edition (London ; New York: Verso Books, 2012).

book “Hollow Land: Israel's Architecture of Occupation” describes a landscape entirely formed by decades of conflict, where the blurring of military and civilian domains under the overarching rule of security is complete. From the distribution and expansion of Israeli settlements, driven by a logic of territorial domination through the occupation of hilltops; to the construction of segregated infrastructural networks that generate the urban fabric of the coloniser at the same time as it disintegrates the territorial order of the colonised; through the strategic scattering of architectural devices across the contested territory—such as walls, checkpoints, or roadblocks—that enable Israeli authorities to channel and filter the mobility of people on each side of the colonial divide; the close examination of the occupied West Bank reveals a situation in which securitisation is neither subsequent nor secondary to urbanisation; rather, urbanisation appears as the means by which the practice of security—a form of low-intensity, permanent war on an enemy within—is durably inscribed into the very form of a territory.

Weizman himself evokes the possibility of the occupied Palestinian territory forming a “laboratory” of global urbanism—“a worst-case scenario of capitalist globalization and its spatial fall-out”¹⁰³; yet his subsequent research has turned away from a critical theory of contemporary urbanisation to focus on the problem of the political representation of spatial violence.¹⁰⁴ On the other hand, Graham suggests that the global notion of military urbanism he proposes “goes far beyond a concern for the technologies, doctrine, and military/security tactics needed for an attempt to control, pacify, or profit from demonized populations of spaces.”¹⁰⁵ Nonetheless, his discourse does not elaborate specifically on any co-constitutive relation between war, security, and urbanisation today.¹⁰⁶ While it largely builds upon the crucial insights of these two authors, this thesis aspires to articulate their respective arguments into a common conceptual framework. To do so, it will focus on a particular rationality of power, vividly manifested by the case of the Gaza blockade, which will be posited as a major drive of both war and urbanisation today.

103 Weizman, 10.

104 Through, notably, the Forensic Architecture project.

105 Graham, *Cities Under Siege*, 2011, 83.

106 While Graham’s most recent research examines the securitisation of contemporary cities *vertically*, as a stack of layers going “from satellites to bunkers”, his discourse does not suggest the presence of any transversal rationality at work in producing the contemporary city as a thick and deep space of security.



Fig. 4—Israeli military jeep fires tear gas at Palestinian protesters, during the 26th Great March of Return Friday protest near the Gaza-Israel fence, Gaza Strip, September 21, 2018. (Photo: Active Stills)

Technologies of Containment

I propose to introduce the notion of *technologies of containment* as a conceptual frame to describe the set of spatial and political techniques deployed by a ruling power with the specific aim of handling, with the highest level of efficiency, the burden of a population considered as both surplus and threat.

Etymologically, to contain means to “hold together” (from the Latin *con-*, “with”, and *tenere*, “hold”). It follows that the logic of containment is at the opposite of that of destruction or obliteration. In the broadest sense, containment is about limiting the growth, expansion, or spread of a given entity; not about terminating it. When applied to one’s conduct in the face of a problem, containment does not aim to bring about any solution, nor to get rid of the problem, but merely to manage it over time and to distribute its effects differentially.

In recent history, the term *containment* is mainly known for referring to “the basic United States strategy for fighting the Cold War (1947-1989) with the Soviet Union.”¹⁰⁷ At the time, for the United States and its Western allies, communism was the global threat to be contained. Given that its main vector of expansion, the Soviet Union, was too strong a military opponent to be simply destroyed, the United States had to settle for a “long-term, patient but firm and vigilant containment of Russian expansive tendencies.”¹⁰⁸ Such were the terms used by the US foreign service officer George F. Keenan, in his widely circulated “X Article”, from 1947, which gave its first formulation to the policy of containment. In the same article, Keenan called for countering “Soviet pressure” through the “adroit and vigilant application of counter-force at a series of constantly shifting geographical and political points, corresponding to the shifts and maneuvers of Soviet policy.”¹⁰⁹ In Keenan’s conception, such a policy of dynamic *cordoning off* of the enemy would maintain it in a condition of durable isolation, which would eventually result in “either the break-up or the gradual mellowing of Soviet power.”¹¹⁰

It could be argued that the policy of containment was carried across the “end of history” that it contributed to bring about.¹¹¹ Criticising the United States strategy, or lack thereof, demonstrated during the first years of president Bush’s War on Terror, political scientists such as Ian Shapiro or Robert E. Kelly advocated for a return to containment, as a more effective policy against the threat of terrorism than the pursuit of violent regime changes and pre-emptive warfare.¹¹⁴ Yet, as the global War on Terror still lingers around eighteen years after its launch and with no end in sight, it can be argued that, if there is an objective pursued in this everywhere

¹⁰⁷ US Department Of State – Bureau of Public Affairs, “Kennan and Containment, 1947,” accessed April 29, 2020, <https://2001-2009.state.gov/r/pa/ho/time/cwr/17601.htm>.

¹⁰⁸ George F. (“X”) Kennan, “The Sources of Soviet Conduct,” 1947, <https://www.foreignaffairs.com/articles/russian-federation/1947-07-01/sources-soviet-conduct>.

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

¹¹¹ Francis Fukuyama, *The End of History and the Last Man* (London: Penguin, 1992).

¹¹⁴ *Containment: Rebuilding a Strategy against Global Terror* (Princeton, N.J.; Woodstock: Princeton University Press, 2008); Robert E. Kelly, “From the ‘Global War on Terror’ to Containment: An Opinion Brief,” *Perspectives on Terrorism* 2, no. 4 (November 19, 2010), <http://www.terrorismanalysts.com/pt/index.php/pot/article/view/34>.

war against the ghostly threat of “Terror”, it is already, and merely, to contain it. As demonstrated by the United States’ enduring occupation of Afghanistan and Iraq, by the ongoing operations of the British army in Nigeria, of the French army in Mali, or by the permanent policing operations by various NATO forces over Pakistan, Yemen, or Somalia, the former Western bloc seems to have opted for a perpetual confrontation with the problem of terrorism, without seeking its resolution. In the pursuit of this tacit containment strategy, the self-declared nations of the free world appear primarily concerned with making sure that the violence of this never-ending war remains, as much as possible, confined to the frontiers where it is fought most brutally.

Unsurprisingly, the notion of containment is also regularly evoked in relation to Israel’s occupation of Palestine. Writing in the midst of the Second Intifada (2000-2005), the reporter Amira Hass described Israel’s policy of closure of the occupied territories as an “ineffective strategy of containment and repression.”¹¹⁵ In her argument, the ineffective character of this policy stems from the fact that it did not actually curb the Palestinian uprising; instead, it made it evolve into “a ruthless war between one of the strongest and best equipped armies in the world and a battalion of volunteering suiciders.”¹¹⁶ In the particular understanding of containment that I am outlining here, nonetheless, an escalating level of violence does not in itself mark the failure of a containment strategy—as long as the effects of such violence are primarily borne by the enemy. Accordingly, Israel’s closure policy can instead be read as a highly effective strategy of containment. Hence its continuation, and drastic reinforcement, with the establishment of the Gaza blockade in the aftermath of the second Intifada. Such is also the conclusion that the Middle East scholar Tareq Baqoni draws from his recent historical study of Hamas: “Under Israel’s approach of managing rather than resolving the conflict, Hamas’s demand for Palestinian sovereignty has effectively been neutralized by its containment in Gaza. This dynamic has perpetuated a deadlock characterized by its brutality—and one that has made permissible the collective punishment of millions of Palestinian civilians.”¹¹⁷

¹¹⁵ Amira Hass, “Israel’s Closure Policy: An Ineffective Strategy of Containment and Repression,” *Journal of Palestine Studies* 31, no. 3 (April 1, 2002): 5–20, <https://doi.org/10.1525/jps.2002.31.3.5>.

¹¹⁶ Hass, 20.

¹¹⁷ Tareq Baqoni, *Hamas Contained: The Rise and Pacification of Palestinian Resistance*, 1 edition (Stanford, California: Stanford University Press, 2018) (Back cover synopsis.).

The case of the occupied Palestinian territory is helpful to ground the notion of containment proposed here: to articulate what I have so far described as an abstract geopolitical strategy to its concrete territorial implications. If the general aim of Israel's containment strategy is to impede the formation of a sovereign Palestinian state, its material targets are the Palestinians—a colonised and racialised population.

The sociologist Ronit Lentin convincingly demonstrates how Agamben's notion of state of exception is not enough to grasp the particular modalities of the Israeli occupation and its control of the Palestinian population.¹¹⁸ Agamben's model of reduction of political subjects to "bare life", indeed, does not take enough into account the question of race, nor the question of land, that are both central to the specific mode of exceptional biopolitics deployed by Israel. Drawing from critical race theorist David Theo Goldberg's discussion of the "racial state",¹¹⁹ Lentin insists on the importance of racialisation in Israel's relation to the Palestinian "other", as a condition for the homogenisation of Palestinians on the one hand, and of Israeli Jews on the other. Goldberg argues: "It is only through the racial configuration of the external, of the other... that the internal—the self—becomes racially defined."¹²⁰ To which Lentin adds that, "once racially configured, the other becomes a threat that the state must contain and control."¹²¹

Furthermore, drawing from the seminal work on settler colonialism by the anthropologist Patrick Wolfe, Lentin insists on the necessity to understand Israel as a settler colonial project, "the main objective of which is not the exploitation of the natives"—as in the general case of colonialism—"but rather access to their territory."¹²² Referencing Wolfe's own work on the topic, Lentin underlines how Israel has progressively sought to detach its economy from the need of Palestinian labour at the same time as it increased its control over the Palestinian territory it occupied. Since the 1990s, Israel organised the influx of over 300,000 migrant workers, mainly

¹¹⁸ Ronit Lentin, "Race and Surveillance in the Settler Colony: The Case of Israeli Rule over Palestine," *Palgrave Communications* 3, no. 1 (October 2017): 17056, <https://doi.org/10.1057/palcomms.2017.56>.

¹¹⁹ David Theo Goldberg, *The Racial State* (Hoboken, N.J: Wiley, 2002).

¹²⁰ Goldberg, 23.

¹²¹ Lentin, "Race and Surveillance in the Settler Colony," 3.

¹²² Lentin, 4.

from East Asia and Eastern Europe. These migrant workers are primarily employed in the construction, agricultural, and care sectors—the same sectors that constituted the main source of employment for Palestinians from the occupied territories until the First Intifada (1987 - 1993).¹²³ In the process, Israel made “Palestinians more and more dispensable and Gaza and the West Bank more and more like reservations and ghettos.”¹²⁴

Racialisation configuring the Palestinian population as threat, while settler colonialism reduces it to surplus: the articulation of these two processes constitutes the foundation of Israel’s politics of containment. For Darryl Li, it is a politics that runs throughout the history of the Zionist project, the “general contours” of which he summarises in the following terms: “first, maximize the number of Arabs on the minimal amount of land, and second, maximize control over the Arabs while minimizing any apparent responsibility for them.”¹²⁵ The question of control over territorial distribution and access, as well as the dynamic pursuit of spatial and administrative efficiency, have been central to the parallel histories of the making of Israel and unmaking of Palestine.

The logistical connotations of this process are underlined by the anthropologist Jeff Halper, who coined the influential expression “matrix of control” to describe the distributed system enabling Israel to run its programme of occupation.¹²⁶ Writing about the Gaza blockade shortly after it entered into force, and connecting it to the gradual closure of the occupied territories since the First Intifada, Halper argues that it reveals Israel’s policy of “warehousing Palestinians.”¹²⁷ Following this logistical intuition further, I will argue that this policy of warehousing—

¹²³ Michael Ellman and Smain Laacher, “Migrant Workers in Israel: A Contemporary Form of Slavery” (The Euro-Mediterranean Human Rights Network & The International Federation for Human Rights, 2003), <https://www.fidh.org/IMG/pdf/il1806a.pdf>.

¹²⁴ Patrick Wolfe, “Settler Colonialism and the Elimination of the Native,” *Journal of Genocide Research* 8, no. 4 (December 1, 2006): 404, <https://doi.org/10.1080/14623520601056240>.

¹²⁵ Darryl Li, “Disengagement and the Frontiers of Zionism,” *Middle East Research and Information Project* (blog), February 16, 2008, <https://merip.org/2008/02/disengagement-and-the-frontiers-of-zionism/>.

¹²⁶ Jeff Halper, “The Key to Peace: Dismantling the Matrix of Control,” ICAHD, accessed April 29, 2020, <https://icahd.org/get-the-facts/matrix-control/>.

¹²⁷ Jeff Halper, “Warehousing Palestinians,” *Counterpunch.Org* (blog), September 16, 2008, <https://www.counterpunch.org/2008/09/16/warehousing-palestinians/>.

which indeed entraps the Palestinians in “a static situation emptied of all political content”¹²⁸—should be understood as an effect of a larger, and highly dynamic, politics of containment.

There is nothing static about containment: as a spatial and political technology, it evolves dynamically, adapting its form and tuning its intensity to the vigour of the resistance from its target population. In order to durably neutralise this resistance, the containing power must remain on the move. While it gladly abandons the responsibility of governing the contained population by denying its members the status of political subjects, it cannot relinquish control over them. For this reason, containment does not imply any distancing of the contained population from the reach of the ruling power. Contrary to what the state of Israel regularly claims, the *disengagement* did not end the occupation of Gaza: it has merely moved it in the realm of remote control. The contained population remains a primary target of the containing power, whose ability to preserve its domination hinges on its capacity to monitor, isolate, and pre-empt any unruly behaviour.

Furthermore, containment functions around the dynamic balancing of an equation, where by the minimum investment of resources must achieve the maximum effects of control. Israel’s *disengagement* from the Strip can be read as a result of this very calculus: by concentrating its physical presence at the borders of Gaza and by making use of its advanced surveillance and targeting technology to monitor the rest of the territory, it could achieve an equivalent if not greater effect of control over the Gazan population than by keeping *boots on the ground*—a much more costly and risky operation in the long run. The same logic of optimised resource/effect ratio can explain the combined use of high- and low-tech means of control in the architecture of the Gaza blockade, comprising of some of the most advanced armed drones ever produced together with several kilometers of simple barbed-wire fence. According to the philosopher Olivier Razac, who wrote a political history of the barbed wire, “the perfection of a tool of power is not measured so much by its technical refinement as by its economic adaptation. The instruments which serve authority best are those which expend the smallest amount of energy possible to produce the effects of control or domination.”¹²⁹ The containment technology deployed in Gaza seems to evolve towards a reduction ad minimum of its components

¹²⁸ Ibid.

¹²⁹ Olivier Razac, *Barbed Wire: A Political History*, trans. Jonathan Knight (New York: The New Press, 2003), x.

permanently stationed on the ground, combined with the constant upgrade of a computationally intensive remote surveillance apparatus. Energetically more efficient, cheaper to operate, the blockade gets smarter everyday.

According to the same logic of resource optimisation, territory is another key factor to be managed efficiently. Containment seeks to dynamically reduce the territory available to the contained population to the minimum indispensable extent required for its basic subsistence, all the while preventing it to thrive. In Gaza, Israel achieves this gradual reduction in two ways. On the one hand, it lets the demographic pressure of the fast-growing Gazan population rise within the same confined territory. Over the twelve years since the blockade began, the density of the Gaza Strip has already risen by over 40%, making it one of the fastest urbanizing territory in the world.¹³⁰ On the other, the full-scale military operations launched by Israel over Gaza result in the recurrent, extensive destruction of the urban fabric of the Strip. As a consequence, the inhabitable land effectively available to the Gazan population is regularly diminished, at a faster overall rate than Gaza's capacity to reconstruct itself.¹³¹

Yet this gradual reduction, withdrawal, and decline of the resources available to the contained population cannot happen too fast, lest it might bring about mass death. If, on the one hand, containment aims to prevent the conditions whereby the contained population may thrive, it must also, on the other hand, avoid any drastic peak of mortality. Such an event may indeed offend the humanist sensibility of the local or international community and, in turn, bring about a withdrawal of its support to the containing power. This logic was vividly expressed by Dov Weisglass, a close advisor to the Israeli prime minister Ariel Sharon, at the start of the Gaza blockade: "The idea is to put Palestinians on a diet, but not to make them die of hunger."¹³² What Adi Ophir describes as Israel's "politics of catastrophization" consists precisely in a form of control that keeps the Palestinian population in a condition of permanent catastrophe, without allowing that catastrophe to be recognised as an *event*, and instead stretching it

¹³⁰ "The World's Fastest Growing Cities," International Institute for Environment and Development, March 24, 2020, <https://www.iied.org/worlds-fastest-growing-cities>.

¹³¹ "2015 Humanitarian Needs Overview - OCHA OPT Report," *Question of Palestine* (blog), accessed April 30, 2020, <https://www.un.org/unispal/document/auto-insert-198115/>.

¹³² IMEU, "Putting Palestinians 'On a Diet': Israel's Siege & Blockade of Gaza | IMEU," accessed April 30, 2020, <https://imeu.org/article/putting-palestinians-on-a-diet-israels-siege-blockade-of-gaza>.

over time.¹³³ ¹³⁴ In the process, the threshold of international acceptability of Israel's conduct towards the Palestinian population keeps being raised. Even the operations of militarised repression against Palestinian resistance, during which the number of casualties suddenly explode, appear to be calibrated by the same necropolitical calculus:¹³⁵ they should demonstrate a level of violence *just above* what seemed acceptable until then, so as to cause *some* international indignation, but no strong measures of sanctions against Israel. Within a few months, the indignation fades away, powerful states reaffirm their unconditional support to Israel's right to guarantee its own national security, and its *de facto* margin of manoeuvre within a fifty-three year long illegal occupation of Palestine is, once again, expanded. At the same time as the sphere of the recognised rights of Palestinians is further shrunk.

To achieve this dynamic balancing act between the withdrawal of resources and the upholding of control—in other words, to optimise its performances—containment mobilises two main technological domains: logistics and surveillance.

Israel's control of the full logistical supply chain of Gaza is the primary means by which the blockade is enforced. As part of its relinquishing of the responsibility to govern the occupied population, Israel delegates much of the actual provision and transport of goods to the humanitarian complex in place on both sides of the Gaza border. Yet its control of the few gateways through which such goods can be routed enables it to regulate the flow of everything going into and out of Gaza. In addition, Israel controls Gaza's supply of basic resources such as electricity, water, fuel, or gas; the full extent of Gaza's cellular and digital communication infrastructure; and the only terminal through which individual entry or exit permits may exceptionally be

¹³³ Adi Ophir, "The Politics of Catastrophization," in *Contemporary States of Emergency*, ed. Didier Fassin and Mariella Pandolfi (New York: Cambridge, Mass: Zone Books - MIT, 2010).

¹³⁴ On the relation between technologies of control and the "(non-)event", it is useful to refer to the work of Ben Anderson and Rachel Gordon: "We might say, initially at least, that the promise of the control room is 'negative'; it stops, it halts, it attempts to ensure that happenings do not come to pass, or do not become events." See Ben Anderson and Rachel Gordon, "Government and (Non)Event: The Promise of Control," *Social & Cultural Geography* 18, no. 2 (February 17, 2017): 158–77, <https://doi.org/10.1080/14649365.2016.1163727>.

¹³⁵ Achille Mbembe, "Necropolitics," *Public Culture* 1, no. 15 (2003): 11–40.

granted. By maneuvering this arsenal of logistical levers, Israel is able to turn its legal responsibility to provide for the population of the territory it occupies into a process of titration: drip-feeding Gaza with the strict necessary, *just-in-time*, to prevent its definitive collapse.¹³⁶

If logistics constitutes Israel's technical capability to carry its politics of containment, surveillance forms the source of knowledge that enables it. Containment relies on the permanent and extensive surveillance of the contained population in order to calibrate, in real time, the dynamic response required to maintain a spatial and political status quo. In diagrammatic terms, this process is not dissimilar to the functioning of a pair of noise-cancelling headphones, which use omnidirectional mics to capture surrounding sound waves and emit a counterwave to produce an impression of silence. (A walk in the thriving city center of Tel Aviv today might in fact bring to mind an image of the Israeli citizenry as the busy commuter, the Israeli state apparatus as their smart headphones, and the Palestinians as the distant, cancelled noise.) Palestinian scholars such as Helga Tawil-Souri or Elia Zureik, among others, have extensively reported on Israel's pervasive monitoring of the Palestinian population and territory.¹³⁷ The array of techniques employed include: administrative mechanisms such as censuses and biometric identification; optical observation enabled by strategically located watchtowers, facial recognition-enabled cameras, or aerial drones; electronic surveillance systems, such as the large surveillance zeppelins positioned along the Gaza fence which monitor the full spectrum of electromagnetic signals in the vast area they watch over; environmental sensing relying on satellites, underground, or underwater sensory systems; as well as, increasingly, data-driven, algorithmically augmented scrutiny of digital communications through, notably, the monitoring of social media use. All together, this complex apparatus of surveillance gives Israel access to a high-resolution, real-time map of the contained population and territory which, in turn, enables its efficient management and control.¹³⁸ Building upon existing analyses of surveillance systems in

¹³⁶ Omar Jabary Salamanca, "Unplug and Play: Manufacturing Collapse in Gaza," *Human Geography* 4, no. 1 (March 2011): 22–37, <https://doi.org/10.1177/194277861100400103>.

¹³⁷ Helga Tawil-Souri, "Digital Occupation: Gaza's High-Tech Enclosure," *Journal of Palestine Studies* 41, no. 2 (January 1, 2012): 27–43, <https://doi.org/10.1525/jps.2012.XLI.2.27>; Elia Zureik, *Israel's Colonial Project in Palestine: Brutal Pursuit* (London; New York, NY: Routledge, 2015).

¹³⁸ Furthermore, surveillance reinforces the cultural dynamic justifying the containment of the population configured as threat. As argued by Zureik: "Surveillance is based on the gaze of otherness. A key

Palestine, the thesis focuses on its specific deployment as an environmental technology of sensing which is, I argue, co-constitutive of the urban condition in the Occupied territory.¹³⁹

The notion of technologies of containment that I set out to unpack in this study is anchored in the specific and unique conditions of Palestine, and in particular, of the Gaza Strip under blockade. To approach this site as a frontier, nonetheless, means to ask a much more general question: does the radical form of containment technologies manifested in Gaza signal the emergence of a globally applicable model of urbanisation, the specific programme of which would be to contain a “surplus humanity”?

Towards the conclusion of her influential book “The Shock Doctrine”, Naomi Klein writes: “South Africa's Bantustans were essentially work camps, a way to keep African laborers under tight surveillance and control so they would work cheaply in the mines. What Israel has constructed is a system designed to do the opposite: to keep workers from working, a network of open holding pens for millions of people who have been categorized as surplus humanity. Palestinians are not the only people in the world who have been so categorized: ... this discarding of 25 to 60 percent of the population has been the hallmark of the Chicago School crusade... In South Africa, Russia and New Orleans the rich build walls around themselves. Israel has taken this disposal process a step further: it has built walls around the dangerous poor.”¹⁴⁰

The containment of ever-larger populations is necessary to a political-economic system that has long abandoned the prospect of working for everyone and instead pursues an objective of concentration of privilege for a limited portion of its recognised citizenry. The ongoing and accelerating deregulation of the planet’s climate is expected to drastically increase the rate at which capitalism will reduce millions of people to the status of surplus and threat. To a politics of concentration of rights and privilege for the few—which appears to be increasingly dominant across the global political landscape—containment provides a counterpart: the concentration of wrongs and harm on those discarded from the map.

feature of surveillance in colonized regions is its racialization of the native.” Zureik, *Israel's Colonial Project in Palestine*, 95.

¹³⁹ On the notion of environmentality applied to urban technology, see Jennifer Gabrys, “Programming Environments: Environmentality and Citizen Sensing in the Smart City,” *Environment and Planning D: Society and Space* 32, no. 1 (February 2014): 30–48, <https://doi.org/10.1068/d16812>.

¹⁴⁰ Naomi Klein, *The Shock Doctrine: The Rise of Disaster Capitalism* (Knopf Canada, 2009), 442.

In Gaza, the deployment of technologies of containment has become indistinguishable from urbanisation itself. The entire process of territorial organisation of the Strip for the accommodation of a dense population has been entirely subsumed under the logic of containment. Distributed sensing, networked infrastructure, logistical efficacy, and computationally-augmented supervision are all mobilised by the ruling power for the primary purpose of keeping a racialised population out of the country's political sphere, while minimising the space, energy, and resources to be forfeited to this task. By speaking of the blockaded Gaza Strip as a *smart city*, my aim is to make two interrelated claims. First, the blockade of Gaza is not an accidental by-product of a long-failing peace process, but an engineered urban construct designed to run a specific programme of containment. Second, once acknowledged that the material, infrastructural, and computational means deployed in Gaza resemble, to a large extent, the technologies underpinning the seemingly irresistible rise of smart urbanism across the planet, it is critical to pose the following problem: does smart urbanism present an intrinsic disposition to function as a technology of containment? Behind its hazy promises of an optimised urban future, how much of its actual mandate will be to monitor, and to contain, an exploding population of outcasts across a fast-urbanising planet?

Thesis Structure

In order to make the case for a critical interpretation of Gaza as a smart city and, thereby, to pose the problem of containment technologies in relation to the contemporary urban condition, the thesis will proceed as follows.

The first part of the thesis will be dedicated to an expanded critical discussion of the key concepts evoked in this introduction. Formed of three distinct chapters, this part will consolidate the conceptual framework which I mobilise to construct the proposed understanding of technologies of containment.

The first chapter forms a critical review of the literature around the notion of smartness, with a focus on its urban applications. Retracing existing accounts of the origins and current manifestations of the smart city as an urban project, the chapter seeks to identify some of the limits of the existing critique of smart urbanism. Challenging the tendency to reduce the problem of smart urbanism to one of unequal access to the privilege of smartness, I argue that it is

necessary to redirect the critique towards instances of smart urbanism specifically deployed to support programmes of repression, exclusion, or marginalisation of targeted urban populations. In so doing, I argue for an expansion of the frame through which sites of smart urbanism are currently recognised as such, and thereby question some of the prevailing accounts of their defining spatial characteristics. Overall, the chapter lays the ground for an understanding of the Gaza blockade as a particular instance of smart urbanism.

The second chapter digs deeper into the relation between smartness and targeting by retracing a critical genealogy of smart technologies. Focusing on the military history of cybernetics, it outlines how the progressive smartening of the globalised war machine and the concurrent emergence of the urban terrain as the main theatre of military operations have formed the technical and conceptual foundations for the deployment of smartness at urban scale. By bringing this alternative origin story of smart urbanism into focus, my aim is to challenge any neutralising approach to smart urban technologies and to underline their genealogical disposition to support operations of centralised control over networked urban environments.

The third chapter explores the conceptual nexus between security, logistics, and smartness. Through this chapter, I retrace a filiation between these three technological domains around the differential character of the regime of circulation that they are tasked with organising. In so doing, I discuss their bearing upon the emergence of the *urban* as a historically distinct spatial order. I offer a counterpoint to the growing body of critical literature on logistics that, by approaching it as a mere lubricant for the circulation of capital, tends to reduce the realm of logistical operations to those facilitating valued mobilities. Going back to Foucault's conceptualisation of security a technology of power, I underline how it organises a fundamentally differential regime of circulation by acting as much towards the unleashing of certain flows as towards the curbing of others. I further extend this defining character of security to the realm of logistics. To do so, I draw from the Black studies critique of the first globalised logistical apparatus—namely, the Atlantic slave trade—which locates the dialectics of expedition and impediment at the core of the problem of logistics. Through this particular lens, I examine the literature concerning the relation between logistics and contemporary urbanism in order to emphasise the need to integrate urban processes of exclusion and restraint within the same critical frame that explores the integration and acceleration of urban flows. Finally, I refer to an understanding of smart urbanism as an extension of the logistical rationality to the management of every urban process, beyond the strict realm of mobility. In so doing, I complete the delineation

of the critical framework that I will use to depict the blockade of Gaza as a radical example of smart urbanism.

The second part of the thesis dives into the specific case study of Gaza under blockade. Throughout the three following chapters, I use the empirical material gathered throughout my research to examine how technologies of containment are deployed in Gaza at three different yet interrelated scales: residential, territorial, and environmental. In this perspective, I describe how the blockade's overarching programme of containment is executed, at each of these scales, by a particular apparatus. Observing the material, technological, and operational features of these apparatuses enables me to detect, and to question, a series of resonances between Gaza and other sites of smart urbanism around the world.

The fourth chapter focuses on the blockade's *apparatus of targeting*. I take the example of the Gaza Reconstruction Mechanism, a data-driven logistical framework established, in the aftermath of the 2014 Operation Protective Edge, in order to manage and regulate the entry of cement into Gaza. Through a detailed examination of its design and functioning, I demonstrate how this seemingly inoffensive digital interface (officially introduced to enable a faster and smarter processing of administrative procedures) actually constitutes a tremendous upgrade of Israel's capacity to monitor, and to intervene into, the urban and social fabric of the Gaza Strip. In the process, the notion of targeting is mobilised as a conceptual hinge between a number of seemingly very different yet operationally comparable activities undertaken both in the military and the civilian domain. Indeed, the same process of extensive data collection and its centralised processing enables, on the one hand, the delivery of smarter, tailor-made services to everyday users of digital and urban infrastructure; and on the other, the pre-emptive restraint or elimination of any perceived threats to those very systems. The case of Gaza, where an urban-scale real-time control system is openly deployed for the purpose of keeping an enemy territory in a condition of permanent vulnerability, is considered in terms of its structural similarity with the systems meant to usher the world's cities into a bright future of optimised performances. Discourses warning us against the risk of an authoritarian or even deadly derive of ultra-centralised and unaccountable computational systems have become commonplace. The aim of this chapter is to pose the same problem again, this time through the lens of a place like Gaza—where this dystopian scenario has already landed.

Following the analysis of the targeting operations at work in the Gaza blockade, the fifth chapter of the thesis moves the analysis to the territorial scale and proceeds to an examination of

the blockade's *bordering apparatus*. I describe its functioning as a permanent military operation, consisting as much in preventing unmonitored exchanges and flows across the border, such as those channelled through the Gaza tunnels, as it means overseeing the full-spectrum of the logistics that sustain the blockade regime. I argue that the blockade brings about an inversion of the classical relation between logistics and war, whereby war is turned into an instrument for the durable enforcement of a logistical rule. Referring to the uncanny symmetry between, on the one hand, the territorial configuration and bordering infrastructure of Gaza, and on the other, that of the many logistical zones dotting and connecting the global urban fabric, I propose to consider Gaza as a *zone in reverse*. I thereby highlight how the same architecture can be tasked with two seemingly opposite operations: lubricating worthy mobilities or impeding unworthy one. Alternatively, a tightly controlled bordering apparatus such as Gaza's may be read as pursuing a single objective: that of enabling a differential management of circulations. In that sense, the territorial configuration and urban architecture of the Gaza Strip can be understood as an "active form"¹⁴¹ of security, designed to enable the permanent and thorough control of circulations according to their value from the perspective of a (colonial) sovereign.

The question of the environment is the focus of the sixth and final chapter. Its main object of study is the *apparatus of resilience* at work in Gaza to both monitor and contain a sprawling environmental crisis. I begin by a discussion of the concept of resilience, from its emergence as a property of ecological systems to its subsequent global application in a broad range of policy-related fields. In so doing, my aim is to examine a critical shift: when the discourses and techniques of power leave the domain of sustainability behind in order to enter the realm of resilience. I further argue that the Gaza frontier is a site where the doctrine of resilience is put into action in one of its most drastic forms and, as such, reveals its most radical character. In turn, the case of Gaza enables to shed light on the link between smartness and resilience: the former constituting the default infrastructure mobilised to produce the latter. The chapter thus aims at delineating an understanding of containment on a temporal axis, whereby smartness constitutes, I argue, an essentially conservative rationality.

To complement the theoretical argumentation developed throughout these six chapters, the thesis also includes a series of *intercalations* pertaining to my practice. The study of the Gaza

141 Keller Easterling, "We Will Be Making Active Form," *Architectural Design* 82, no. 5 (2012): 58–63, <https://doi.org/10.1002/ad.1461>.

blockade that I am presenting here is the result of a practice-based research methodology: it derives from my long-term involvement in the collective project Forensic Architecture, in the context of which I have gained access to much of the research material, interlocutors, and perspectives that I elaborate upon in the thesis; and it is further informed by other experiences of independent and collaborative practice which I have pursued in recent years, in relation to the occupation of Palestine and of Gaza in particular. A first intercalation, placed after this introduction, discusses the *counter-forensics* method that has largely influenced my research, as well as the particular position that I am occupying as a researcher conducting a study *at a distance*. Three more intercalations document the specific projects that have most directly informed each of the three chapters that compose the second, empirically-based part of the thesis; they are placed before the theoretical argumentation developed in the chapters, so as to reflect the way in which these experiences have guided my argument.

To conclude the thesis, I turn to the mass demonstrations that have been taking place in Gaza, along the separation fence, every Friday since the 30th of March 2018. The response from Israel's security forces has been to shoot thousands of unarmed protesters with live ammunition, leaving hundreds of them crippled for life. In this short postscript, I offer some reflections on this process of targeted debilitation of Palestinian bodies, coupled with the relentless operation of brutal restraint of the Gaza population and territory as a whole. In an attempt to summarise my argument, I explore how this recurrent confrontation along a militarised border bears upon the conceptual account of technologies of containment which I outline throughout the thesis.

In Gaza, I have tried to uncover a vision of the dark urban future that is likely to spread across numerous other sites around the planet—if the currently dominant model of smart urbanism is allowed to pursue its intrinsic programme of differential optimisation. What is happening in Gaza today is an extreme manifestation of a globally diffuse rationality of power which, faced with an increasingly unsustainable ruling condition, organises the dynamic containment of one population for the purpose of maintaining the privilege of another. The blockade of Gaza thus forms a diagram of the spatio-political order which, as noted by Naomi Klein over a decade ago, is quickly consolidating around the world: where “one part looks like Israel; the other part looks like Gaza.”¹⁴² With this study, I wish to demonstrate that, far from

142 Klein, *The Shock Doctrine*, 558.

constituting a viable response to the systemic crises of urban environments, the pursuit of the current model of smart urbanism may actually reinforce the segregative and exploitative dynamics that have produced a crisis of planetary-scale in the first place. In depicting the Gaza Strip as an extremely smart city, my goal is to relocate it at the centre of any questioning around the future of the urban condition. With this thesis, my hope is that the critique of a global model of urbanism predicated on the efficient and durable marginalisation of an ever-larger proportion of the world's population may itself contribute, at its humble scale, to the struggle for a free Palestine.

Intercalation 1: Counter-Forensics

I have never been to Gaza. Or rather, I was never allowed into Gaza. From the day it entered into force, not only did the blockade indefinitely trap all Palestinians that found themselves within Gaza's territorial boundaries at that time, but also, it made access to the Strip virtually impossible to anyone on the other side. As far as foreign nationals are concerned, the only three routes available to be allowed into Gaza from Israel are: as a member of a diplomatic delegation; as personnel of a humanitarian organisation operating inside Gaza; or as an accredited press reporter explicitly appointed by a news organisation with a large enough print run. In all cases, a special permit must be obtained from the Israeli authorities and presented to the personnel of the Coordination of the Government Activities in the Territories (COGAT) who guard the Erez terminal, the only partially open, pedestrian-only crossing with Gaza.

As I started my doctoral research, one of my main concerns was to find a way in. Unsurprisingly for someone who has never worked as a journalist, my different attempts at securing an official commission to report from Gaza from a news outlet recognised by Israel remained unsuccessful; and the humanitarian route proved as impracticable as the diplomatic one. Besides, my public affiliation with human rights advocacy groups such as Amnesty International, B'Tselem, the Palestinian Centre for Human Rights, Al-Mezan, Gisha, and most directly, Forensic Architecture—all of which can be traced by simply Googling my name—made me an unlikely candidate to be delivered a permit into Gaza by the Israeli authorities. Given that I am now regularly stopped and questioned by the Israeli border police when landing at or leaving from Ben Gurion airport, I suspect that my name has already ended on a list of not-so-welcome visitors to Israel. As long as the current regime of ultra-restricted access and exit remains in place in Gaza, it is unlikely that I could ever enter it through an official route.

This problem worried me deeply throughout the first year of this project. Under the influence of a long anthropological tradition, research in what may be termed the spatial humanities—architecture, urban studies, geography—tends to give much importance to fieldwork understood as a physical, phenomenological experience of the places and phenomena under scrutiny. Somewhat instinctively, I began this project convinced that fieldwork inside Gaza was a crucial condition for the validity of my research; and as time went by without a breakthrough in sight, I was growing more anxious about the entire

project. With hindsight, I could say that this research truly started when I stopped worrying about the question of my physical access: namely, when I realised that my research object was not so much the territory on the other side of the Gaza border, but the border itself.

At Forensic Architecture, most of our work consists in examining media. The careful architectural analyses, the meticulous reconstructions of scenes of violence, the detailed plotting of events in time and in space, or the interpretation of spatial evidence that we produce in the frame of our investigative practice are essentially based on digital media documents that have captured, intentionally or not, information about the situation under investigation. Considering that many of these situations are located in zones of war or otherwise violent conflict, it is rare that we get to physically inspect the locations that we map and visualise. Yet, it could be argued that our investigations are nonetheless based on *fieldwork*. From the scraping of data from social networks to the querying of satellite imagery archives, the collection of our investigative material involves the painstaking exploration of a vast field of digital matter. In search for clues that could push a case forward, we further proceed to the scrupulous inspection of each of the visual or sound fragments that we can get hold of; these digital documents thereby turn into actual sites of survey—a process that we have at times referred to as an “archaeology of pixels.”¹¹

Behind this practice is an affirmation of not only the materiality, but also the truth value of media. That truth value lies at times beyond its representational dimension, beyond the question of its accurate depiction of a reality on the ground—whereby media would only function as an interface of access to the real. Instead, the truth of media can reside in the very information it carries about how it was produced—sometimes referred to, in a narrow sense of the term, as the *meta-data*. How an image was shot, under what conditions was the ‘rec’ button pressed and pressed again to stop, which compression was used to hastily smuggle a file out of an area with an unreliable internet connection, or how degraded the resolution of the commercially available version of a satellite image is compared to the one available to a State military, are all questions whose responses carry crucial information about the circumstances of an event or phenomenon. As vividly demonstrated in the work of media artist and scholar Susan Schuppli, the degradation of the media traces of an event can also add information about the historical, political, or environmental context in which the event has been resonating ever since it took place.¹²

¹¹ Forensic Architecture, “About”, accessed 31 August 2019, <https://archive.forensic-architecture.org/project/>

¹² Susan Schuppli, *Material Witness: Media, Forensics, Evidence* (MIT Press, 2020).

Linking this point to Ariella Azoulay's argument about the "missing image" as the true image of a violent or traumatic event,¹³ it could be argued that the blockade of Gaza is also registered in the very limitation that it generates on access and availability of data.

My own encounter with Gaza is a direct result of my practice at Forensic Architecture. Much of my knowledge of the Strip's geography and urban terrain, as well as of the techniques of diffuse warfare deployed there by the Israeli security forces—in other words, the background knowledge that forms the basis of this thesis—is derived from my investigative work on the recurrent wars in Gaza. As such, it is largely shaped by a condition of limited access and constrained media. The cases and reports documented in the following pages of this intercalation will clearly illustrate this point.

Throughout the years of my work at Forensic Architecture, I have contributed to develop a research methodology that largely revolves around the question of bypassing constraints on access and data. Collectively, we have explored how to turn these constraints into an opportunity to decipher, and to expose, the power relations that are at work in different media regimes. With the shift of scale initiated through my doctoral research—from the investigation of localised incidents in Gaza, to the study of the blockade as the structural condition within which they take place—the friction that defines my relation to this urban territory has turned into primary research material. Much of the story that I am telling about the blockade as a smart apparatus of urban containment is crystallised in the chopped up, robotic voices of my Whatsapp interlocutors in Gaza, in the brevity of the email responses I received from the overwhelmed personnel of the humanitarian complex on site, or in my consistent, immediate interceptions by Israeli security forces every time I have merely approached the perimeter of the Gaza strip with a camera.

Coming to terms with such particular site conditions didn't only lead me to reclaim the research constraints I encountered as part of my methodology; it also made me aware of my own position, as a researcher, within this colonial conflict. The only perspective from which I am able to look at the Gaza frontier is from the side of the coloniser. What I have really been examining over those years is not Gaza under blockade, but *the blockade over Gaza*; in other words, my specific research object is the particular form of colonial occupation that Israel has deployed over Gaza, the distributed system of regulation and control that it manages, in this case, remotely. In this conceptual framework, the

13 Ariella Azoulay, *Death's Showcase: The Power of Image in Contemporary Democracy* (MIT Press, 2003).

border between Israel and Gaza appears as the central technology of this system—a border understood as a thick apparatus cutting through the entire urban and social fabric of the Gaza Strip. Throughout this research, I have approached the Israel/Gaza border not only as a *media* that channels and regulates flows, but also as a *method* to critically examine its operations.²⁴

In this position of remote, highly-mediated research, the means at my disposal to examine the blockade over Gaza are not entirely dissimilar to the ones used by Israel to enforce it—even though they are incomparably more limited in scope and resolution. Helga Tawil-Souri's essential work on Gaza's "digital occupation," which I am very much in dialogue with throughout this thesis, provides important details about the extent to which Gaza's telecommunication infrastructure is under Israeli control.²⁵ Through Tawil-Souri's account, it also appears clearly that such material control over the routers and switches of communication networks constitutes an essential dimension of the blockade itself. Under this light, I came to regard my own work—examining satellite imagery, sifting through social media posts and footage, analysing reports and statistical data produced by the humanitarian complex on site, among other activities—as a work of interception. By intercepting communications across the diffuse border of Gaza, my research tracks the signals and traces left in a complex media sphere that forms not the background, but the dominant instrument of the power structure under analysis.

As such, my research remains firmly anchored in the condition characteristic of all of our work at Forensic Architecture—which Eyal Weizman has described as one of *counter-forensics*. If forensics is the use of science and technology to enhance the policing gaze of the State, as a means to detect anomalous behaviour among his subjects and to enforce a particular regime of power; then counter-forensics inverts this forensic gaze: it consists, essentially, in re-using much of the same tools employed by States for surveillance and control purposes to, this time, investigate the very power structure that relies on this insistent gazing. Nonetheless, counter-forensics are characterised by a deep asymmetry: when probing state crimes, the resolution of the vision available to citizens-investigators is much lower than the one available to the perpetrators. In this "politics of resolution,"²⁶ the main strategy to compensate for this asymmetry in the *depth* of vision, is to expand

24 "The border is the methodological viewpoint that allows us [...] to describe the very production of the deep heterogeneity of global space and time." Sandro Mezzadra and Brett Neilson, *Border as Method, or, the Multiplication of Labor* (Durham: Duke University Press Books, 2013).

25 Tawil-Souri, "Digital Occupation."

26 Laura Kurgan, *Close Up at a Distance: Mapping, Technology, and Politics* (MIT Press, 2013).

its *field*: multiplying the viewpoints, linking and cross-referencing them, connecting the dots within a multiplicity of minute traces, identifying and exposing patterns, from which a *reassembled* account of power can emerge. I have attempted to apply an expanded counter-forensics method to this specific project. By reading into different traces and facets of the regime of power exerted by Israel over Gaza, I have aimed to expose smartness as the overarching operational logic of the Gaza blockade.

Beyond the methodological challenges that it poses, my research position in this project is also problematic in ethical and political terms. Indeed, I regularly state that I use Gaza as prism to critically examine processes and trends that are diffused across the global urban condition. While this de-exceptionalising approach to Gaza is motivated by an intention to de-isolate it, including in the field of theory, the perspective I have adopted also entails that I don't *focus* on Gaza. Neither the specificity of the historical struggle of which it has long been the frontline, nor the unique suffering of its people feature prominently in my research. "Using" Gaza, even if only in theoretical terms, is an approach that may further add to its exploitation and to the violence it is subjected to. Furthermore, my position also means that I only have limited access to the perspective of *resistance*: to the point of view and to the practices of those that are living under this regime of power. In the frame of a research project which is essentially grounded on a Foucauldian understanding of power, it is crucial to reaffirm, with Foucault, that "resistance comes first:"²⁷ it is above all the unyielding refusal of subjects to surrender to their oppression that forces power to constantly reconfigure itself into evermore advanced technological forms. Among the knottiest problems of my approach—which, like the majority of the research on the occupation of Palestine, is almost solely conducted from the Israeli side—is the risk of idealising colonial power, of constructing a discourse within which such power appears as perfect, overwhelming, capable of neutralising any opposite forces. That, in turn, may further foreclose the much-needed political imagination of a way out.²⁸

I do not have a definitive response to this problem; to a large extent, it is the tension that it generates which constitutes the driving force of this entire research project. Yet I

27 Michel Foucault, "Space, Knowledge, and Power: Interview with Paul Rabinow," in *The Foucault Reader*, ed. Paul Rabinow (New York, NY: Pantheon Books, 1984).

28 On this point, I am particularly grateful to Omar Jabary Salamanca and to Jasbir K. Puar. Through their respective feedback, they both pointed to this tension in my research approach and encouraged me to address it explicitly.

wish to conclude this methodological note with an outline of the practical reasoning that has underpinned my choice to adopt, and to stand by, the abovementioned research position.

I am in no position to *help* Gaza and its people. I categorically refuse the metaphor of ‘extending a helping hand’ as a conceptual frame within which to inscribe my work. The politics of Western help towards the world it had long ruled over as a colonial master—be it in the form of aid or development—have amply demonstrated to form a key branch of the renewed model of durable exploitation that the West has been exporting across the planet under the name of globalization. Such problems cut to the heart of the collective reflexion that the Centre for Research Architecture was established to facilitate. Throughout my years of study and work there, I had a number of opportunities to conceptually confront the paradox of humanitarianism: whereby humanitarian action may become complicit of the worst forms of violence by providing a logistical armature to maintain a population in a durably marginalised and vulnerable condition.²⁹ While the thesis dedicates ample room to discuss and expose the problematic role of the humanitarian complex at work in Gaza, my work is also motivated by a search for an alternative model of solidarity—one that would not immediately translate itself into an inescapable complicity with the oppressing power.

Be it in the West Bank, in Israel, or abroad, every Palestinian person I have had the opportunity to talk to seemed to agree on a least one point: the key to the resolution of this enduring conflict is not in Israel or Palestine, but with the broader international community. In the same way as the conflict crystallised, at the time of its outbreak in 1948, a set of tectonic shifts in the order of the world, today only a significant realignment of geopolitical forces could produce a lasting peace between the Mediterranean and the Jordan river. Through the investigations of numerous cases in the West Bank and in Gaza, our approach at Forensic Architecture has been to expose Israel’s colonial violence both within the country’s territorial confines and on an international level, with a view to raise public awareness towards the grim reality of the occupation of Palestine and to support the international call to bring it to an end. Yet the project’s perspective has always been wider than the particular situation in Israel and Palestine, which it recognises as one instance, among a staggering number of others around the world, of widescale human rights violations against an “othered” population.³⁰

²⁹ David Rieff, *A Bed for the Night: Humanitarianism in Crisis* (Simon and Schuster, 2003); Eyal Weizman, *The Least of All Possible Evils: Humanitarian Violence from Arendt to Gaza* (Verso Books, 2011).

³⁰ Edward W. Said, *Orientalism* (New York, NY: Pantheon Books, 1978).

White Phosphorus

URL	https://forensic-architecture.org/investigation/white-phosphorus-in-urban-environments
Project type	Interactive report
Date of release	12/11/2012
Collaborators	Forensic Architecture, SITU Research, Yesh Gvul, Michael Sfard
Role	Project Coordinator

In 2012, I coordinated a report on Israel’s use of white phosphorous munitions in urban environments during Operation Cast Lead in Gaza (2008-09). In response to the numerous reports of horrific deaths and injuries caused by this incendiary agent, a coalition of human rights groups filed a petition to Israel’s Supreme Court demanding the ban of white phosphorus munitions from the arsenal of the Israeli army. Forensic Architecture was commissioned by this coalition to produce a report on the effects of such munitions when used in densely populated urban environments, with a view to quantify the deadly threat that they posed to civilians.

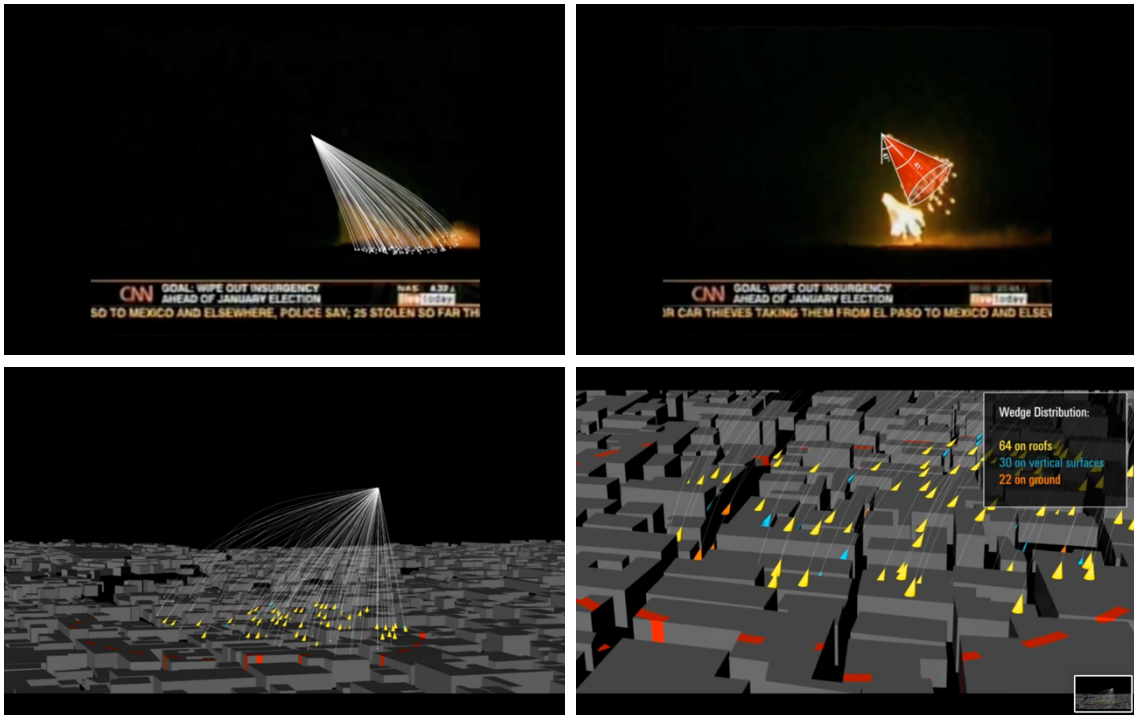
While we were able to retrieve, in the public domain, a general field artillery manual about the projectile used by the Israeli army, actual ballistic data remained, unsurprisingly, classified. To bypass this problem, we used video and still footage from the news reports that captured the Israeli army’s repeated use of white phosphorus munitions over Gaza. Due to Israel’s barring of access to the Strip to all international journalists during Cast Lead, virtually all the available footage had been shot from afar, out of the few spots along the fence where reporters and press crews were tolerated. Nevertheless, using the urban structures in the image frames as measuring tools, we were able to reverse-engineer the behaviour of the projectile and produce detailed estimations of its impact area. The latter clearly demonstrated that such use of white phosphorus munitions turned them into an indiscriminate, therefore illegal weapon. Arguably, our report was instrumental in triggering the decision of the Israeli military, made public on 25 April 2013, to withdraw white phosphorus munitions from its arsenal. Shortly after that declaration, a senior Israeli military commander commented that “white phosphorus doesn’t photograph well.”



Israeli white phosphorus munitions strike a UN school, 17 Jan 2009 (Mohammed Abed/AFP/Getty Images)



'Height of burst' calculations over an image of Rafah, Gaza (Iyad El Baba/UNICEF/Forensic Architecture)



3D simulation of the behavior of the M825 WP projectile, reverse-engineered from footage of its use in Gaza and Fallujah. The results of the simulation were used to measure the urban impact of the projectile.



The author presenting, on behalf of Forensic Architecture, the White Phosphorus report in the UN Office at Geneva, 12 November 2012.

Knock-on-Roof

URL	https://forensic-architecture.org/investigation/knock-on-the-roof-drone-strike-in-beit-lahiya
Project type	Interactive report
Date of release	11/03/2014
Collaborators	Forensic Architecture, SITU Research, Al Mezan Center for Human Rights, Reprieve, Al-Jazeera English
Role	Researcher

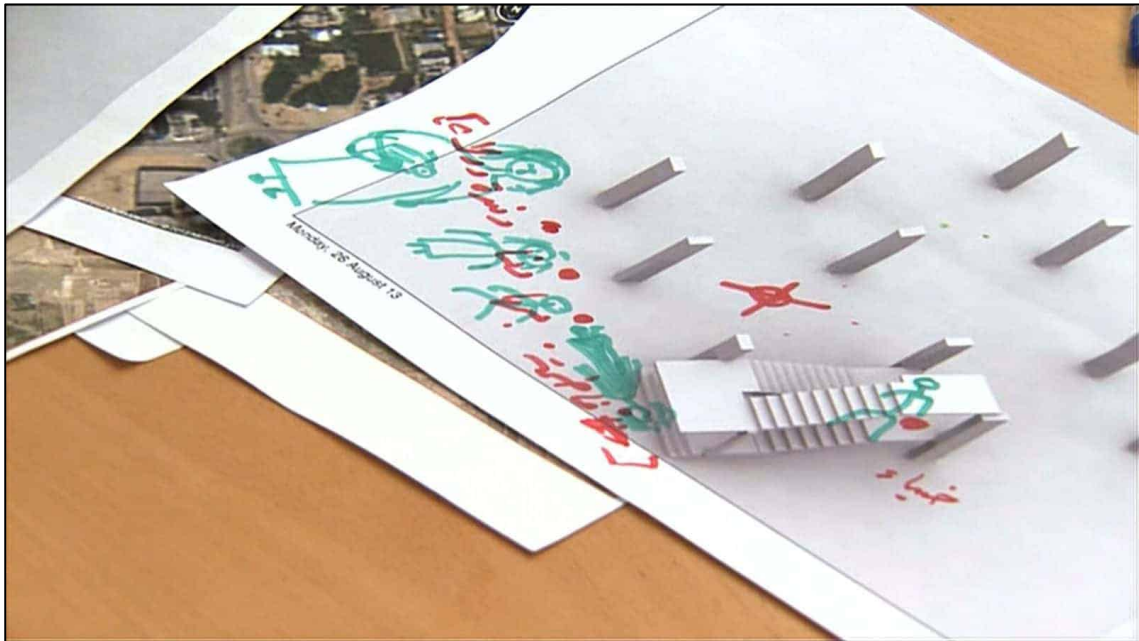
In 2013, as part of a global investigation on the legality of drone strikes by the UN Special Rapporteur on Counter Terrorism and Human Rights, Forensic Architecture analysed a specific drone strike that took place on January 9, 2009, on the Salha family home in Beit Lahiya, Northern Gaza—as a result of which six people were killed, all women and children. Our analysis helped bringing public attention to the “knock-on-roof” technique used by the Israeli military, namely: the firing of a first, non-explosive guided missile on buildings about to be bombed, as a means to “warn” any occupants of the building—leaving them between a few seconds and a few minutes to evacuate.

The warning strike policy was devised by Israeli military lawyers, and is an example of an alarming practice: the use of international humanitarian law as a strategic instrument. Once a warning is delivered, the policy argues, civilians have a choice: leave, or stay (and face the risk of being killed). In this way, warning strikes legitimise the bombing of residential neighbourhoods by shifting the responsibility for civilian deaths onto the civilians themselves.

Using local news footage of the destroyed structure in the immediate aftermath of the strike, the site survey report of an international munitions expert, and working closely with two survivors of the Salha family, we reconstructed, in an animated 3D model, the circumstances that led to the killing of six family members—as they were rushing to leave their house in the middle of the night. On October 25, 2013, our findings were presented by the Special Rapporteur in the UN General Headquarters in New York, as part of his office’s interim report to the United Nations.



Researchers Susan Schuppli, Eyal Weizman, and the author speaking with the Salha family via video link, in the London offices of Al Jazeera. In this image, I am navigating a 3D model of the Salha family house, while survivors of the strike Fayeze and Nour Salha recount details about the position of family members in the short time-frame between the first non-explosive hit and the bombing of the house (Forensic Architecture)



Fayeze and Nour Salha indicate where the bodies of their family members were found following the strike. (Forensic Architecture)

Part I

Smartness Unbound

It is a world where we not only think of cities, but cities think of us.

—Mike Crang and Stephen Graham

The globe is on our computers. No one lives there. It allows us to think that we aim to control it. The planet is in the species of alterity, belonging to another system; and yet we inhabit it, on loan.

—Gayatri Chakravorty Spivak

Test-Beds

If one were to make a list of the most successful branding concepts of the past decade, that list would necessarily include the “smart city.” While the term has only been in circulation since the mid-2000s, the smart city has rapidly turned into a global urban phenomenon, with virtually every major city around the world now *going smart* in some way or another.¹ Major business consultancies estimate that the smart city market is expected to reach \$3 trillion by 2025—thereby exceeding the size of all traditional business sectors.² If, according to some emerging standards of evaluation, the smartest cities tend to be concentrated in Europe and North America,³ the trend is far from limited to the urban cores of the Global North: China is currently implementing a smart city program of unprecedented scale in 500 cities across the entire country; India is following closely, with a government-led Smart Cities Mission concerning 100

¹ “Smart City Tracker 2Q19 Highlights 443 Projects Spanning 286 Cities Around the World”, Navigant Research, Accessed 31 August 2019, <https://www.navigantresearch.com/news-and-views/smart-city-tracker-2q19-highlights-443-projects-spanning-286-cities-around-the-world>

² Francesca Bria and Evgeny Morozov, “Rethinking the Smart City: Democratizing Urban Technology” (New York: Rosa Luxembourg Stiftung, 2018).

³ Andrea Caragliu, Chiara Del Bo, and Peter Nijkamp, “Smart Cities in Europe,” *Journal of Urban Technology* 18, no. 2 (April 1, 2011): 65–82, <https://doi.org/10.1080/10630732.2011.601117>.

cities for a total urban population of 100 million; and a considerable number of smart city experiments are currently pushed forward in Africa and South America.⁴ In light of the “global success”⁵ of the smart city model and of the growing scale of its impact on the ground, it seems necessary to examine the urban and material implications of such a prevalent buzzword.

Contemporary smart urbanism is commonly understood as drawing its roots in two distinct precursors. On the one hand, it would derive from the urban planning notion of “smart growth,” which emerged in the US during the 1990s as an alternative model to the sprawling, car-centric urbanism of the preceding decades. In contrast, smart growth advocates for a compact and resource-efficient model of urban development intended to raise the economic profile of a city or neighbourhood. In line with the rise of a neoliberal model of urban entrepreneurship, the notion of smart growth is also central to the New Urbanism current of the 1990s, and the Creative City current of the 2000s. While information, computing, and telecommunication (ICT) infrastructure often plays an important role in smart growth initiatives and its many spinoffs, “smart” here has more of an economic connotation than a technological one, by describing, primarily, an efficient and profitable management of resources. On the other hand, smart urbanism also builds upon a number of experiments in “cybernetic urbanism”, developed from the 1980s onwards, around the integration of ICT infrastructure within the very fabric of cities. The “wired city,” the “cybercity,” the “digital city,” or “the intelligent city,” are as many urban concepts that place the meshing of the city with digital infrastructure at the heart of a vision of enhanced urban performance. Contemporary developments of this vision also tend to be called smart cities—with, this time, the term “smart” referring more directly to the technological infrastructure deployed in such schemes.⁶ Nonetheless, while smart cities can have two accents—one economic, the other technological—it is precisely around their articulation that the driving principle of smart urbanism can be located: namely, that the augmentation of urban infrastructure with networked computation is the key to improve the efficiency and performance of an urban system.

4 Colin McFarlane and Ola Söderström, “On Alternative Smart Cities: From a Technology-Intensive to a Knowledge-Intensive Smart Urbanism,” *City* 21, no. 3–4 (July 4, 2017): 312–28, <https://doi.org/10.1080/13604813.2017.1327166>.

5 Antoine Picon, *Smart Cities: A Spatialised Intelligence*, AD Primers. (John Wiley & Sons Inc, 2015).

6 Rob Kitchin, “Making Sense of Smart Cities: Addressing Present Shortcomings,” *Cambridge Journal of Regions, Economy and Society* 8, no. 1 (March 2015): 131–36, <https://doi.org/10.1093/cjres/rsu027>.

It only took a handful of prototypical and highly mediatized projects to turn the application of smartness at urban scale from a near science-fictional curiosity to a globally recognized urban paradigm. Among the first of such prototypes is Singapore’s “Intelligent Island” program, initiated in the late 1990s, which sets an important precedent for smart urbanism in as much as it manifests an integrated approach to the smartening of the technical, economic, and socio-political infrastructure of the whole city-state.⁷ From the mid-2000s onwards, two large-scale experimental urban ventures, both of them built from scratch, have emerged as reference examples of smart urbanism.

Initiated in 2006 in the United Arab Emirates, Masdar City promised to be a global hub for sustainable technology and the first large city to achieve full carbon neutrality; neither the master plan designed by Foster & Partners, nor the massive amounts of seed capital provided by the Government of Abu Dhabi, were able to deliver on that promise: with less than 7% of the original six square kilometer area of the city developed to this day, and only about a 1,000 permanent residents, Masdar is unlikely to ever be completed—and was recently dubbed the “world’s first green ghost town.”⁸

Seven thousand kilometers to the East, in the distant periphery of Seoul in South Korea, another planned city of six square kilometers has been under construction since 2003, this time on reclaimed land, under the name of Songdo International Business District; boasting comparable sustainability credentials and offering a built-in, state-of-the-art digital infrastructure developed in partnership with Cisco Systems, Songdo can be said to have encountered a greater success than its counterpart in the Arabian desert: as of 2018, it counted around 100,000 residents. Yet that figure is only a third of the envisioned population of the city, while images of the eerie urban landscapes of Songdo have quickly turned into postcards of smart urbanism’s hazy promises.

7 Kenneth Tay, “Intelligence Island: Smart Nation and its Liquid Futures”. *SoFar* Issue 1: Smart Cities (2019), accessed 31 August 2019, <https://www.so-far.online/issue-01-smart-cities/intelligent-island-smart-nation-and-its-liquid-futures>

8 Suzanne Goldenberg, “Masdar's zero-carbon dream could become world’s first green ghost town”, *The Guardian*, 16 February 2016, accessed 31 August 2019, <https://www.theguardian.com/environment/2016/feb/16/masdars-zero-carbon-dream-could-become-worlds-first-green-ghost-town>

In spite of the gap between the original vision and the reality on the ground more than a decade after these two projects were initiated, neither Songdo nor Masdar can be said to have completely failed: essentially, both of them were developed as a “platform,” as a “test-bed for new ‘smart city’ technologies and solutions.”⁹ For this reason, it is rather against the parallel, global diffusion of the urban paradigm of smartness that the achievements of these two experiments should be assessed.



Fig. 5—Rendered aerial view of Masdar Smart City, United Arab Emirates (Foster & Partners, 2008)

Data-Driven Urbanism

The worldwide circulation of the term “smart city” was boosted in 2010 by IBM’s first Smarter Cities challenge: an open competition among cities from all over the world for \$50 million worth of technology and consultancy services from the IT giant, as part of its wider Smarter

⁹ The quote is from Stan Gale, CEO of Songdo’s lead development company Gale International. See Linda Poon, “Sleepy in Songdo, Korea’s Smartest City”, CityLab, 22 June 2018, accessed 31 August 2019, <https://www.citylab.com/life/2018/06/sleepy-in-songdo-koreas-smartest-city/561374/>.

Planet campaign. Marking a shift from *greenfield* (built from scratch) to *brownfield* (upgrading and retrofitting) projects as the predominant vector of development of smart urbanism, the Smarter Cities challenge also inaugurated a change of scale: no longer confined to specifically-established urban laboratories, from then on, the target site of smartness extended to the global urban fabric. Running yearly since 2010, the program has resulted in over 132 cities receiving grants to get smarter. IBM's offer of big data analytics and cloud computing technology to cities is explicitly framed as a means to "tackle growing challenges" pertaining to global processes, such as climate change and migration, in a rapidly urbanizing world.¹⁰

As a number of scholars have argued, over the past decade the process of "corporate storytelling" around the smart city concept has greatly contributed to the establishment of smartness as the default solution to chronic urban maladies and structural challenges in urban discourse and policy worldwide.¹² Federal institutions such as the European Commission or the US Department of Transport soon copied the corporate initiatives, offering competitive funding schemes for cities to implement smart city programs. Ratified at the Habitat III conference in Quito in 2016, the New Urban Agenda—which sets the official urban policy of all states in the UN General Assembly for the next twenty years—explicitly states a global commitment to "adopting a smart-city approach."¹³

Besides savvy branding and communication campaigns by its corporate providers, the key factors driving the on-going worldwide diffusion of smart urbanism can be regrouped under three labels: finance, environment, security (in no particular order). Among the lesser discussed incentives to the adoption of smart city programs by municipalities around the world is the system of rankings of cities by credit-rating agencies: today, a low 'smartness' ranking may negatively affect a city's borrowing cost; for increasingly cash-strapped cities facing a global program of neoliberal austerity, this can be a good enough reason to start a smart city program. As

¹⁰ "Smarter Cities Challenge Aims to Make Lasting Urban Improvements," Cloud computing news, February 17, 2017, <https://www.ibm.com/blogs/cloud-computing/2017/02/17/smarter-cities-challenge-improvements/>.

¹² Ola Söderström, Till Paasche, and Francisco Klauser, "Smart Cities as Corporate Storytelling," *City*, June 11, 2014, <https://www.tandfonline.com/doi/pdf/10.1080/13604813.2014.906716>.

¹³ Habitat III Secretariat, "New Urban Agenda" (United Nations, 2017), <http://habitat3.org/wp-content/uploads/NUA-English.pdf>.

a direct continuation of the “smart growth” doctrine, one of the current functions of smart urbanism can be understood as that of optimizing cities for a financialized model of urban development.¹⁴

A more public-facing argument for the adoption and implementation of smart city programs is the pursuit of sustainability, through a range of policies and technological fixes aiming to reduce energy consumption and to improve resource efficiency across all urban activities. While failing to rise to the actual challenge of climate change, smart urbanism promises to make cities *greener* nonetheless which, so far, has tended to pass as an acceptable urban response to the global environmental crisis.¹⁵

Finally, the rise of smart urbanism cannot be detached from another crucial element of context, namely the growing concern for urban security in the frame of the War on Terror. In a post 9/11 world where cities began to be perceived as threat environments to be permanently monitored and surveilled, smart urbanism offered, again, a technical solution: covering cities with sensors—such as CCTV cameras or card readers—and capturing their data feed into big data analytics platforms under the supervision of a sprawling security apparatus. In the global rise of smart urbanism, the importance of the security factor cannot be overstated—a point which the thesis will regularly return to.

It could be argued, furthermore, that the advent and widescale diffusion of smartphones turned every city into a smart city. With over 3.6 billion smartphones in circulation today, urban environments all around the world are already teeming with networked sensors and controllers, regardless of the ones set up by any dedicated smart city programme; what is more, through the development of location intelligence, each of these handheld devices functions as an interface between an urban system and its multitude of users. Major contributors to the present condition of “ubiquitous computing,” smartphones constitute a key infrastructure of smart urbanism.¹⁶ The ongoing growth of an Internet of Things (IoT), with an estimate of 31 billion connected

14 Bria and Morozov, “Rethinking the Smart City: Democratizing Urban Technology.”

15 James Evans et al., “Smart and Sustainable Cities? Pipedreams, Practicalities and Possibilities,” *Local Environment* 24, no. 7 (July 3, 2019): 557–64, <https://doi.org/10.1080/13549839.2019.1624701>.

16 Adam Greenfield, *Everyware: The Dawning Age of Ubiquitous Computing*, 1 edition (Berkeley, CA: New Riders, 2006).

devices worldwide in 2018, already forms a vast extension of that global network of sensors and actuators.

As a result of the seemingly irresistible penetration of computation into every domain of human activity, we are witnessing a staggering growth of the overall production of data around the world. The idea of *harnessing the power of data* is central to the rhetoric promoting smart urbanism to its various actors, both in the public and the private sector. Today, the deployment of an infrastructure that captures and processes vast amounts of real-time data is commonly accepted as a necessary condition for a faster, more accurate, and more responsive mode of management of urban processes—from transport to security, from public services to policy making. At the same, the exponential growth of urban data itself lays the ground for the rise of a data-driven, managerial approach to the urban question. In its 2012 address to city leaders, IBM clearly expressed its call to “moving beyond policy-based decisions to reshape cities with insights gained from data.”¹⁷ The formula is rather mild for a proposal that actually implies nothing less than the abolishment of urban planning, in its suggested jump from data to action without the intermediary of policy.¹⁸

Beyond Smart Privilege

In quantitative terms, most of the literature on smart urbanism does not concern itself with questioning the value of applying smartness at urban scale. The benefits of such project tend to be considered so obvious that they don’t deserve to be discussed. Mainstream research around smart urbanism thus tends to focus on solving technical problems, outlining strategies of implementation, establishing best practices and guidelines for a range of different actors, or analysing trends and forecasts; taken together, it appears to be driven by the circular question: *how to do smartness smartly?*

Although it is far from constituting a dominant discourse, a substantial amount of critical literature around smart urbanism has nonetheless emerged over the past decade. Within it, a

17 Alberto Vanolo, “Smartmentality: The Smart City as Disciplinary Strategy,” *Urban Studies* 51, no. 5 (April 2014): 883–98, <https://doi.org/10.1177/0042098013494427>.

18 The argument about a replacement of urban planning by data-driven monitoring practices is further developed in Chapter 4.

number of recurrent themes of critique can be identified. Those include: the technocratic model of governance embedded in smart urbanism, particularly its focus on problem-solving and quick fixes that leave untouched the structural conditions within which it is deployed; the corporatization of urban governance, with the key role played by IT companies and private developers in setting up and maintaining the very instruments by which cities have begun to be governed; issues of surveillance and profiling of the population of smart urban environments; the lack of public transparency and participation that tends to characterise the implementation of smart city programmes; or the framing of smart urbanism as an instrument of neoliberalism, supporting a market-driven and competitive model of urban development.¹⁹

Understood as a key consequence of such issues, the broader theme that can be found at the centre of the current critique of smart urbanism is that of its role in widening urban inequalities. It is also around this problem that the said critique may begin to reveal some of its limits. Indeed, a number of leading authors in the field appear to converge around an understanding of the smart city as a space of privilege: whether concentrated in delimited areas or diffused around the wider urban fabric of a city, examples of smart urbanism tend to be primarily examined in terms of the benefits they are meant to produce for the population that can afford them or that is considered worthy of them. It follows from this that the role of smart urbanism in widening inequalities is frequently framed as a problem of “deep divides between those with access to ‘smart’ and those without.”²⁰ Indisputably, there are many examples of smart urbanism around

19 Robert G. Hollands, “Will the Real Smart City Please Stand up?: Intelligent, Progressive or Entrepreneurial?,” *City* 12, no. 3 (December 2008): 303–20, <https://doi.org/10.1080/13604810802479126>; Adam Greenfield, *Against the Smart City*, 1.3 edition (Do projects, 2013); Rob Kitchin, “The Real-Time City? Big Data and Smart Urbanism,” *GeoJournal* 79, no. 1 (February 1, 2014): 1–14, <https://doi.org/10.1007/s10708-013-9516-8>; Kitchin, “Making Sense of Smart Cities”; Shannon Matern, “A City Is Not a Computer,” *Places Journal*, no. 2017 (February 7, 2017), <https://doi.org/10.22269/170207>; Dan Hill, “On the Smart City; Or, a ‘manifesto’ for Smart Citizens Instead,” *Cityofsound* (blog), 2013, <http://www.cityofsound.com/blog/2013/02/on-the-smart-city-a-call-for-smart-citizens-instead.html>; Anthony M. Townsend, *Smart Cities – Big Data, Civic Hackers, and the Quest for a New Utopia*, Reprint (New York: W. W. Norton & Company, 2014); Söderström, Paasche, and Klausner, “Smart Cities as Corporate Storytelling”; Vanolo, “Smartmentality.”

20 Ayona Datta, “New Urban Utopias of Postcolonial India: ‘Entrepreneurial Urbanization’ in Dholera Smart City, Gujarat,” *Dialogues in Human Geography* 5, no. 1 (March 2015): 3–22, <https://doi.org/10.1177/2043820614565748>.

the world that illustrate this condition. Yet there are reasons not to be satisfied with this critical framework, and to search for an alternative one.

While smart urbanism is regularly framed as a global phenomenon in the dedicated literature, it remains essentially examined through the exemplary deployments of smartness in existing or newly instituted urban *centres*. By this, I do not mean that critical inquiries into smart urbanism are confined to the cities in the Global North: in recent years, a considerable amount of literature around smart urbanism in the Global South has emerged, which has in fact largely consolidated its status as a truly global phenomenon.²¹ Nonetheless, whether the city under consideration is in Canada or in India, Sweden, South Africa or China, smart urbanism tends to be critically examined only where it explicitly promises an idealised urban condition; as a result, the current model of critique largely consists in debunking its myths and demonstrating its flaws. On the other hand, the deployments of smartness in the urban *periphery*, as part of programmes of marginalisation or containment of specific populations, have so far attracted little scholarly attention;²³ it may in fact be necessary to argue that such examples exist and that they qualify as manifestations of smart urbanism.

A second reason, which may be considered as a cause of the first one, is that the existing genealogies of smart urbanism tends to start from a neutralised understanding of smartness: as the expression of an objective logic of optimisation applicable to any technical system, including cities, with little consideration for the specific programme that such technical system is optimised for. The longer history of smart technologies, which traces back to war-time cybernetics and extends into the development of modern-day logistics, as well as the enduring military applications of smartness in the present, has so far tended to be overlooked. It is specifically to

²¹ A non exhaustive list would include: Datta; McFarlane and Söderström, “On Alternative Smart Cities”; Eyerusalem Siba and Mariama Sow, “Smart City Initiatives in Africa,” *Brookings* (blog), November 1, 2017, <https://www.brookings.edu/blog/africa-in-focus/2017/11/01/smart-city-initiatives-in-africa/>; Nancy Odendaal, “Smart Innovation at the Margins : Learning from Cape Town and Kibera,” in *Inside Smart Cities: Place, Politics and Urban Innovation*, ed. Andrew Karvonen, Federico Cugurullo, and Federico Caprotti, 2018, <https://doi.org/10.4324/9781351166201-16>; Martín Tironi and Matías Valderama, “Acknowledging the Idiot in the Smart City: Experimentation and Citizenship in the Making of a Low-Carbon District in Santiago de Chile,” in *Inside Smart Cities: Place, Politics and Urban Innovation*, ed. Andrew Karvonen, Federico Cugurullo, and Federico Caprotti, 2018, <https://doi.org/10.4324/9781351166201-16>.

²³ E. Spencer Wellhofer, “Core and Periphery: Territorial Dimensions in Politics,” *Urban Studies* 26, no. 3 (1989): 340–55.

this martial genealogy that the thesis attends, with a focus on the effects of power deriving from the diffusion of smartness into the very fabric of present-day urban environments.²⁴

In order to shift the problematisation of smart urbanism away from the question of the unequal access to smart privilege and towards an examination of the current deployments of smartness in marginalised and/or securitised urban contexts, it is useful to refer to a wider field of critical urban literature. The following references primarily discuss the effects of power of ambient and environmental computation applied to urban environments in various contexts, without necessary centring on the concept of smartness. As such, they will guide towards a re-framing of the problem of smartness in its specific relation to security as a technology of power.

Automated Splintering

One of the earliest attempts to produce a sociological theory of the growing entanglement of information technology with the urban condition comes from the sociologist Manuel Castells, with *The Informational City*.²⁵ Highly influential since its publication in 1989, the book is known in particular for its claim around the emergence of a “*space of flows*, which dominates the historically constructed space of places, as the logic of dominant organizations detaches itself from the social constraints of cultural identities and local societies through the powerful medium of information technologies.”²⁶

It could be said that geography, as a discipline, has dedicated much of the subsequent decade(s) to refute this claim, often interpreted as implying a dissolution of distance and location as significant variables in the spatial order of the “information age.” By adopting, in particular, a lens that focuses on the material dimensions of IT infrastructure, countless works have now re-affirmed the essential role of location in determining the spatial politics of our hyperconnected

²⁴ See, in particular, Chapter 2.

²⁵ Manuel Castells, *The Informational City: Information Technology, Economic Restructuring, and the Urban-Regional Process* (Oxford: Blackwell, 1989).

²⁶ Castells, 6.

present.²⁷ Nonetheless, whether Castells' original argument has been rightly interpreted or not, the book also contains a number of relevant insights about the social and political consequences of information technologies becoming enmeshed with the urban form. In particular, Castells underlines that the rise of the "informational city" is also the rise of a "dual city:" the restructuring of the global economy around the new paradigm of information is mirrored, it is argued, by a spatial restructuring of urban-regional processes "that articulates the rise of the new socially dominant category in the informational mode of development, while disarticulating and opposing the fragments of destructured labor."²⁸ Early on in the critical study of augmentation of the urban realm with IT, a structural link was thereby traced with a process of marginalization of the lesser fitting users of the resulting environment.

A decade later, it is a similar claim that is formulated by the urban geographers Stephen Graham and Simon Marvin in their comparably influential publication titled *Splintering Urbanism*.²⁹ With, this time, a more explicit focus on the materiality of the infrastructural networks supporting "the city as a sociotechnical process", the authors argue that, under the impact of new technologies and the privatization of infrastructure provision, the urban condition at the turn of the millennium is undergoing a splintering process: valuable material flows and mobilities are increasingly fast-tracked, undervalued ones tend to be slowed down or restrained. While the term "smart city" neither explicitly appears in this study nor in the *Cybercities Reader*³⁰—a collection of texts edited by Graham and published in 2004—both of these works are full of references to the rising notion of smartness, through the examples of smart homes, smart meters, smart routers, or smart highways, to name but a few. What recurrently emerges from their analysis is the idea of smartness *as a sift*: a rationality whose main function is to manage processes and flows differentially—giving priority to some while restricting others. As such, these critical studies of smart urbanism *avant la lettre* shed light on one of its key effect of power, at the same

²⁷ Edward W. Soja, *Postmodern Geographies: The Reassertion of Space in Critical Social Theory* (Verso, 1989); Doreen B. Massey, *Spatial Divisions of Labor: Social Structures and the Geography of Production* (Psychology Press, 1995); Nigel Thrift, *Spatial Formations* (SAGE, 1996).

²⁸ Manuel Castells, *The Informational City: Information Technology, Economic Restructuring, and the Urban-Regional Process* (Oxford: Blackwell, 1989).

²⁹ Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, 1 edition (London ; New York: Routledge, 2001).

³⁰ Stephen Graham, ed., *The Cybercities Reader*, 1 edition (London ; New York: Routledge, 2003).

time as they anchor its development within the broader context of a global splintering of urban infrastructure.

Graham's subsequent work, as already discussed in the introduction, is more directly concerned with processes of securitization of urban environment. In "Sentient Cities", a 2009 piece co-authored with the geographer Mike Crang, the authors describe how the weaving of mobile and ubiquitous computing within the infrastructural fabric of urban environments has begun to form an "ambient intelligence."³¹ The resulting urban capacity for tracking and targeting individual users is discussed in terms of both its business applications—predictive marketing, targeted advertisement—and its security ones—predictive policing, targeted arrests. It is precisely this parallel which is retained as structural of the conditions of power within such augmented urban environments: the same technological infrastructure being used to foster trade and to hamper threats.³² Moreover, the authors underline that "the imagination, development and deployment of myriads of new sensing and surveillance systems into city spaces are at the heart of efforts within the so-called 'war on terror' to both securitise western or 'homeland' cities and to counter insurgencies within war-zone cities in the colonised frontiers of the global south." Building on this crucial insight, the thesis sets out to expand Graham and Crang's argument by asking how deep the parallels between urban 'homelands' and militarised frontiers are currently running, and to what extent do these form a structural feature of the contemporary urban condition.

Among the more recent critical studies of smart urbanism, a significant reference for this thesis is the ongoing research by the media theorist Orit Halpern, on what she terms "the smartness mandate." In a recent piece co-authored with fellow media theorists Robert Mitchell and Bernard Dionysius Geoghegan, the authors use the concomitance between the late-2008 collapse of global financial markets, and IBM's chairman speech announcing the company's new global strategy titled "A Smarter Planet", to propose a critical understanding of the notion of

31 Mike Crang and Stephen Graham, "Sentient Cities. Ambient Intelligence and the Politics of Urban Space," *Information, Communication & Society* 10, no. 6 (December 2007): 789–817, <https://doi.org/10.1080/13691180701750991>.

32 This particular symmetry is further discussed in Chapter 4, through the work of philosopher Grégoire Chamayou on the notion of "targeting."

smartness as “inextricably tied to the language of crisis, whether a financial, ecological, or security event.”³³ The ambition of Halpern’s project is therefore to question “the deep logic of smartness” as a transversal dimension of the contemporary condition, beyond its particular instantiations in the likes of its grid-, phone-, or city-form. It is in a similar vein that smart urbanism is approached in this thesis as the application of smartness at urban scale—hence encompassing a wide range of objects, processes, infrastructures, and territorial strategies that may or may not be part of a formal ‘smart city’ initiative.

Just as important as the question of the kind of space that is generated by smart urbanism is the problem of the temporality that it produces. Halpern et al. place this problem at the very heart of their critical account of the politics of smartness. Indeed, they insist on the temporal suspension that results from the implementation of smartness within a system. “The smartness mandate”, they write, “deploys ideas of resilience and practices management without ideals of futurity or clear measures of ‘success’ or ‘failure.’” Advancing through the mode of “demos”, “test-beds”, or “platforms” which are both conceived and implemented as experiments, the logic of smartness applied to the urban scale tends not to set itself any absolute objectives, but merely to manage a set of variables with a view to optimize any given operational conditions. As such, it ends up substituting itself for any actual plan, understood as a vision of a transformed future, and instead results in a fixation of a system’s structure within a range of parametric variations—a constantly shifting yet never-ending present. “Smartness thus becomes”, the authors go on to write, “the organizing concept for an emerging form of technical rationality whose major goal is the management of an uncertain future through a constant deferral of future results.”³⁴

Importantly, this logic of constant deferral also serves to immunize smartness against traditional forms of critique: whatever flaws or shortcomings one may point out in any current instantiation of smart urbanism, “advocates of smartness can always plausibly claim (and likely also believe) that the next demo will be more inclusive, equitable, and just.”³⁵ This argument

33 Orit Halpern, Robert Mitchell, and Bernard Dionysius Geoghegan, “The Smartness Mandate: Notes toward a Critique,” *Grey Room* 68 (September 2017): 106–29, https://doi.org/10.1162/GREY_a_00221.

34 Halpern, Mitchell, and Geoghegan, 124.

35 Halpern, Mitchell, and Geoghegan, 108.

vividly resonates with the crucial problem that, a few years prior the publication of “The Smartness Mandate” by Halpern and al., the geographers Stephanie Wakefield and Bruce Braun identified around the rise of resilience as a central concern of contemporary urban governance: “by positing a crisis-laden future, without end and without hope of redemption, the resilience dispositif paradoxically works to maintain the homogenous time of the present.”³⁶

It is worth noting, nonetheless, that each of these arguments is primarily based on research around urban sites located in the Global North: Wakefield and Braun use the case of New York City in the aftermath of Hurricane Sandy to develop their critique of urban resilience, while Halpern’s discourse on smartness is anchored in an extensive case study of Songdo. While the horizon of the urban problem that each of these works reckons with is explicitly recognized as “planetary,” it is also necessary to question the particular framing of the problem that results from the use of that particular lens.³⁷ In their article, Halpern et al. speak of the smartness mandate as “dynamically embedded in the objects and operations of everyday life— particularly the everyday lives of those living in the wealthier Global North, but ideally, for the advocates of smartness, the lives of every inhabitant of the globe.” One way of reading this particular formulation is that, as a technical rationality requiring a vast technological and infrastructural deployment to function, smartness would originate in the most developed urban cores of the world, to then extend to its peripheral areas. But could it be, in contrast with this view, that the logic of smartness already is at work in a number of urban frontiers entirely pervaded by a condition of crisis? Can the apparatuses that are already deployed to efficiently manage such frontier zones be understood as instances of smart urbanism? If so, what would this reversal of perspective mean for the critique of smartness as a technology of power?

Smart Borders

Another critical approach to smartness with great bearing upon the argument developed in this thesis is to be found in the work of the sociologist Jennifer Gabrys. Building upon a notion

36 Stephanie Wakefield and Bruce Braun, “Governing the Resilient City,” *Environment and Planning D: Society and Space* 32, no. 1 (February 2014): 4–11, <https://doi.org/10.1068/d3201int>.

37 Gayatri Chakravorty Spivak, *Death of a Discipline* (Columbia University Press, 2003), <https://www.jstor.org/stable/10.7312/spiv129440>.

originally sketched out by the philosopher Michel Foucault, Gabrys develops an understanding of “environmentality” as a mode of government that acts primarily on a living milieu and its particular conditions—on “the rule of the game”—rather than directly targeting individuals or populations in order to alter their behaviour.³⁸ In this perspective, Gabrys asks: “in what ways do smart-city proposals for urban development articulate and enact distinctly environmental modes of governance, and what are the spatial, material, and citizenly contours of these modes of governance?”³⁹ The environment is recognized here as the key medium of smartness; yet the question of the *contours* is particularly relevant here. Indeed, Gabrys bases her analyses on examples of smart urbanism that tend to effectively resemble an open environment—namely, a space that is primarily constituted by the fabric of connections between the diverse interacting entities that compose it, rather than by a priori clear-cut delimitations of territories and populations. Through an in-depth case-study of the Connected Sustainable Cities project by MIT and Cisco, in particular, Gabrys articulates how environmental modes of governance displace of the primary target power from populations to their environment—thereby, also, opening up a reading of Foucault’s notion of environmentality that is “less focused on disciplined or controlled subjects or populations.”⁴⁰ Adding to the valuable insights that the author provides in this study, I am interested in examining the particular case of environmental modes of governance functioning in conjunction with processes of territorial and population enclosures. In this perspective, it may be possible to question Gabry’s claim that, under the logic of smart urbanism, “[g]overnance and the managing of the urban milieu occur not through delineations of territory, but through enabling the connections and processes of everyday urban inhabitations within computational modalities.”⁴¹ Arguably, these two modes of governance are not necessarily incompatible. For example, clear-cut territorial distinctions may function as an efficient, therefore smart solution to govern an urban environment, by concentrating interfaces of exchanges into single points of control. While an environment is, by definition, a dynamic field of relations that does not presuppose any fixed boundaries between nor among its constituents

³⁸ Gabrys, “Programming Environments.”

³⁹ Gabrys, 35.

⁴⁰ Gabrys, 37.

⁴¹ Gabrys, 38.

parts, it can also be rendered, for its population, as a materially closed system. This is particularly manifest when environmental modes of governance are deployed as part of a colonial apparatus of power and within a racially-segregated milieu—as the case-study of the blockaded Gaza Strip will illustrate.

Drawing, among other references, from Gabrys’ analysis of environmental computation at urban scale, the sociologist Ilia Antenucci has examined the consequences of the recent implementation of “urban digitalization” programmes in Cape Town.⁴² Her work builds upon Gabrys’ concept of environmentality “as a spatial–material distribution and relationality of power through environments, technologies, and ways of life,”⁴³ but focuses on the question of borders “as a distinct form in which power materializes and operates.”⁴⁴ As such, her study “investigates the ways in which [borders] intervene and take shape in the proliferation of sensing infrastructures.” Early on in her examination of the case study of Cape Town, Antenucci flags how “the geography of digitalization disturbingly reflects the spatial organization of the apartheid city.”⁴⁵ Looking at the multiplication of both material and immaterial borders that have accompanied the digitalization of the South African city, she argues that “the distribution of sensing technologies reinforces existing borders, and often create new ones, along class and racial lines, spatial hierarchies, and access to resources.”⁴⁶

In essence, Antenucci bases her analysis on the diverse manifestations of security borders being erected and/or computationally extended in order to protect an archipelago of white, rich, and smart islands across the city of Cape Town. As such, her argument remains aligned with the critique of smart urbanism which tends to reduce it to an unevenly distributed privilege. While it provides insightful cues to think the smartening or digitalisation of urban environments in relation to the proliferation of physical and computational borders, it falls short of the

⁴² Ilia Antenucci, “The Making of Urban Computing Environments: Borders, Security and Governance,” *Synoptiaue* 8, no. 1 (2019): 54–64.

⁴³ Jennifer Gabrys, *Program Earth: Environmental Sensing Technology and the Making of a Computational Planet*, prog (Minneapolis: University of Minnesota Press, 2016), 187.

⁴⁴ Ilia Antenucci, “The Making of Urban Computing Environments: Borders, Security and Governance,” 55.

⁴⁵ Ilia Antenucci, 56.

⁴⁶ Ilia Antenucci, 58.

examining the parallel deployments of smart technologies for the specific purposes of repressing and containing the disenfranchised population of the South African urban periphery. This phenomenon is nonetheless documented by the urban geographer Jonathan Silver in his critical analysis of the rise of smart urbanism across the African continent. Taking the example of the swarms of riot drones already in use to monitor and attack rebellious miners in the Platinum Belt, Silver notes that “it does not take much of an imaginative leap to see them being deployed across the simmering townships of the country as tensions and inequality continue to mount.”⁴⁷ To which the author adds: “Being aware of how new smart technologies and infrastructures may also be deployed to curtail human rights and civic participation across urban Africa is critical to how we understand the rise of Afro-Smart cities. We only have to look back at the recent past in South Africa to see how IBM-designed, proto-smart technologies were used by the apartheid regime to control urban populations, restrict access to the cities and securitise a racialised, segregated urban space.”⁴⁸

To further explore the question of borders and security within a smartening urban condition, it is useful to draw from the work of the geographer Louise Amoore around the role of algorithmic computation in configuring the forms of security governance that have become globally pervasive with the War on Terror. While her work on the topic is remarkably broad, for the purpose of this study it may be sufficient to focus on her analysis of the “smart border.” In a co-authored editorial on the theme of “Smart Borders and Mobilities: Spaces, Zones, Enclosures”, the phenomenon that Amoore explores in a number of publications is summarised in the following terms: “In addition to its traditional geo-physical characteristics, the border has taken on virtual, de-territorialized attributes as well. Castles, walled cities, and extensive border battlements have been replaced by gated communities, expansive border zones, and management by ‘remote control.’ The contemporary border is constituted as much by data-flows, artificial zones

⁴⁷ Jonathan Silver, “The Rise of Afro-Smart Cities Should Be Viewed with Caution,” *Africa at LSE* (blog), July 16, 2014, <https://blogs.lse.ac.uk/africaatlse/2014/07/16/the-rise-of-afro-smart-cities-should-be-viewed-with-caution/>.

⁴⁸ *Ibid.*

and spaces of enclosure that seep into the city and the neighbourhood, as by older state and geographic boundaries.”⁴⁹

Drawing primarily from an analysis of the new technologies of border security deployed by Western states in the aftermath of 9/11—such as the US VISIT and the European e-borders programmes—the geographer offers a critical account of the processes that expand the site of the border beyond its former linear articulations, tracking how borders have begun to criss-cross the entire territories and populations that they used to delimit in blocks. With the concept of the “biometric border” that she offers, Amoore points to the displacement of the location of borders to the body of “dividuated” mobile subjects themselves: “In effect, the biometric border is the portable border par excellence, carried by mobile bodies at the very same time as it is deployed to divide bodies at international boundaries, airports, railway stations, on subways or city streets, in the office or the neighbourhood.”⁵¹ The analysis offers an important theorisation of the ways in which the world’s most powerful states responded to the security challenge manifested by 9/11: how the sorting of good circulations—the ones that are required to the pursuit of a (neo-)liberal model of political economy—and bad circulations—those that are unnecessary or threatening to the system of globalised exchange—is performed by a networked apparatus of surveillance and by the algorithmic processing of massive datasets. Furthermore, the model of border security described by Amoore implies a dissolution of classical understandings of both subject and territory. Political subjects are dissolved in as much as their rights are no longer defined *a priori*: the profile of every mobile individual becomes both a potential threat and a potential opportunity, its effective access rights being determined relationally and in real-time, in a “fluid and contingent” manner⁵³. Moreover, the territorial limits where the recognition of such rights shall apply also tend to be dissolved, in as much as the reach of such data-driven apparatus of profile sorting extends far beyond, as well as deeply within, the recognised geographical borders of each state. According to this logic, sovereignty itself is reconfigured

⁴⁹ Louise Amoore, Stephen Marmura, and Mark B. B. Salter, “Smart Borders and Mobilities: Spaces, Zones, Enclosures,” *Surveillance & Society* 5, no. 2 (September 1, 2002): 96, <https://doi.org/10.24908/ss.v5i2.3429>.

⁵¹ Louise Amoore, “Biometric Borders: Governing Mobilities in the War on Terror,” *Political Geography* 25, no. 3 (March 2006): 338, <https://doi.org/10.1016/j.polgeo.2006.02.001>.

within a globalised and technologically expanded sphere of action: the sovereign decision as to who will be recognised as a worthy mobile subject, who shall pass and who shall be restrained, becoming increasingly automated through its outsourcing to algorithmic pattern recognition systems.

In Amoore's analysis, the post-9/11 smart border security apparatus is neither open nor close; rather it performs its border function as a pervasive, environmental modulation of an open/close binary. "Thus the laissez-faire techniques of economic liberalism yield to sovereignty the capacity to smooth out the striations of impediment, prohibition, and enclosure", writes the geographer.⁵⁴ The border model she depicts resembles a generalisation of Deleuze's diagram of control societies, in which computation is mobilised to produce the localised effects of enclosure formerly performed by disciplinary spaces, all the while securing the smooth circulation of worthy mobilities across an environment saturated with often imperceptible, "variable geometry" borders.⁵⁵ In line with Deleuze's account of control, the structures of the disciplinary enclosures appear to have been superseded by the smart border landscape described by Amoore. The importance of the appearance of openness is underlined in her discussion of the architectural form of the ha-ha, which she identifies as a material embodiment of a new logic of urban boundaries: "Now reappearing in the design of the U.S. embassy in London as well as in the parkland surrounding the Washington monument in Washington, D.C., the ha-ha reconciles security and openness via landscape form."⁵⁶

Notwithstanding the importance of Amoore's analysis to explain the reconfiguration of the Western states' border security apparatus throughout the first decade of the War on Terror, it may be necessary to revisit and to question it from the perspective of the immediate present. With the rise of ethno-nationalism and right-wing populism across the global geopolitical landscape—most patently signalled by the election of Donald Trump as the president of the United States in 2016—a number of political economic realignments are happening that bear the question of whether *neoliberalism* is still the right name for the globally hegemonic model of

⁵⁴ Louise Amoore, *The Politics of Possibility: Risk and Security Beyond Probability* (Duke University Press, 2013), 124.

⁵⁵ Amoore, 91.

⁵⁶ Amoore, 125.

governmentality today. While the nature and depth of these changes is still being hotly debated, one of the sites where they manifest themselves most patently is precisely the state border. Resurfacing at the back of the smart, algorithmically-augmented border apparatus established in the past decade, a number of *re-territorialising* security measures are being deployed by major nation states that point to a shift in the calculus underpinning their approach to the government of transnational mobilities. From the blanket travel bans imposed, for example, by the United States administration against several Muslim-majority countries, to the resurgence of walls, barriers, and physical checkpoints along the borders of European countries, the United States, India, Saudi Arabia, or Turkey, the imperative of guaranteeing conduits of smooth circulation across the full extent of the globe appears to be yielding to more clear-cut geopolitical divides. In the process, the fine-grained, data-driven, profile- or item-specific systems of sorting circulations are being supplemented by much coarser, territorially-inscribed, and nation-wide mechanisms of filtering; just as the maintenance of a façade of open borders and open markets is being relegated, in the agenda of some of the powerful states in the world, to a much lower priority than it was just a decade ago.

The hypothetical explanation that this thesis adopts is that such phenomena reflect the growing role of racialisation in the new global model of political economy which is currently emerging. The categorical imperative that has driven the neoliberal crusades of the past four decades was to expand the domination of the market economy across the whole globe; to this end, the nation states that embraced the neoliberal doctrine were to transform into vassals of market forces: self-restricting their domain of action to securing access and smoothing the terrain for the invisible hand of the market to run over. By the second decade of the 21st century, the classical neoliberal model began to show serious signs of instability: the structural inequalities not only between, but also within countries submitted to this political economic regime have reached a level that threatens the capacity of states to maintain order and to secure the infrastructure of the globalised market—particularly in the face of the new major destabilising force of human-induced global warming. The calculus of security, therefore, required an update: after a long phase of rabid expansion of the market economy—in which control was subordinate to the imperative of global circulation—we are witnessing a shift towards a contraction and selective restructuring of exchange interfaces across the globe—in which, this time, “taking back

control” is the absolute priority, even if it implies loosing on some market opportunities.⁵⁷ Faced with an impending risk of implosion, the globalised market demands from powerful nation states that they reconsolidate their capacity to secure the infrastructure upon which it runs.

As a respond to this demand, a number of such states are pulling the lever of populism, ethnonationalism, and racialisation as a means to artificially construct a sense of cohesion among their majority population and to bolster electoral support towards the implementation of governmental measures of emergency. Race, indeed, offers a convenient alibi to a political economic system that has demonstrated its structural inability to provide for the whole of the population it subdues under its laws. Rather than having to resolve its own contradictions, that system can use the racialisation of the Other as a cultural justification for the abandonment of vast segments of its population. From a position of legitimate resistance against the abuses it is subjected to, the racialised population is thereby reconfigured as an illegitimate and threatening presence—no longer to be governed, but merely to be contained. In the process, the political economic equation is balanced not by reducing the rate of accumulation of wealth for the elites, but by shrinking the population of subjects that are recognised as entitled to the leftovers. To the acceleration of the production of surplus labour triggered by the phase of contraction and selective restructuring of the market economy, racialisation responds by steering its effects towards specific, racially-targeted segments of the population.

The governmental turn embraced by countries such as the United States, the United Kingdom, India, or Brazil over the past five years could be interpreted as signalling a movement towards a global adoption of a settler colonial model of political economy.⁵⁸ In this perspective, Israel might be more broadly recognised as an example to learn from.⁵⁹ The argument that the

⁵⁷ “Briefing: Taking Back Control from Brussels,” Vote Leave, accessed April 30, 2020, /briefing_control.

⁵⁸ In the case of the United Kingdom, the current settler colonialist drive could be understood as an internal reoccupation of the metropolitan territory after its alleged invasion by a migrant population, as exemplified by the state’s treatment of the Windrush generation from 2018 onwards.

⁵⁹ As suggested by the special relation that Israel entertains with the current governments of each of the abovementioned countries. For example: among the very first measures taken by the newly-elected Bolsonaro administration in Brazil, in 2019, was the official recognition of Jerusalem as the capital of Israel.

matrix of control it has gradually put in place to contain the problem of Palestine forms a window into the future of the global spatio-political order is not new; but suddenly, in light of the rapid geopolitical realignments taking place around the globe, this argument may resonate much more vividly.

Among the many features of such matrix of control that are likely to reemerge elsewhere, the one that we are most interested in exploring in this thesis is its thoroughly entangled use of hard and soft borders. In the preceding pages, we have reviewed different critical theorisations of how territorially-inscribed, disciplinary technologies of enclosure tend to be superseded by smart, environmentally-enacted modulations of access rights. As a way to introduce how the case of occupied Palestine, and of Gaza in particular, complicates these now relatively established accounts—and before examining this point in greater depth, through empirical material, in the second part of this thesis—it might be sufficient to quote the Palestinian media scholar Helga Tawil-Souri:

“Gaza is where Deleuze's ‘societies of control’ and Foucault's ‘panopticon’ converge and simultaneously meet their limitations: the ideal architectural figure of modern disciplinary societies and their pervasive inclination to observe and normalise subject's behaviours by rendering them permanently visible or legible, in the case of the latter, and where enclosure is no longer (or not only) restrained by concrete structures but by a diffuse matrix of information-gathering algorithms, in the case of the first.”⁶⁰

By offering a critical review of different conceptualisation of smartness, and in particular, of its application at urban scale, this chapter had two objectives. The first one was to challenge the inherently positive connotations of the term “smart,” by underlining a technical understanding of smartness as the capacity of a system to self-optimize its performances. This point, in turn, calls for a critical attention to instances of urban smartness beyond their deployment in programmes of acceleration, support, or integration of given urban processes. This means expanding the currently dominant frame of its critique, which tends to reduce the problem of smart urbanism to one of unequal access to the exclusive privileges that it promises; and paying attention to instances of urban smartness that are specifically designed to enhance programmes of impediment, repression, or marginalisation of particular urban users. The second objective of

⁶⁰ Helga Tawil-Souri and Dina Matar, eds., *Gaza as Metaphor* (London: Hurst, 2016), xii.

the chapter was to question narratives of smartness that depict its inherent environment of operation as fluid and deterritorialised. Using some ongoing signals of a reconfiguration of border security apparatuses across the globe and of a potential shift in the governmental rationality at work in their management, the chapter set the ground for a critical examination of the operations of smartness within and across clear-cut separations between territories and populations. Each of these two points will be further developed in the following two chapters, which will conclude the first, concept-focused part of this thesis. Expanding the critical account of smart urbanism outlined so far will require to track its operations beyond the privileged enclaves that it tends to produce, and to recognise its workings in the containment zones that it organizes and manages for all of those that *don't belong*.

Chapter Two

The Cybernetic Present

*Mere governors, thermostats, and voltage regulators
could not usher in a cybernetic age—weapons could.*
—Peter Galison

*Command must be centralized for strategical purposes
and decentralized for tactical purposes.*
—Mao Zedong

Closing the Loop

Developed during World War II in a science laboratory of the Massachusetts Institute of Technology, the ‘anti-aircraft (AA) predictor’ was a machine designed to facilitate the task of shooting down enemy airplanes. Using the trajectory of the enemy pilot captured by radar systems as its data input, the machine used early computational mechanisms to anticipate the future position of the plane and to fire an anti-aircraft shell at it. A missed shot would result in adjustments to the aiming of the gun before another shot would be fired. Such features created an iterative process where the machine, receiving feedback about its own behaviour in real-time, would *learn* from its environment and its errors. Essentially, the AA predictor functioned as an interface between two opponents: it enabled its operator to leverage the enemy’s own information trail to gain a lethal advantage over it. Although it never actually reached the battlefield, the AA predictor ended up having a profound impact on the science and technology of the post-war era. Its inventor, Norbert Wiener, retained it as the prototypical machine of a whole new “science of communication and control,” for which he would coin, in 1947, the name *cybernetics*.³

³ Norbert Wiener, *Cybernetics; Or, Control and Communication in the Animal and the Machine* (Technology Press, 1948).

Wiener derived the term from *kubernetes*, the Greek word for “steersman” or “governor.” From its origins, the object of cybernetics would therefore be the development of devices, or servomechanisms, that use information feedback to *steer themselves*—with limited or no input from human operators. The basic diagram of a cybernetic system includes three functional components: an input function enabled by a set of receptors or sensors that capture information from the system’s environment, a control function which processes that information, compares it with a desired state or programme, and issues corresponding instructions which, once transmitted to the third component, the output function, result in an adjustment of the system behaviour. In turn, this adjusted behaviour and its effects on the environment are captured by the sensors of the system—thereby closing the cybernetic feedback loop. This continuous flow of information is what enables a cybernetic system to permanently adjust its operational behaviour to its surrounding conditions. In cybernetics, the notion of control is inseparable from communication since, as Wiener would define it, control “is nothing but the sending of messages which effectively change the behaviour of the recipient.”⁴

Wiener was quick to recognise the potential of his invention which, he claimed as early as 1947, was about to introduce humanity to a whole new technical age: “The machines of which we are now speaking are not the dream of the sensationalist, nor the hope of some future time. They already exist as thermostats, automatic gyro-compass ship-steering systems, self-propelled missiles—especially such as seek their target—anti aircraft fire-control systems, automatically controlled oil-cracking stills, ultra-rapid computing machines, and the like. They had begun to be used long before the war—indeed, the very old steam-engine governor belongs among them—but the great mechanization of the Second World War brought them into their own, and the need of handling the extremely dangerous energy of the atom will probably bring them to a still higher point of development . . . the present age is as truly the age of the servomechanisms as the nineteenth century was the age of the steam engine or the eighteenth century the age of the clock.”⁵

In an essay titled “The Ontology of the Enemy”, the philosopher of science Peter Galison retraces a genealogy of cybernetics from Wiener’s initial war-time experiments to the emergence of a generalised cybernetic vision of the world. Referring to Wiener’s own use of the

4 Wiener, 55.

5 Wiener, 55.

term “Manichean devil” to characterise the oppositional entity that his anti-aircraft machine was designed to outwit, Galison describes the triad of war-time disciplines formed by operations-research, game theory, and cybernetics, as “Manichean sciences.” In so doing, Galison wishes to stress how the sciences of information and control, which developed at bewildering speed in the post-war era, all took form within a primordial “universe of confrontation between opponents.”⁶

The key problem explored by Galison in that piece has to do with the contemporary condition at the time of its publication, in 1994. The piece responds to what he perceives as a problematic trend in “postmodernist discourse,” by which cybernetics have begun to be re-claimed—too hastily, in the author’s view—as tools for collective emancipation; as the science that may usher societies out of the rigidity of modernism; as the technology capable of embracing the complexity and openness of the world without reducing it into predetermined cultural categories. In response, Galison insists that “the cultural meaning of concepts or practices is indissolubly tied to their genealogy.” In that sense, he argues that “the associations of cybernetics (and the cyborg) with weapons, oppositional tactics, and the black-box conception of human nature do not so simply melt away.”⁷ To be clear, Galison’s critique of cybernetics is not simply a problem of origin—as if technologies would have to bear the stigma of their original military use throughout any of their civilian afterlives—but rather, it is a matter of taking into account the effect of the technology’s enduring entanglement with “oppositional tactics.”⁸ As the author writes:

“Nothing in the feed-back device implies a representation of human beings as behavioristic black boxes; nothing in the mathematics entails by deduction alone a universe reducible to Wiener’s monadic input-output analysis. What we do have to acknowledge is the power of a half-century in which these and other associations have been reinstated at every turn, in which opposition is seen to lie at the core of every human contact with the outside world.”⁹

6 Peter Galison, “The Ontology of the Enemy: Norbert Wiener and the Cybernetic Vision,” *Critical Inquiry* 21, no. 1 (1994): 258.

7 Galison, 260.

8 Galison, 260.

9 Galison, 265.

This chapter sets out to revisit the problem of the cybernetic vision of the world by focusing specifically on its contemporary manifestation as smartness. It will ask, once again, what can be inferred about the disposition of a technical rationality from an understanding of its genealogy. A first section retraces a brief account of the military development of cybernetics at the beginnings of the Cold War. A second section examines the emergence of smart weapon systems by anchoring it within a longer history of cybernetics. A third section transitions towards the urban dimension of smartness through the intermediary of the *network-centric* military doctrine that emerged in parallel of the consolidation of smart weapon systems. A fourth section discusses the most recent evolution of such doctrine into a theory of diffuse warfare, supported by an environmentally-connected infrastructure. The final section discusses the influence of the military's vision of an urban network to be shut down on the current concept of the smart city as a stack of functional layers to be optimised.

Computing the Enemy

Histories of cybernetics tend to focus on the vast impact of this new science, born under the bombs, on a wide range of human domains in the post-war era: from the natural to the social and political sciences, from engineering to design, from psychology to anthropology, from computer science to logistics and organizational management.¹⁰ In comparison, less has been written about how the burgeoning discipline of cybernetics continued to evolve under military impulse in the 1950s and 1960s; nor about how, conversely, cybernetics triggered a profound transformation of the US military apparatus over that same period. Promising control and forecast in front of the complex and unpredictable environment of the Cold War, cybernetics quickly moved from a mere tactical instrument to the dominant strategic model of warfare, thereby colonising every layer of the American war machine.¹¹

¹⁰ Orit Halpern, *Beautiful Data: A History of Vision and Reason since 1945* (Durham: Duke University Press Books, 2015); Thomas Rid, *Rise of the Machines: The Lost History of Cybernetics* (Melbourne; London: Scribe UK, 2017).

¹¹ Antoine Bousquet, "Cyberneticizing the American War Machine: Science and Computers in the Cold War," *Cold War History* 8, no. 1 (February 2008): 77–102, <https://doi.org/10.1080/14682740701791359>. Much of the information summarised in this section of the chapter is drawn from this particular essay.

The early days of the Cold War were marked by an unprecedented development of computer networks, which began to form the informational armature of the US military. The context of this development was the deep military and political crisis produced by the standoff between NATO and Warsaw Pact forces; and the risk, in the event of a military escalation, of mutual nuclear annihilation. As argued by Paul Edwards, that *unthinkable* event could nonetheless be rationalised by the US military and political leadership through evermore advanced mathematical models and simulations.¹² The more dangerous, unpredictable, and chaotic the global geopolitical situation was turning, the more use the US military seemed to find in the inflexible rationality of computers: their task was to re-establish, or to construct an idea of, order and control over an otherwise overwhelming complexity.

A major indicator of the influence of cybernetic theories in the re-organisation of the US military apparatus is the replacement, over the 1950s, of the traditional command structure by a “command-and-control” one. In just a few years after the war, this new expression turned into the official denomination of the military leadership function. The science and technology scholar Gene Rochlin describes the significance of the addition of the word *control* in these terms:

“[C]ommand was historically an open cycle process: the commander set up the battle, gave instructions, provided for whatever contingencies could be planned for, and then issued the command to execute. After that, the ability to intervene was minimal. In contrast, control is a closed cycle process with feedback, analysis, and iteration; it was not possible even to consider the transition from command to command-and-control until modern technical means for intelligence and communications became available.”¹³

With computers serving as a new critical infrastructure, and cybernetics functioning as an operational theory of communication and control, the US military forces reconfigured themselves into a set of nested cybernetic systems that reached up to highest sphere of command. Messages were to constantly travel from the top to the bottom of the military hierarchy *and back again*, triggering a series of adjustments based on the programme or objective pursued at each

12 Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (MIT Press, 1997).

13 Gene I. Rochlin, *Trapped in the Net: The Unanticipated Consequences of Computerization* (Princeton University Press, 2012), 204.

level: tactical, operational, or strategic. Soon, the speed of such command-and-control structure became a critical problem: the appearance of faster attack technology, such as jet-propelled aircrafts, required that critical defence mechanisms be at least partially automated: with the contraction of the available timespan between the sensing of a threat and its expectable impact, it became impossible for human command to process such inputs and issue efficient response orders in time. To tackle this problem, in 1958, the US Air Force launched one of the most ambitious projects ever developed in the military field, and the utmost consecration of cybernetic theories—namely, the Semi Automated Ground Environment (SAGE).

SAGE was a unified, computer-based air defence network which centralised radar signals monitoring the entire US air space, processed information about any incoming threats in real-time, and sent near-instantaneous commands to anti-aircraft weapon systems. Less than twenty years after the invention of the AA predictor, a machine with a comparable operational logic was developed and built at continental scale. SAGE also marks an important shift in computing technology as the first large-scale computer network to process inputs and issue outputs in real-time. It formed a narrow cybernetic loop between the computer system and its user which paved the way to the development of personal computers. SAGE, together with subsequent similar systems such as the World Wide Military Command and Control System (WWMCCS), launched in 1962, became the conceptual and operational model for a new military vision of the world as an environment to be permanently monitored via cybernetic systems. Behind this effort lied a rigid reductionist logic which assumed that, given enough data, the gigantic computers now powering the US armed forces could crunch out any threat and compute an efficient strategy of world domination.

Yet the same rationality that had turned war into an equation to be solved could not ignore a basic quantitative problem. From the US point of view, the deadlock of the nuclear stand-off was increasingly disadvantageous; indeed, by the 1960s, the Soviet Union had developed a significantly superior force in terms of firepower and materiel—and the gap kept widening.¹⁴ The US military found itself in a crisis of capacity, engaged in a costly arms race where increasingly destructive weapons were being developed and stockpiled with no realistic possibility to use any of them. With the election of John F. Kennedy as US President in 1961, a new defence strategy

¹⁴ NATO, “NATO and Warsaw Pact: Force Comparisons,” NATO, accessed April 30, 2020, http://www.nato.int/cps/en/natohq/declassified_138256.htm.

would be adopted called “flexible response.” It consisted in a move away from the strict all-or-nothing deterrence policy. The new strategy aimed at exploring and developing “more options” for conventional warfare so as to “raise the nuclear threshold.”¹⁵ Kennedy also named Robert McNamara, a system analyst and cybernetics evangelist, as his Secretary of Defence. It is in this context that a set of research programmes for new types of weapons were launched in the US.

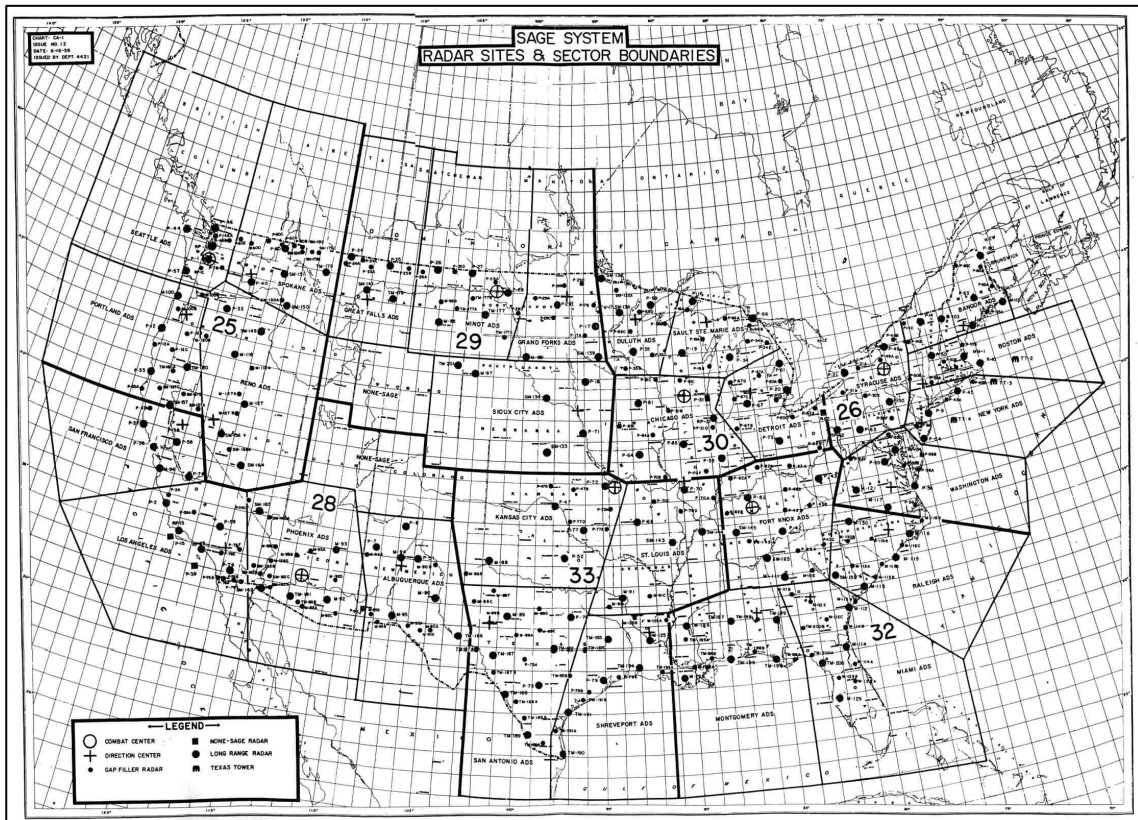


Fig. 6— “Sage System: Radar Sites and Sector Boundaries”, US Department of Defense, 6 June 1958

15 Christopher Campbell, *Nuclear Weapons Fact Book* (Presidio, 1984), 82.

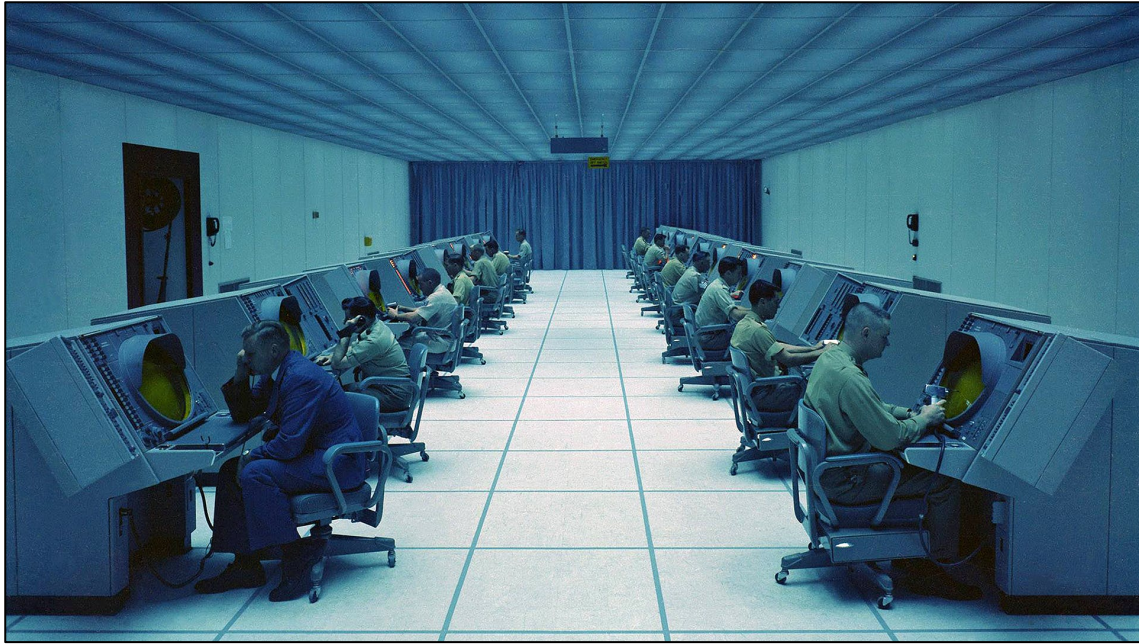


Fig. 7—SAGE Blue Room at the NORAD Underground Complex, 1963. (US Department of Defense)

Weapons of First Resort

The term “smart bomb” began to be used informally, in military jargon, in relation to the first laser-guided bombs.¹⁷ As a result, unguided bombs soon began to be called “dumb”, which prompted Pentagon officials to settle on an alternative name: “Precision-Guided Munitions”, or PGMs. Developed by Texas Instruments as early as 1967, the first laser-guided bomb was the BOLT-117. It inaugurated the principle of a guidance-kit bolted on a standard bomb case in order to augment the precision of the overall weapon system.

What made the laser-guided bomb “smart” is that it could gather information about its environment—in this case, about its relative position to the target—and adjust its behaviour accordingly—here, its trajectory—with a relative degree of autonomy. A specificity of the laser-guided bomb is that it requires a third agent to illuminate the target with a laser beam; equipped with electro-optical sensors, the bomb captures the resulting laser radiation and uses it as a real-time feedback to adjust its trajectory and “home in” on its target. Were it not for this particular

¹⁷ James Digby, “Precision-Guided Munitions: Capabilities and Consequences” (Santa Monica, CA: RAND Corporation, June 1974), 1.

feedback mechanism—whereby guidance information is actively produced by a human operator and not simply captured from the surrounding conditions—the laser-guided bomb already describes the essential diagram of smartness: as a cybernetic system with distributed and partly autonomous control units.

The bomb would only be used in combat in Vietnam in 1972. But already in 1969, General William Westmoreland, Commander-in-Chief of US forces in Vietnam, dreamt of a near-future of warfare in the following terms:

“On the battlefield of the future, enemy forces will be located, tracked, and targeted almost instantaneously through the use of data links, computer assisted intelligence evaluation, and automated fire control. With first round kill probabilities approaching certainty, and with surveillance devices that can continually track the enemy, the need for large forces to fix the opponent becomes less important. I see battlefields that are under 24-hour real or near-real time surveillance of all types. I see battlefields on which we can destroy anything we can locate through instant communications and almost instantaneous application of highly lethal firepower. In summary, I see an Army built into and around an integrated area control system that exploits the advanced technology of communications, sensors, fire direction, and the required automatic data processing.”¹⁸

While Westmoreland’s prophecy has arguably materialised in the decades that followed this declaration, interestingly, it is precisely in Vietnam that the first model of cybernetic warfare already in use by the US would prove disastrously ineffective. Among the many factors that have been evoked to explain the improbable defeat of the world’s most powerful army by the Vietcong guerrilla, the problem of *information overload* within an ultra-centralised command-and-control structure is now commonly considered a decisive one. In Vietnam, the US military learned that it was impossible to compute the complexity of warfare—even more so against an enemy deploying an asymmetric strategy that leverages the cover offered by a dense combat environment. Field-to-command communication suffered great entropy, the strategic models elaborated in the Pentagon proved regularly wrong, and the computerised processing of reports and intelligence ended up thickening rather clearing the *fog of war*.

¹⁸ Westmoreland, William. “Address to the Association of the U.S. Army.” 14 October 1969. Quoted in Bousquet, “Cyberneticizing the American War Machine,” 84.

Despite the shock of the flagrant defeat, the US military did not abandon the cybernetic hypothesis after Vietnam. Having so deeply embedded the principles of communication and control within its structure, the US military had, by the 1970s, itself become a cybernetic system; as such, it did what such systems are designed to do: it learned from its errors. Post-Vietnam US command structure evolved towards a more open, more distributed model of cybernetic control—largely enabled by the newly discovered possibilities of building smartness into the weapon systems themselves.

“For centuries most of the things shot by military men at their enemies have missed their target.”¹⁹ It is with this statement that RAND Corporation analyst James Digby introduces his 1975 report on the expectable impact of the rise of smart weapons. In contrast with this long-standing factual axiom of warfare, Precision Guided Munitions, he argues, inaugurate an era in which “it is now possible for forces to possess weapons in large numbers each of which has a high probability of hitting its target with a single shot.”²⁰ This dramatic increase in general weapon accuracy is expected to soon result in “major changes in the posture and tactics of nearly every military power.”²¹ Speaking primarily from a speculative point of view—given that large-scale use of PGMs in warfare had yet to take place—Digby makes two main observations about the essential break they are about to introduce. The first one is of tactical nature: with smart weapons, “accuracy is no longer a strong function of range”²²—a point with considerable implications for the very notion of the *battlefield* which, as a result, would find itself dilated into previously unconceivable extents. The second one, of logistical nature, is that smart weapons “can now be mass-produced in great quantity,” and possibly operated by ordinary soldiers.²³ Together, the two observations converge in pointing to an expectable process of *diffusion* of warfare—into an extended battlefield occupied by a sprawling multiplicity of agents and targets.

19 James Digby, “The Technology of Precision Guidance: Changing Weapon Priorities, New Risks, New Opportunities” (Santa Monica, CA: RAND Corporation, November 1975).

20 Digby, 2.

21 Digby, 1.

22 Digby, 7.

23 Digby, 7.

The integration of computers directly onto bombs and the outsourcing of control functions to the devices themselves, which made them “smart”, was the trigger of a vast and radical transformation of the organisational structure of military forces. Starting from what used to form the very bottom of such structures—the munitions layer—the strictly-hierarchical pyramid of the first cybernetic model progressively gave way to a flatter, more network-like organisation, within which control functions would be increasingly distributed among human and machinic nodes. From being conceptualised as a function to be exercised *from above* an objectified combat environment, control became a diffuse activity to be managed from within that very environment—with a view to achieve greater awareness of, and responsiveness to, fast-shifting conditions in the battlefield.

By the early 1970s, twenty years into the deadlock of unusable nuclear warheads, the US were not the only forces to bet on smaller, more mobile, and dramatically more accurate weapons as the key to gain or maintain a military advantage. The Soviet Union—which had, it should be noted, a cybernetic history of its own²⁴—had also begun to develop a range of PGMs. Waged between forces respectively allied to each of the enemy blocks, two of the *proxy conflicts* of the late Cold War played an important role in drawing the world militaries’ attention to the importance of PGMs. Notably, both of them involved Israel: it is around that period that the Israeli military began to take up the role of a vanguard armed force, whose experimental tactics and strategies are both supported and closely analysed by the US military-industrial complex. During the 1973 Arab-Israeli war, the Soviet-made Sagger AT-3 anti-tank guided missile initially caused heavy losses on Israeli armor, before Israel began developing efficient counter-tactics. Then in 1982, the Israeli incursion into Lebanon “provided another precision-guided munitions’ laboratory,”²⁵ resulting in a staggering dominance of the Israeli Air Force. Notwithstanding these early military tests, the conflict most commonly associated with the rise of smart bombs is undoubtedly the Gulf War.

Launched in 1991, as the Soviet Union was already collapsing and a new world order was emerging, Operation Desert Storm marks the first large-scale use of PGMs by the US military.

24 Slava Gerovitch, *From Newspeak to Cyberspeak: A History of Soviet Cybernetics* (MIT Press, 2004).

25 Major Robert H. Vokac, “Smart Weapons: Can We Fold The Nuclear Umbrella?” (Fort Leavenworth, Kansas: School of Advanced Military Studies United States Army Command and General Staff College, 1991).

In a New York Times article published immediately after its completion, the GBU-24 Paveway laser-guided bomb was dubbed “the invention that shaped the Gulf War.”²⁶ Epitomised by the widely circulated TV footage of bombs hitting their targets with seemingly relentless precision, Desert Storm’s rapid success sent a clear message to the world: supported by cutting-edge communication and targeting technology, the military hegemony of the US armed forces was now uncontested.

Over the two decades between the first tests of smart bombs and their large-scale deployment during Operation Desert Storm, much of the vision of General Westmoreland for the future of warfare had concretised: the US military had already established a planetary-scale communication network relying on permanent satellite data links called the Global Positioning System (GPS); joint operations by the Air Force, Navy, and Army corps were coordinated in real-time through a partly distributed command structure; and the unprecedented accuracy of largely autonomous weapons already enabled the military “to destroy anything [they could] locate.”

This last point also confirmed the intuition of the RAND analyst Digby that smart weapons would enable military forces to venture beyond the conventional limits of the battlefield. As reported shortly after Desert Storm, “precision-guided bombs and highly accurate cruise missiles allowed United States commanders to attack strategic targets, even in crowded urban areas like downtown Baghdad, without worrying too much about errant bombs killing civilians.”²⁷ By significantly improving the resolution of an already globalised war machine, smart weapons also drastically widened the spectrum of situations where it would now be able to intervene. As summarized by a US major shortly after the Gulf War, “while tactical nuclear weapons were weapons of last resort, smart weapons are weapons of first resort.”²⁸ As such, they inaugurate an era of military intervention that is both permanent and boundless.

26 Malcolm W. Browne, “Invention That Shaped the Gulf War: The Laser-Guided Bomb,” *The New York Times*, February 26, 1991, sec. Science, <https://www.nytimes.com/1991/02/26/science/invention-that-shaped-the-gulf-war-the-laser-guided-bomb.html>.

27 Stephen Budiansky, “Air power’s ultimate test.” *U.S. News and World Report*, 28 January 1991, p. 28.

28 Vokac, “Smart Weapons: Can We Fold The Nuclear Umbrella?” 40.



Fig. 8—"Invention that Shaped the Gulf War: the Laser-Guided Bomb", *New York Times*, 26 February 1991

Networked Disruption

While some imagined the post-Cold War era as the "end of history,"²⁹ prominent RAND corporation analysts began interpreting the 1990s as "a new interwar period, one filled with radical change in which the contours of future conflicts were being shaped."³⁰ In their influential reports, John Arquilla and David Ronfeldt, in particular, laid down the conceptual basis for the US military's turn to 'networks' as its new primary object of concern. Drawing lessons from the evolution of the US conduct of warfare between Vietnam and the Gulf War, and putting these in the perspective of the 'information age' in which humanity was allegedly entering, Arquilla and Ronfeldt came up with two closely related proposals, in the early 1990s, to theorise the wars of the near-future: "cyberwar" and "netwar."³¹ Both concepts are based on the recognition of information as the new key strategic resource, "as valuable and influential in the post-industrial era as capital and labour have been in the industrial age."³¹ Both concepts also acknowledge the need for traditional hierarchical institutions, including the military, to evolve towards "new,

29 Fukuyama, *The End of History and the Last Man*.

30 John Arquilla and David Ronfeldt, *In Athena's Camp: Preparing for Conflict in the Information Age* (Rand Corporation, 1997), 1.

31 John Arquilla and David Ronfeldt, "Cyberwar Is Coming!," Product Page (RAND Corporation, 1993), 25, <https://www.rand.org/pubs/reprints/RP223.html>.

flexible, network-like models of organization.”³² The distinction between cyberwar and netwar is—the authors themselves admit—a theoretical approximation: cyberwar would correspond to the conduct of information-related warfare at military level specifically, while netwars would encompass a broader set of information-related conflicts at societal level, among which the authors include “public diplomacy measures, propaganda and psychological campaigns, political and cultural subversion, deception of or interference with local media, infiltration of computer networks and databases, and efforts to promote a dissident or opposition movements across computer networks.”³³

As they write about such emerging forms of warfare, the authors already anticipate that the distinction between the “military” and the “societal” level may soon be blurred under the effect of the “redefinition of security concepts” and the general weaponization of information and communication technology which they foresee.³⁴ Considering, in particular, the rise of conflict between state and non-state actors such as terrorist, insurgent or criminal networks, the authors expect that cyberwars and netwars would bleed into each other in practice. Above all, both concepts describe a mode of warfare where the primary target is the knowledge system of the enemy.

For Arquilla and Ronfeldt, one of the key forerunners of the network-oriented model of warfare that they call for is the German *blitzkrieg* doctrine, which “made the disruption of enemy communications and control an explicit goal at both the tactical and strategic levels.”³⁵ Relying on highly mobile panzer divisions networked via radio communication, blitzkrieg warfare focused on deep penetrations behind enemy lines with a view to decapitate its central command system; it showed its terrible efficacy during the first phase of World War II. A more recent precedent and an essential inspiration for the cyberwar/netwar model they proposed is offered by the North Vietnamese and the Viet Cong forces during the Vietnam war. While the US military was getting increasingly muddled up in the complex and inefficient calculations of the strictly centralised model of cybernetic warfare, the Viet Cong operated in accordance with

32 Arquilla and Ronfeldt, 27.

33 Arquilla and Ronfeldt, *In Athena's Camp*, 14.

34 Arquilla and Ronfeldt, “Cyberwar Is Coming!,” 29.

35 Arquilla and Ronfeldt, 37.

Mao Tse Tung's doctrine that "command must be centralized for strategical purposes and decentralized for tactical purposes."³⁶ From this dynamic articulation of hierarchical and networked structures, the authors derive their key recommendation for the organisational design of an efficient military force in the information age: the "decentralisation of command and control" paired with the improvement of "top-sight", namely "a central understanding of the big picture that enhances the management of complexity."³⁷ Such dual principle would go on to form the new model of optimised and efficiently scalable cybernetic warfare.

As the so-called "Revolution in Military Affairs" brought about by new information technology advanced, the ideas formulated by Arquilla and Ronfeldt, among others, soon morphed into an official military doctrine named *network-centric warfare* (NCW). In its first dedicated publication, from 1998, the main architect of the concept, David S. Alberts, describes it in the following terms:

"We define NCW as an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization. In essence, NCW translates information superiority into combat power by effectively linking knowledgeable entities in the battlespace."³⁸

In turn, information superiority is officially defined by the US Department of Defense as "the ability to collect, process, and disseminate an uninterrupted flow of information while exploiting and/or denying an adversary's ability to do the same."³⁹

Conceived as a general theory of warfare in the information age, NCW is described as being applicable to the entire spectrum of military operations—from the engagement of

36 Arquilla and Ronfeldt, 38.

37 Arquilla and Ronfeldt, 34.

38 David Stephen Alberts, *Network Centric Warfare: Developing and Leveraging Information Superiority* (Assistant secretary of defense (c3i/command control research program) washington dc, 2000), 1.

39 U.S. Department of Defense, Directive 3600. Accessed 31 August 2019, <http://www.acqnotes.com/Attachments/DoD%20Directive%203600.01%20Information%20Operations%2023%20May%202011.pdf>

conventional state forces, to asymmetric warfare, or to the newly introduced category of Operations Other Than War—which “involve civilian and military organizations as participants.”⁴⁰ As such, it overcomes the distinction between cyberwar and netwar by imagining the military as a sprawling network, with no clear boundaries of action, entirely dedicated to “leveraging information superiority” in a condition of permanent uncertainty. Interestingly, the theorists of NCW make explicit reference to the “Information Age organizations” in the private commercial sector as models for the structural transformations of the US military; in the process, they invert the commonly held narrative of a transfer of technology and organizational principles from the military to the civilian world, pointing rather to an entangled co-evolution of “information-enabled organizations” across the two domains. As such, the “sense and respond” model of production operated by Dell Computer Corporations, or the “precision retailing” operations of Wal-Mart or Amazon.com that integrate real-time feedback across their entire logistical chain, are retained as models to be followed by the US military to develop and maintain its “competitive advantage.”⁴¹

Recognising “responsiveness and agility [...] as critical attributes for organizations hoping to survive and prosper in the Information Age”, the NCW doctrine effectively endorses the project of restructuring the US military as a “network-centric enterprise.”⁴² As such, it sets out to “flatten hierarchies”, intensify the flow of information among geographically and hierarchically dispersed entities participating in military operations, and drastically “increase the speed of command.”⁴³ In so doing, it officialises the move away from the first centralised model of cybernetic command-and-control:

“In fact, the entire loop concept for command and control is becoming outdated and needs to be replaced with a new concept of command and control—one that recognizes the need to

40 Alberts, *Network Centric Warfare*, 62.

41 Alberts, 21.

42 Alberts, 21.

43 Alberts, 11.

treat different types of decisions differently and recognizes a *merging of the now separate planning and execution processes* (sometimes called dynamic planning).⁴⁴

The principle of combining decentralisation and augmented “top-sight” is here formally adopted. On the one hand, NCW is designed to bring “improved awareness for all players with more collaboration and decentralization in the form of self-synchronizing forces.”⁴⁵ On the other, the faster, richer, and multi-directional information flow that is fostered within the networked structure generates a wealth of data which, by using augmented analytical tools such as the pattern recognition algorithms already in use in the commercial sector, the US military would be able to mine. Using this augmented vision, the top of the chain of command would gain access to a reliable and constantly up-to-date *big picture* of their distributed operations. On that basis, they would be able to verify its conformity to broad strategic goals and to issue orders in much wider brushstrokes than in the past, themselves to be executed with a relative degree of autonomy by subordinates further down the line—or further out in the network.

The collapse of the distinct planning and execution phases into a single process of real-time action and feedback brings about, as the theorists of NCW anticipated, a shift from planning to *management* as the core strategic activity of the military leadership. The future command-and-control invoked in the reference theory of NCW is explicitly described as the task of “shaping and managing the battlespace”⁴⁶—a term which had “recently replaced ‘battlefield’ to convey a sense that the mission environment or competitive space encompasses far more than a contiguous physical place.”⁴⁷ In order to manage such wide and complex environment, NCW bets, fundamentally, on the distribution of intelligence among a dense network of human and non-human “battlespace entities.” As such, NCW can be understood as a radical extension of the process of smartening, initiated with weapon systems, now applied to the entire war machine.

A point with important bearing on the argument developed throughout the thesis is that the smartening of the US military throughout the 1990s played a key role in the global process

44 David S. Alberts, John Garstka, and Frederick P. Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority*, CCRP Publication Series (Washington, DC: National Defense University Press, 1999), 75.

45 Alberts, Garstka, and Stein, 107.

46 Alberts, *Network Centric Warfare*, 78.

47 Alberts, Garstka, and Stein, *Network Centric Warfare*, 60.

of urbanisation of warfare. This point is made—in problematic terms—by cultural studies scholar Ashley Dawson: “insurgent forces around the world, having witnessed the annihilation of Saddam's troops in the open desert by US ‘smart bombs’, had realized that their only chance of survival lay in fighting future wars in the urban jungles of the underdeveloped world.”⁴⁸ This point is directly anticipated by the theorists of NCW: “one of the greatest challenges we will face will be to ascertain the identity and location of our adversaries in the battlespaces of the future. (...) If what can be seen can be reliably killed, then the response will be to avoid being seen and thus the battlespace will become a place to play hide and seek.”⁴⁹ A diagrammatic picture of the new globalised conflict situation would have: on the one hand, a smart, network-centric war machine, which understands its task as that of leveraging information superiority against any threat to its newly acquired, post-Cold War hegemonic power; on the other, potential enemy networks embedded in dense urban environments which they use as both a defensive shield and a force-multiplier for their own actions and objectives—be it traffic, terrorism, or insurgency. In a world where information is the key strategic resource and battlespace awareness is the top concern of the military, urban environments—teeming with all kinds of signals and noise—inevitably emerge as primary sites of warfare. To every force at play, urban density means cover, and the possibility to conduct covert operations.

As a consequence, access to sensing, detection, and monitoring devices distributed over and across urban environments becomes an essential military stake. Since the mid-1980s, the “C²” acronym for command-and-control systems had begun to give way to “C³I” in official military publications: Command, Control, Communication and Intelligence. With the rise of the NCW doctrine, intelligence activities become increasingly integrated as a component of the military apparatus—in particular, Signal Intelligence (SIGINT), a largely automated form of intelligence-gathering by interception of electronic signals. Combined with a drastically expanded understanding of the battlespace, the result is a military war machine deeply embedded in the urban infrastructure of the territories under its watch, so as to be able to respond to any warning signal as soon as—or even, as we will see, *before*—it emerges as a threat. As argued by cultural anthropologist Ryan Bishop: “No part of the world went untouched by C3I, and it delineates

48 Ashley Dawson, “Combat in Hell: Cities as the Achille’s Heel of U.S. Imperial Hegemony,” *Social Text* 25, no. 2 (91) (June 1, 2007): 172, <https://doi.org/10.1215/01642472-2006-031>.

49 Alberts, Garstka, and Stein, *Network Centric Warfare*, 63.

the organizational, economic, technological and spatial systems that derive from, rely on, and perpetuate military strategy.”⁵⁰ Based on the recognition that “the netting of sensors generates a level of battlespace awareness that far surpasses that which could be generated by sensors operating in stand-alone mode,”⁵¹ the form of intelligence pursued in NCW is an essentially distributed one. The original meaning of smartness reveals itself quite literally here: as weaponised intelligence.

A corollary to this process is that each of the networked forces at war, whether a conventional army or an insurgent group, will soon become assimilated by its enemy to the very urban network through which it operates and fights. In this perspective, attacks categorised as “acts of terror” because they target urban infrastructure are objectively difficult to differentiate from the military practice of “switching cities off,” which has become a typical practice of contemporary warfare.⁵² Both can be interpreted as by-the book applications of NCW doctrine, namely, striking the critical nodes of an enemy network so as to maximise its incapacitation while minimising the use of force. In a network-centric approach, the urban is not only the site of warfare but also the key target to be disrupted.

Essential to the targeting activity of conventional and air-powered military forces engaged in NCW, smart weapon systems nonetheless constitute only one side of the conflict equation. It is one thing to be able to remotely hit any target with great precision; it is another to know which target is to be hit in order to cause maximal disruption to the enemy network. If NCW, or the smartening of the US war machine, prescribes a reduction of the force to be applied in conflict by putting the accent on information superiority, it calls, on the other hand, for a vast expansion of the data acquisition and processing capacity of the military. Such an enhanced knowledge system must enable the military to visualize a constantly updated map of potential enemy networks—comprising of human agents as well as their infrastructure. The pursuit of such doctrine, both in offensive operations in rebellious frontier zones and, especially after 9/11, as a defensive practice of Western urban heartlands, has resulted in a global phenomenon of

50 Ryan Bishop, “‘The Vertical Order Has Come to an End’: The Insignia of the Military C3I and Urbanism in Global Networks,” in Ryan Bishop, John Phillips, and Wei-Wei Yeo, eds., *Beyond Description: Space Historicity Singapore, Architext Series*, London & New York: Routledge, 2004.

51 Alberts, Garstka, and Stein, *Network Centric Warfare*, 171.

52 Graham, *Cities Under Siege*, 2011.

overlay of urban infrastructure with a myriad of sensors organized as a decentralised and partly automated network which nonetheless enables top-sight from a central authority. In this original deployment of smartness at urban scale, the key objective pursued is not the comprehensive optimization of an urban network, but rather the efficient disruption of its enemy branches.

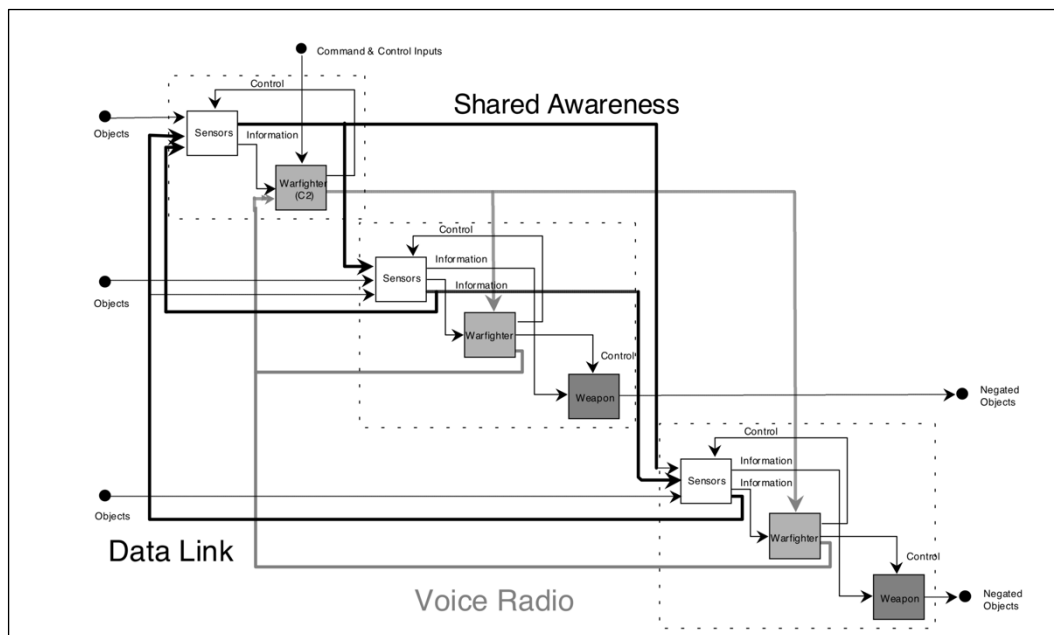


Fig. 9—“Network-Centric Operations.” From Alberts, *Network Centric Warfare*, 101.

Molecular Environment

The doctrine of network-centric warfare found its ideal terrain of application with the “war on terror”—specifically, in the operations “Enduring Freedom” in Afghanistan and “Iraqi Freedom” in Iraq, respectively launched by a US-led coalition in 2001 and 2003. These wars achieved to transform the primary role of the US military in the post-Cold War era. Indeed, with the disappearance of the Soviet arch-enemy and the expansion of a neoliberal model of political economy to the entire world, the military inherited of a new mission: maintaining the global hegemony of the US and *containing* any threat to its political, economic, and territorial interests. From an army of combat against conventional enemy forces, it turned, ultimately, into an army of occupation. The practical convergence of tasks and challenges between the US and the Israeli military—together with the political alignment between the neoconservative *hawks* of

the Bush administration and the right-wing Israeli government of former general Ariel Sharon—brought the two countries closer than they had ever been during the first years of the 2000s.

The declared ambition of forming a common strategic front in the global war on terror further resulted in the deep integration of the US and Israeli military-industrial complexes. The sharing of security technology and operational tactics between the two countries became common practice. From the perspective of the US military, there was much to learn from the experience of an army that had been successfully running a military occupation for several decades. The war against al-Qaeda and later the Taliban immediately took the form of asymmetric warfare against insurgent networks for the control of a vast territory; it remains, to this day, the longest war in US history. The invasion of Iraq started with a quick and predictable victory of the US-led coalition forces against the conventional army of Saddam Hussein, after which the actual military challenge could begin—namely, the occupation and securitization the Iraqi territory. A Sisyphean task by design, the seventeen year-long occupation of Iraq has already caused at least 288,000 violent deaths.⁵³

From Iraq to Afghanistan—and soon bleeding into Pakistan, Yemen, or Somalia—the global counter-insurgency operation run by the US armed forces brought the integration of smart weapon and smart intelligence systems to new levels. In its pursuit of ‘full-spectrum dominance’—a term introduced in the Joint Vision 2020 published the Department of Defense in May 2000⁵⁴—the US military apparatus needed to further expand its control over the electromagnetic spectrum and information space. In his early study of “war in the age of intelligent machines,” published in 1991, the philosopher Manuel De Landa already discusses the “vacuum cleaner” logic that the US military had begun to put in place with regards to global communication flows: made possible by the exponential rise of available computational power, the monitoring of the entire environment of communication across the planet quickly emerged as a key strategic objective of defense.⁵⁵ De Landa describes such activity as “policing the spectrum,”

⁵³ I am referring to the figure offered by Iraq Body Count project, accessed 31 August 2019, <https://www.iraqbodycount.org/>

⁵⁴ US Joint Chiefs of Staff, *Joint Vision 2020* (Washington, DC: US Government Printing Office, 2000).

⁵⁵ Manuel De Landa, *War in the Age of Intelligent Machines* (Zone Books, 1991), 180.

a term which captures an important shift: a hegemonic military power finds itself having to act, essentially, as a police force over the extended territory that it controls.⁵⁶

Exploring the growing role of intelligence agencies within the core activity of the military apparatus, De Landa recalls the development of the NSA from the Black Chamber—the first American crypto-agency, established in 1919—to the “SIGINT City” that the NSA’s sprawling complex had become by the 1970s, with “its antenna farms, spy satellites and cable-traffic intercepts feeding into its computers all the information that can be gathered.”⁵⁷ Read in light of the so-called ‘Snowden revelations’ which, in 2013, have publicly exposed the extent of the global surveillance programs conducted by US intelligence agencies, these passages underline how the history of the development of electronic communication runs parallel to the history of its militarised control. As De Landa argues: “One only has to think of the NSA’s commitment to stay five years ahead of the state of the art in computer design to realize that the cutting edge of digital technology is being held hostage by paramilitary organizations.”⁵⁸

“Because the Operations Against al Qa’ida Senior Leadership [sic] will be an intelligence-driven operation, we will become a pervasive and integral part of the fight”, wrote then NSA director Michael Hayden in one of the internal missives to NSA employees—called WARgrams—in early 2004.⁵⁹ From the start of the ‘war on terror,’ a number of research programs were launched by the Department of Defense to support the counter-insurgency operations by using big data analysis and pattern recognition algorithms developed in collaboration with social scientists. The objective of such programs went beyond the mere identification of insurgents hiding within the thick strata of the occupied territories’ population; they also aimed at forming a “social radar,” informing the military leadership of the general sentiment of the population towards, for example, emerging opposition leaders or the presence of US forces

56 Landa, 179.

57 Landa, 206.

58 Landa, 230.

59 Jason Koebler, “New Docs Show How the NSA Used the Iraq War to Build Its Surveillance Apparatus,” *Vice* (blog), September 6, 2016, https://www.vice.com/en_us/article/bmvyd5/nsa-wargrams-show-how-nsa-built-surveillance-apparatus.

on the ground.⁶⁰ The discovery and tracking of such “sentiment-target constellations” could then be exploited by the occupying forces to organise specific propaganda campaigns or psychological operations (psyop).⁶¹ The close relation between *mapping* and *steering* complex socio-spatial phenomena through data-driven practices is particularly manifest in this case.

As analysed in the work of numerous authors—including Louise Amoore, Claudia Aradau, or Grégoire Chamayou, to name but a few—data-driven monitoring practices developed into ever larger and ever more complex programs since the beginning of the ‘war on terror,’ with big data and algorithmic intelligence playing an increasingly central role in the US military apparatus.⁶² Fuelled by the ideology of ‘full-spectrum dominance,’ the relative efficiency of these security programs is considered, by its architects, to be a factor of the completeness of their data input. According to this logic, the entire material and social environment of operation is to be thoroughly monitored, while every interaction within it must be captured and logged. This process of total sifting through the operational environment is expected, in turn, to enable military authorities to immediately detect, and to act upon, any anomaly or deviation from the expected course of events.

For Brian Massumi, this quest of ultimate responsiveness finds its absolute realization in the doctrine of *pre-emption* which, going beyond the ideal of an immediacy of response, aims at confronting threats “before they emerge.”⁶³ Defined in these terms by George W. Bush in its 2002 address to the United States Military Academy, the doctrine of pre-emption would go on to form the core of his administration’s approach to foreign policy. Going further, Massumi argues that it actually constitutes the “operative logic of power” of the political epoch defined by

60 Olivier Koch, “Portrait de l’intellectuel en soldat,” *Le Monde diplomatique*, March 1, 2019, <https://www.monde-diplomatique.fr/2019/03/KOCH/59622>.

61 Barry Costa and John Boyney, “Social Radar”, MITRE Corporation

62 Amoore, *The Politics of Possibility*; Claudia Aradau, “The Signature of Security: Big Data, Anticipation, Surveillance,” *Radical Philosophy*, no. 191 (June 2015), <https://www.radicalphilosophy.com/commentary/the-signature-of-security>; Grégoire Chamayou, “Oceanic Enemy: A Brief Philosophical History of the NSA,” *Radical Philosophy*, no. 191 (June 2015), <https://www.radicalphilosophy.com/commentary/oceanic-enemy>.

63 Massumi, *Ontopower*, 3.

the enduring and pervasive ‘war on terror.’⁶⁴ As such, its domain of application is far from limited to the fully militarised frontiers of this war. In parallel to its radical and experimental deployments in Afghanistan or Iraq, the doctrine of pre-emption was implemented, more discretely, throughout the heartlands of Western power. The program of bulk collection of the communication data of American citizens by US intelligence agencies, enabled by the 2001 Patriot Act, is a case in point.

To articulate the specificity of pre-emption as an operative logic of power, Massumi draws from Michel Foucault’s characterisation of neoliberalism—at a time when it was emerging as the new dominant regime of power—as “environmental”: “a governmentality which will act on the environment and systematically modify its variables.”⁶⁵ Similarly, for Massumi, pre-emption works by constituting the whole of the natural and social world as a “threat environment” which, as such, must be permanently and thoroughly monitored by a sprawling apparatus of control capable of intervening at infinitesimal level within its entire fabric. When considering the material infrastructure supporting this mode of exercise of power, it could be argued that, by the 21st century, the original cybernetic network of sensor, actuator, and control units has extended so vastly, and has become so capillary, that it is hardly distinguishable from the very environment it was meant to adjust to. To borrow a spatial concept proposed by the philosophers Gilles Deleuze and Félix Guattari, the *striation* of space operated by the development of networked communication and distributed computation has reached a point where it ends up reproducing a *smooth* space of environmental governmentality.⁶⁶ Yet, as we have seen, the main driving force behind this long history of cybernetic expansion and capillarisation has remained military power. In their largest and most advanced materialisations today, cybernetic systems of distributed intelligence—better known as smart systems—retain a fundamental disposition towards the weaponization of their environment of operation.

The military ambition to operate a war machine that is virtually at one with the battle environment finds its clearest illustration in the latest doctrine in use by the Israeli military, called

64 Massumi, 3.

65 Foucault, *The Birth of Biopolitics*, 271.

66 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (University of Minnesota Press, 1987), 361.

“Diffused Warfare.” As analysed by a number of military theorists, the Israeli military consolidated its international status as a vanguard armed force during the 2000s—in particular after the 2002 battle of Nablus and the 2006 war in Lebanon.⁶⁷ Its pioneering tactics of urban warfare are regularly studied by armed forces around the world, including by the US, which tends to integrate “lessons” from Israel’s wars into its own military practices.⁶⁸ Diffused Warfare (DW)—at times translated as Distributed Warfare—grows out of Network-Centric Warfare but pushes its logic further, to the point of achieving, according to its theorists, a qualitatively different approach to waging war. Essentially, DW requires “the diffusion of the military’s hierarchical-linear thinking and structure.”⁶⁹ In DW:

“The mass is diffused into many molecular forces distributed throughout the entire battle space as independent pressure points, but the tactical picture of each molecular component of the network is available to all the others, as well as to the Command and Control coordination centre operating behind it. This way, the diffused structure is in effect controlled, and operates as if it were a unified force.”⁷⁰

The authors of the reference essay on DW are explicit about their choice of metaphors with “biological connotations”—such as the “Dynamic Molecule,” which forms the basic building block of the distributed force—to make clear that the DW theory draws inspirations from natural rather than technological structures.⁷¹ Moreover, DW sets out to address the problem of “the conquest and control of territory over extended periods of time”—considering that “the grave consequences of stationing massive forces in occupied territories to control them through high-intensity linear warfare activities have become painfully evident.”⁷² In contrast, through the deployment of a permanent intelligence infrastructure, combined with distributed capacity to

67 Eyal Weizman, “Lethal Theory,” *Log*, no. 7 (2006): 53–77.

68 Raphael S. Cohen et al., “Lessons from Israel’s Wars in Gaza,” Product Page (RAND Corporation, 2017), https://www.rand.org/pubs/research_briefs/RB9975.html.

69 Vice Admiral Yedidia Ya’ari and Haim Assa, *Diffused Warfare: The Concept of Virtual Mass* (Haifa: Reuven Chaikin Chair in Geostrategy, University of Haifa, 2007), 16.

70 Ya’ari and Assa, 18.

71 Ya’ari and Assa, 19.

72 Ya’ari and Assa, 33.

strike or intervene on demand, “diffused warfare in many respects renders land occupation unnecessary.”⁷³ The theorists of DW envision warfare as an always latent, pervasive, environmental condition: “Molecular force structures, comprising networks of air, ground, and sea elements, have the ability to operate in urban environments with minimum exposure and maximum flexibility in terms of entering and exiting the battle space. Their presence can go virtually unnoticed.”⁷⁴

Originally published in 2007, therefore synchronous with the establishment of the Gaza blockade, the DW theory was updated in 2015, with the addition of chapters that examine the application of the concept during the three Gaza wars since Israel’s withdrawal of its permanent presence on the ground: Operation Cast Lead (2008-09), Operation Pillar of Defense (2012), and Operation Protective Edge (2014).⁷⁵ As it will be argued in the following chapters, these full-scale operations are but the most visible eruption of the permanent and diffused system of militarised control exerted over the territory of Gaza. It is indeed the regime of the blockade as a whole that should be understood as a permanent and diffuse war, itself the product of a long history of cybernetic warfare whose ultimate objective is to entirely pervade the environment of civilian life.

Behind the blockade lies a sprawling apparatus of militarized governance, the ramifications of which extend into logistical, administrative, or humanitarian complexes. Composed of largely autonomous nodes, the decentralised network of the blockade nonetheless provides high-resolution top-sight to the Israeli authorities. Combining the capacity to thoroughly monitor the entire material and social environment of Gaza with the means for targeted interventions at molecular level, the ruling authorities can, as Foucault formulated it, “act on the environment and systematically modify its variables” so as to keep in line with the strategic objective pursued: the containment of a threat to Israel’s political, economic, and territorial interests. If smartness can be defined as the property of a cybernetic system of distributed intelligence, then the blockade of Gaza, as it will be argued throughout the following chapters, forms a unique example of its deployment at urban scale.

73 Ya’ari and Assa, 33.

74 Ya’ari and Assa, 103.

75 Vice Admiral Yedidia Ya’ari and Haim Assa, *Diffused warfare. Revised Edition* (Tel Aviv: Yediot Aharonot Press, 2015).

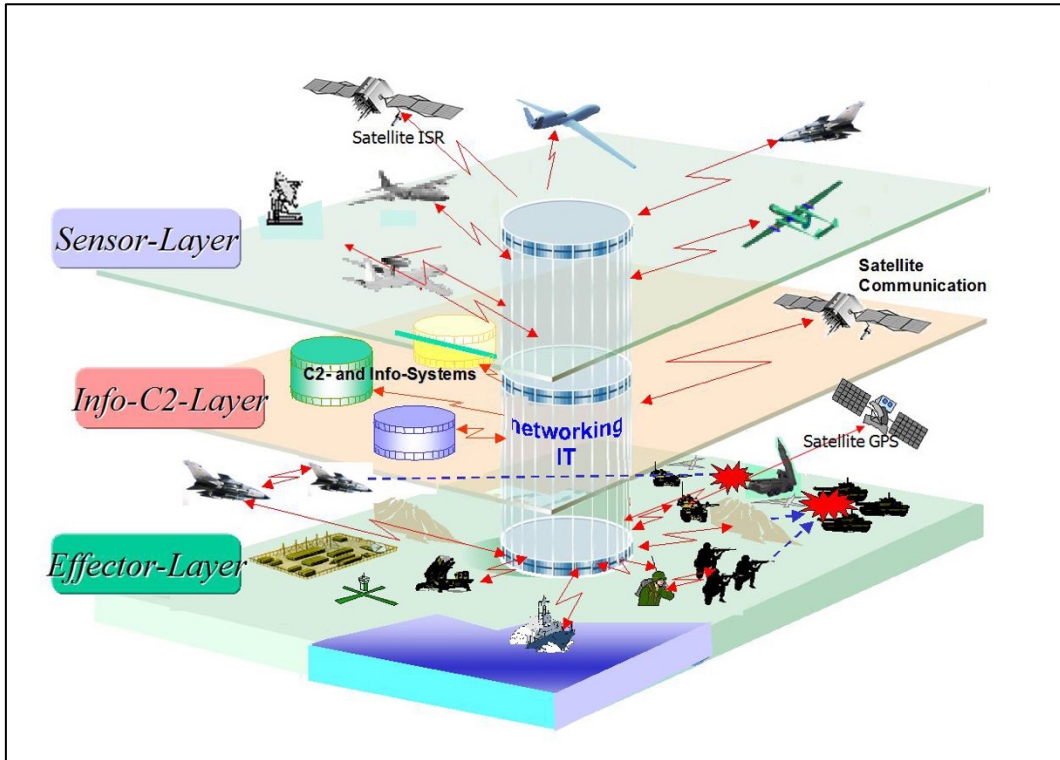


Fig. 10— “Netcentric Operations and Military Mobility” (Kevin Benedict, 2011)

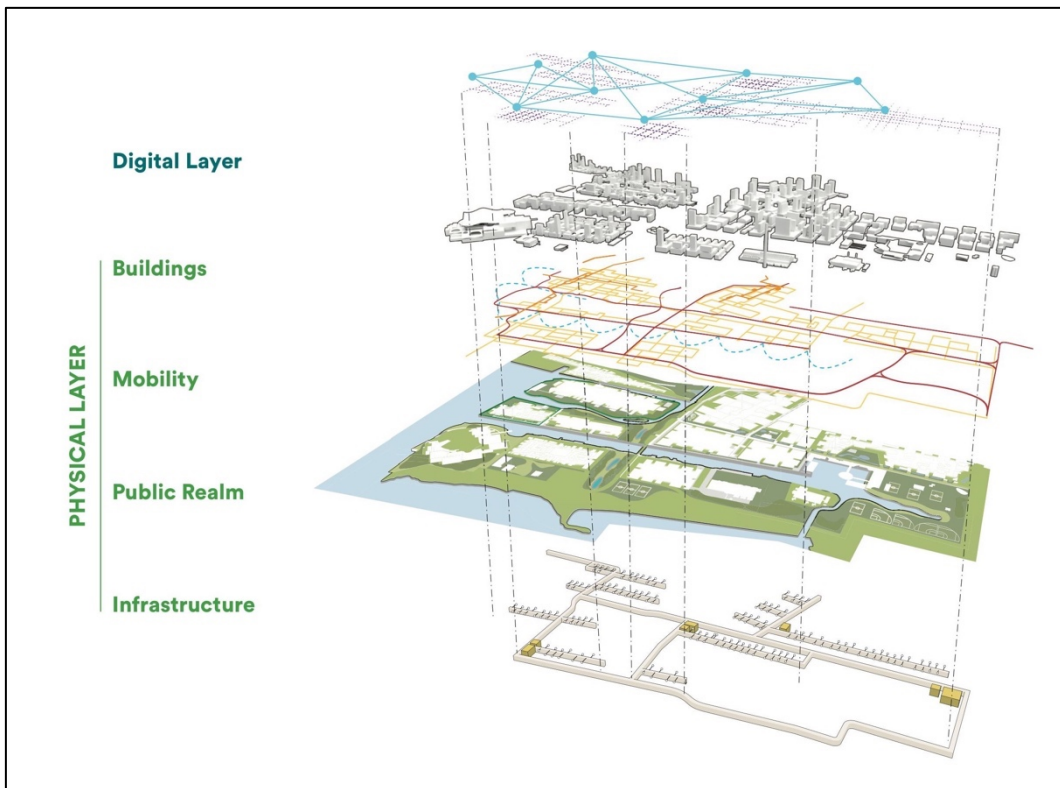


Fig. 11—Conceptual diagram for Toronto Waterfront project, Sidewalks Lab (Google), 2018

The City as Stack

In 1967, the same year as the first smart bomb was produced, an experimental laboratory was set up at MIT with the purpose of meshing architecture, urban planning, and computation. Titled the Architecture Machine Group, it was established through funding from the Cybernetics Technology Division of the Advanced Research Projects Agency (ARPA, renamed DARPA after 1972 to make its Defense purpose more explicit). As Orit Halpern argues, “much of our contemporary thinking about ubiquitous computing and smart cities in urban planning emanated from Nicholas Negroponte’s Architecture Machine Group.”⁷⁶ Very early on, it would seem, the military institution recognized that developing its capacity to operate within existing human environments was insufficient; in parallel, it set out to support the development of environments that would lend themselves to cybernetic forms of command and control. It is under this light that one should ponder, five decades later, the uncanny resemblance between one of the most common schematic depiction of a smart city—as a stack of interconnected functional layers—and the diagrams used by the military to represent the network-centric war machine operating in contemporary, therefore predominantly urban, combat environments.

Throughout this chapter, I have tried to highlight how the relation between militaries and cybernetics is not only one of origin, but rather one of historically interdependent development from World War II up to the contemporary condition—a condition which we may therefore describe as *the cybernetic present*. In so doing, my aim has been to revisit and to update the problem posed by Peter Galison over two decades ago: re-affirming the fundamental disposition of cybernetics system towards oppositional tactics; and tracing their evolution, from a military domain that bleeds increasingly deep into the civilian one, towards a general securitisation of their environment of operation. Considered as an effort to control complex urban environments through the meshing of distributed sensors, actuators, and control units deep inside their fabric, smart urbanism may appear as essentially indistinguishable from contemporary forms of warfare.

⁷⁶ Halpern, *Beautiful Data*, 10.

Chapter Three

Power to the Edge

Logistics is no longer content with diagrams or with flows, with calculations or with predictions. It wants to live in the concrete itself: in space at once, time at once, form at once.

—Fred Moten and Stephano Harney

Freedom is nothing else but the correlative of the deployment of apparatuses of security.

—Michel Foucault

Capital's Art of War

What are the blind spots of a view of logistics as “capital’s art of war?”³ This lapidary definition can be said to encapsulate the primary angle of critique used in much of the recent, humanities-based scholarship on logistics.⁴ Undeniably, logistics plays a pivotal role in the contemporary

3 Jasper Bernes, “Logistics, Counterlogistics and the Communist Prospect,” *Endnotes*, September 2013, <https://endnotes.org.uk/issues/3/en/jasper-bernes-logistics-counterlogistics-and-the-communist-prospect>.

4 A non-exhaustive list would include: Anna Tsing, “Supply Chains and the Human Condition,” *Rethinking Marxism* 21, no. 2 (April 1, 2009): 148–76, <https://doi.org/10.1080/08935690902743088>; Alberto Toscano, “Logistics and Opposition,” *Mute*, August 9, 2011, <http://www.metamute.org/editorial/articles/logistics-and-opposition>; Alberto Toscano, “Lineaments of the Logistical State,” *Viewpoint Magazine*, September 28, 2014, <https://www.viewpointmag.com/2014/09/28/lineaments-of-the-logistical-state/>; Charmaine Chua, “Logistics, Capitalist Circulation, Chokepoints,” *The Disorder Of Things* (blog), September 9, 2014, <https://thedisorderofthings.com/2014/09/09/logistics-capitalist-circulation-chokepoints/>; Brett Neilson, “Five Theses on Understanding Logistics as Power,” *Distinktion: Journal of Social Theory* 13, no. 3 (December 2012): 322–39, <https://doi.org/10.1080/1600910X.2012.728533>; Ned Rossiter, *Software, Infrastructure, Labor: A Media Theory of Logistical Nightmares*, 1 edition (New York: Routledge, 2016); Martin Danyluk, “Capital’s Logistical Fix: Accumulation, Globalization, and the Survival of Capitalism,” *Environment and Planning D: Society and Space*, April 9, 2017, 0263775817703663, <https://doi.org/10.1177/0263775817703663>; “Logistics-the-Transnational-Social-Strike——TSS-Journal-Fall-2017-1.Pdf,” accessed April 9, 2018,

model of capitalism; as such, its operational logic increasingly sets the rules for the restructuring of spaces and conditions of labour all along a world-encompassing supply chain. Yet this fact alone does not immediately entail that the field of operations of logistics can be strictly reduced to capitalist dynamics. Could it be that, in order to formulate an effective critique of logistics, one needs to venture beyond the horizon of capital?

Paradoxically, it is the relative success of a major political mobilisation around and against logistics that prompts us to pose this question. On 2 November 2011, about twenty thousand protesters marched into the port of Oakland—the fifth busiest container port in the US—causing a total shutdown of its activity. Widely discussed in the critical literature on logistics, the blockade of the Port of Oakland is often described as the most significant instance of the Occupy movement, because of the actual disruption it caused to the material flows of transnational capitalism. Among circles of the radical left, it has led to a discourse praising “a move from the strike to the blockade” as a new paradigm of anti-capitalist action in the globalised condition.⁵ It would be foolish to pretend assessing, in general terms, the strategic character of the localised actions of logistical disruption that have multiplied around the world in recent years; their degree of success, indeed, is to be measured first and foremost against the particular demands of the workers and activists undertaking them. What is perhaps worth questioning, instead, is the conceptual schema that seems to emerge, more or less explicitly, from a number of attempts at theorising such actions: whereby, put simply, logistics = flow = capitalism, therefore blockade = interruption = resistance.⁶ Here it should suffice to mention the example of the occupied Palestinian territory, and of the blockaded Gaza Strip, in particular, to start disrupting such a schema. To anyone familiar with the situation in Palestine, the recent entry into circulation of terms like ‘occupy’ or ‘blockade’ as key slogans of a self-proclaimed global movement of emancipation may have sounded, to say the least, odd. What it raises is not merely a branding

<https://www.transnational-strike.info/wp-content/uploads/Logistics-the-Transnational-Social-Strike-%E2%80%94-TSS-Journal-Fall-2017-1.pdf>.

⁵ The formula is borrowed from Alberto Toscano, although his own discourse is critical of such simplified framing. See Toscano, “Lineaments of the Logistical State”.

⁶ One of the most explicit formulation of this conceptual schema can be found in an article by Charmaine Chua, which opens with a report on the ‘Block the Boat for Gaza’ initiative that saw activists in the port of Oakland blocking an Israeli ship for several days, in solidarity with Palestine. “The disorder of things is in the blockade,” the article concludes, seemingly blind to the paradox raised by such claim. See Chua, ‘Logistics, Capitalist Circulation, Chokepoints’.

problem, but rather a conceptual one. Unless key sites of struggle over mobility and circulation, such as Palestine, are carved out as exceptions to an otherwise global rule of logistical capitalism, practices of obstruction and interruption cannot immediately be held as effective tactics of counter-power.

This chapter revisits a number of key theoretical references around the problem of circulation, with a view to lay the ground for an understanding of the Gaza blockade as a logistical operation. In the process, it outlines an articulation of the notions of security, logistics, and smartness as a conceptual triad deeply intertwined with the particular spatial order of the *urban*. A first section discusses the notion of differential mobility as developed in recent critical theory on borders and migration, while pointing to some of the limits of the framing of logistics that was derived from it. The second section returns to the conceptualisation of security offered by Michel Foucault, with a view to approach logistics from the perspective of the long history of circulation as a political and economic problem. The third and fourth sections outline a historical nexus between security and logistics by considering the first transoceanic networks of circulation established in the frame of European colonialism. The resulting understanding of the security-logistics couple is then mobilised to discuss, in a fifth section, the recent literature on modern logistics and its impact on the urban condition. A sixth and final section proposes an understanding of smartness as an environmental derivative of the security-logistics couple.

Global Borderscapes

"Far from serving merely to block global passages, borders have become central devices for their articulation" write Sandro Mezzadra and Brett Neilson.⁷ Their jointly authored writings offer an insightful analysis of the "paradox" of our globalised condition, where borders and walls, instead of receding and disappearing, are actually proliferating. While the promise of a borderless "space of flows" accompanied many of the early theories of globalisation, Mezzadra and Neilson's argument starts from a call to discard it once and for all. Instead, they offer a radical

⁷ Mezzadra and Neilson, *Border as Method, or, the Multiplication of Labor*: ix.

reconceptualization of borders that emphasises their key role in the mediation of global mobility. Because of their relevance to this thesis, a number of elements from their work are worth pointing to here.

The first is their insistence on the deep heterogeneity of the contemporary border, which shall no longer be conceived as a linear feature, but rather as a diffuse and ramified border apparatus. In their work, the border is primarily defined through its function—the regulation of disparate mobilities—rather than its form. Anything performing that function shall be considered part of a “borderscape”⁸: a point that has very much informed my own study of the architecture of the Gaza blockade.

Furthermore, they propose the border as a relevant methodological *site*, from which to position oneself as a researcher in order to look at the flows that traverse it, the places that it bounds, and the struggles that it captures.⁹ Aligned with this method, my research is primarily conducted from the *border* of Gaza. This is not merely a result of the practical limitations of the blockade, which makes access to the Gaza strip virtually impossible to a foreign national researcher; rather, my following of the *border as method* stems from the recognition that the key locus of power in the regime of the Gaza blockade is the border apparatus itself—the capillarity of which I track on both sides of the actual fence.

Finally, the relation between borders and contemporary forms of power is precisely where the argument formulated in this thesis slightly departs from Mezzadra and Neilson’s one. Like them, I draw upon the crucial postcolonial critique of the border epitomised by Homi Bhabha’s assertion that “[t]he globe shrinks only for those who own it; for the displaced or the dispossessed, the migrant or the refugee, no distance is more awesome than the few feet across borders or frontiers.”¹⁰ At stake in this critique is the recognition of “the system of differential inclusion that characterizes current migration regimes.”¹¹ However, because the conceptual lens that the two authors use to frame the political dimension of the border is primarily a Marxist one, the central concept that they retain in order to examine the dynamics of borderlands and border struggles is that of *labour*. In an attempt to push the authors’ materialist stance even further, my

8 Mezzadra and Neilson, 9.

9 Mezzadra and Neilson, 14.

10 Homi K. Bhabha, “Double Visions: ‘Circa 1492,’” *Artforum*, January 1992, 85–89.

11 Mezzadra and Neilson, *Border as Method, or, the Multiplication of Labor*, 24.

research looks at the politics surrounding every form of cross-border circulation—including that of objects, resources, or information—without a particular focus on any posited human subject of capital.

In a recent and this time single-authored essay, Neilson calls for an understanding of “logistics as power.”¹² Unpacking Neilson’s argument will allow me to articulate the nuances I intend to bring to his theoretical proposal.

Neilson’s concern with logistics is grounded upon the hardly disputable acknowledgement that “logistics has become central to the orchestration of globalized trade and production.”¹³ Referring to what a number of scholars of logistics call the “logistics revolution”, he describes the 1960s and 1970s as “transformative years”, which: “[...] saw the diffusion of a system analytics approach to transportation, communication, and the spatial organization of the firm, the introduction of the shipping container, the formation of business organizations and academic programs for the generation and transmission of logistical knowledge, the interlinking of logistics science with computing and software design, and the move from a cost minimization to a profit maximization approach.”¹⁴ Drawing from the work of military historian Martin Van Creveld, Neilson reaffirms that, from the Napoleonian wars onwards, logistics moved from the background to the forefront of military practice and theory. Similarly, and through a process which Neilson calls a “civilianization of logistics”, in the post-World War II period, logistics would start to lead, rather than to merely support, “the strategy of firms and the security of nations.”¹⁵

Neilson advances that “[u]nderstanding [logistics] as power means not only tracing its relevance for transformations of labour and capital but also analysing how it impacts upon changing regimes of sovereignty, governance, knowledge, and biopolitics.”¹⁶ However, his work on the topic so far falls short of doing justice to the declared ambition. I argue that the understanding of “logistics as power” that Neilson proposes is at the same time too narrow and too abstract.

12 Neilson, “Five Theses on Understanding Logistics as Power.”

13 Neilson, 323.

14 Neilson, 324.

15 Neilson, 329.

16 Neilson, 325.

It is too narrow because it maintains an approach to logistics in the strict sense of its function within globalised capitalism—namely, that of optimising the circulation of goods and labour. As such, Neilson hardly takes into account the deployment of logistics for other purposes than the process of capital accumulation; nor does he acknowledge how, as this thesis contends, the *same* spatial/technical apparatus also orchestrates the violent fixation of determined populations, even when they would constitute a highly-profitable market. Gaza, a densely populated strip of land on the Eastern Mediterranean coast, is a case in point.

In a related way, Neilson's approach to logistics as power is too abstract because it maintains the transcendent abstraction of capital as the vanishing point of any operation of both logistics and power. In the process, all forms of exclusions and oppression resulting from the global regime of differential mobility appear to be subsumed under the violence of capital itself, whereby logistical power is delineated in mere contrast to labour struggle. Conversely, logistics being unquestioningly posited as, first and foremost, an instrument of capital accumulation, the spaces and technologies that it deploys are only observed through this relatively narrow lens—thereby missing, arguably, entire dimensions of its operations.

The shortcomings of the understanding of logistics as power proposed by Neilson are perhaps most manifest in its (non-)treatment of the notion of security, which is almost entirely evacuated, relegated to a secondary problem: implicitly, that of the securing *of* the supply chain, *of* the circuits of capital accumulation. This approach misses what is perhaps the key insight provided by the late work of the philosopher Michel Foucault, who identifies security as a governmental technology in its own right.¹⁷ Instead of “reveal[ing] some of the limits of Foucauldian accounts of power for understanding the currently globalizing operations of capital,”¹⁸ Neilson's unsatisfying interpretation of the relation between logistics and power actually leads us to Foucault.

17 Michel Foucault, *Security, Territory, Population. Lectures at the Collège de France, 1977-78*, ed. Arnold I. Davidson, trans. Graham Burchell, 2009 edition (Basingstoke: Palgrave Macmillan, 2007).

18 Neilson, “Five Theses on Understanding Logistics as Power,” 325.

To Urbanise is to Secure

Foucault's 1978 course at the Collège de France, which he titled *Security, Territory, Population*, has a special place within his legacy: not only does it constitute the first part of a two-year cycle that explores the problem of "bio-power", but also, it is in these lectures that Foucault first introduces the term "governmentality." Because of the centrality of these two notions in the posthumous reception of his work, it is primarily *through* them that the course has been read. Nonetheless, Foucault's original project—which he himself abandons and reformulates mid-way through the course—is to outline a "history of the technologies of security."¹⁹ It is largely from this aborted project that the thesis draws in order to propose a theoretical re-articulation of the concepts of security and urbanisation—on the basis of which the impact of both logistics and smartness on the urban condition can be approached under a new light.

Foucault's 1978 course starts and ends with the problem of circulation—more precisely, with its emergence as a prominent political problem in Western Europe at the turn of the eighteenth century. What Foucault calls the *dispositifs* of security is the set of mechanisms of power that are deployed in response to this problem, which aim at "organising circulation, eliminating its dangers, making a division between good and bad circulation, and maximizing the good circulation by eliminating the bad."²⁰ At stake in the emergence of these new mechanisms of power is what Foucault regards a "major mutation" in the organisation of western societies, with lasting consequences; it is indeed with the present in mind that he frames the problem addressed by his course: "Can we say that the general economy of power in our societies is becoming a domain of security?"²¹

The field within which Foucault detects this political mutation—where it manifests itself most clearly in the material domain—is that of town planning. He uses the redevelopment of the port city of Nantes in the 1750s as a paradigmatic example of the new "spaces of security."²² The tearing down of the medieval city walls, the cutting of new roads and boulevards, the alignment of the town's layout with a much larger territorial road network, the extensive use of

19 Foucault, *Security, Territory, Population. Lectures at the Collège de France, 1977-78*, 2007, 25.

20 Foucault, 34.

21 Foucault, 21.

22 Foucault, 25.

subtraction to reshape the urban fabric, the facilitation of surveillance through the use of straight lines, the integration of the material givens of the site such as the flows of water and air in the conception of an overall urban “milieu:”²³ all these features mark, for Foucault, the constitution of *security* as a new technology of power, whose specific mode of operation is to optimally regulate different types of circulations across a social field.



Fig. 12—Vigné de Vigny, « Plan de la Ville de Nantes », 1758. (Source: Archives Municipales de Nantes)

In this particularly non-linear lecture series—which ended up being more famous for its digressions than for its core discourse—Foucault may be guilty of having left too much room for a misunderstanding of his original argument. In order to assert the distinct character of security,

23 Michel Foucault, *Security, Territory, Population. Lectures at the Collège de France, 1977–78*, ed. Arnold I. Davidson, trans. Graham Burchell, 2009 edition (Basingstoke: Palgrave Macmillan, 2007), 35.

Foucault regularly sets it against the other modes of power he outlined in his previous work, namely sovereignty and discipline. When addressing “the different ways in which they dealt with and planned spatial distributions,” for instance, he contrasts the “essentially centripetal” character of discipline—which “isolates, concentrates, encloses”—with what he describes as the “centrifugal” character of security—which would “allow for the development of ever-wider circuits.”²⁴ Similarly, addressing this time their respective relation to given events—especially the scarcity of grain—Foucault opposes: the logic of total regulation at the level of every detail that would structure the disciplinary apparatus; and the *laissez-faire* logic of the apparatus of security, within which events are allowed to run their course while only their macroscopic fluctuations are acted upon to generate specific effects on the *population*. What is more, later in the course, Foucault will present this apparatus of security as the “essential technical instrument” of his proposed notion of governmentality.²⁵ With the emergence of *governmentality studies* and their rise to prominence from the 1990s onwards, it is roughly the same technical apparatus that will be rebranded as a *biopolitical* apparatus and featured in innumerable analyses thereafter. As a result, in the Anglo-American reception of Foucault’s work in particular, the security/biopolitical apparatus that is retained as a defining feature of our current neoliberal governmentality is specifically understood *in contrast* to the disciplinary apparatus—as if the former had replaced the latter as a new dominant logic of power.²⁶ Undoubtedly, the historical context of the globalisation boom in the 1990s, with the fall of many walls and the overall acceleration of exchange flows across the planet, contributed to an understanding of Foucault’s biopolitics of security as being primarily about opening up and letting things flow freely within a wider frame of more loose governmental control.

Of course, “mechanisms of security do not replace disciplinary mechanisms, which would have replaced juridico-legal mechanisms,”²⁷ as Foucault insists. Rather, with these lectures, he is

24 Foucault, *Security, Territory, Population. Lectures at the Collège de France, 1977-78*, 2007, 83.

25 Foucault, 144.

26 Burchell, *The Foucault Effect: Studies in Governmentality*, 1st Edition edition (Chicago: University of Chicago Press, 1991); Mitchell M. Dean, *Governmentality: Power and Rule in Modern Society* (London; Thousand Oaks, Calif: SAGE Publications Ltd, 1999); Jakob Nilsson and Sven-Olov Wallenstein, eds., *Foucault, Biopolitics and Governmentality*, 1st edition (Huddinge: Södertörn University, 2013).

27 Foucault, *The Birth of Biopolitics*, 22.

concerned with describing how “a technology of security [...] will be set up, taking up again and sometimes even multiplying juridical and disciplinary elements and *redeploying them within its specific tactic*.”²⁸ Most importantly, the *anatomo-politics* of the disciplinary apparatus, which targets the body of the individual subject, certainly does not disappear with the development of the *biopolitics* of security, the new target of which is the population. Given the historical approach of Foucault’s work, it is important to remember that what he describes distinctly as discipline and security actually emerge as apparatuses of power roughly at the same time, over the course of the eighteenth century. In fact, as the political philosopher Michel Senellart notes, this two-year cycle of lectures is an occasion for Foucault to correct some of his previous analyses, to review the theoretical schema that he has outlined so far by integrating the perspective of *power over life* which he recently discovered.²⁹ While the focus of his analysis moves from the micro-politics of his earlier work to the macro-scale of the milieu within which they take place, the broader horizon of this work is to describe a mode of government operating across a full spectrum, whereby the micro- and macro-political dimensions are coextensive and articulated. Fundamentally, there is a nested complementarity between sovereignty, discipline, and security, which together form three layers of a truly modern governmentality.

It is therefore important to clarify what is somewhat ambiguously theorised in Foucault’s early lectures of his 1978 course: if security emerges as a technology of power that operates primarily through the regulation and optimisation of circulations within and across a social field, then it is neither centrifugal, nor centripetal—but essentially *differential*. It accelerates certain flows as much as it hinders others, it releases with one hand and encloses with the other, it isolates here and connects there, minimises risks and maximises opportunities in a single movement. In addition to inaugurating a set of new spatial logics, such as the ones outlined in the case of Nantes, security uses the structures and spaces of discipline—“redeploying them within its specific tactic”—in order to produce its own spatial order: one that responds to the problem of circulation by organising a differential spatiality of opening and enclosure, and manages it over time by modulating its localised material configurations. It is along these lines that one should understand Foucault’s lapidary statement, that “freedom is nothing

28 Foucault, *Security, Territory, Population. Lectures at the Collège de France, 1977–78*, 2007, 24.

29 Michel Senellart, “Course Context” in Foucault, Michel. *Foucault*, 477.

else but the correlative of the deployment of apparatuses of security.”³⁰ In fact, it is only because it could rely upon the advanced and now consolidated techniques of both sovereignty (prohibition, exclusion) and discipline (prescription, segmentation, enclosure), that the apparatus of security could deploy itself with a view to enable *free* circulations within a *secured* social field. And it is only through an understanding of the macro-technology of security as consisting “to a great extent in the reactivation and transformation of the juridico-legal techniques and the disciplinary techniques,”³¹ as a new orchestration of the social field according to a dialectic of stimulation *and* impediment of the natural inclinations within a population, that we can grasp the emergence this new rationality of government in the eighteenth century—which seizes freedom as its ideology and security as its technology—namely: liberalism.

The most important clue that we can take from Foucault when exploring the deep links between security and urbanisation appears at the very end of his 1978 course: “in the strong sense of these terms, to police and to urbanise is the same thing.”³² Let us return to the “strong sense” of each term then, in order to unpack the particular significance of this statement within the theoretical framework developed in this thesis. Here, Foucault uses the term police in the original sense that it acquired over the seventeenth- and eighteenth-century, namely, at the most general level, “the set of means by which the state’s forces can be increased while preserving the state in good order.”³³ Importantly, the police is presented as one of the two key apparatuses of the technology of security, the other being the “military-diplomatic” one, concerned with guaranteeing a balance of forces between states; while each of these apparatuses develops in relative autonomy over the course of the seventeenth-century, it is precisely their articulation in a single, coextensive mechanism in the eighteenth century which signals for Foucault the emergence of security as a new technology of power. As he goes on to describe over the last two lectures, the regulatory techniques of the early police address a wide variety of objects—from health to commerce, through buildings, roads, or manufacture—which he recognises as essentially “urban objects.” In short, the seventeenth- and eighteenth-century police is concerned with the problem of the “coexistence of men and circulation of goods”, as

30 Foucault, 48.

31 Foucault, 24.

32 Foucault, 432.

33 Foucault, 408.

well as “the circulation of men and goods in relation to each other”. Hence it “was thought essentially in terms of what could be called the urbanisation of the territory. [...] [A]rranging things so that the territory is organized like a town, on the model of the town, as perfectly as the town.”³⁴

Yet the problem of scarcity, or the problem of the optimal marketing and circulation of grain—which was so central to the administrative debates of the eighteenth century, as Foucault recounts—will lead to the emergence of a new political economic canon. It is the birth of the *laissez-faire* doctrine, or a redefinition of the mission of the police apparatus: from the total, centralised, and minute regulation of grain circulation, to a mere management of the *natural* processes occurring when the exchanges across a population are mediated by a market. This re-configuration of the role of the police in relation to grain circulation—effectively, its withdrawal from a wide range of directing activities in order to *let things run their course*—will form the model of its broader redefinition starting in the eighteenth century. From then on, a break takes place in the classical police, whereby its field of action will no longer comprise the activities pertaining to the positive release, fostering, and direction of productive circulations, but only repressive activities, concerned with impeding, limiting, and regulating excesses. In the process, the term “police” acquires its contemporary meaning. But if the ambition to undertake a total direction of all circulations and conducts across its population ceases to be on the governmental horizon of the state at this time, if the police apparatus becomes only concerned with the repression of deviant circulations, that does not mean that productive circulations cease to be an object of government. On the contrary, the emergence of security as a technology of power, and of liberalism as a governmental rationality, hinges on the redefinition of state’s relation to such productive circulations and exchanges: from a role of director, to one of facilitator. In other words, the state’s concern shifts from the direct conduct of subjects, to “the conduct of conducts” within a population and across a territory.³⁵ Consequently, the practical activities undertaken by the modern, *governmental* state will focus on organising the territory as an optimal medium of activities, rather than on organising the activities themselves. As a corollary, the pursuit of the optimisation of the living milieu of the population requires a substantial development of the state’s capacity to see and to know. The development of statistics, understood as

34 Foucault, 438.

35 Foucault, 503.

“the state’s knowledge of the state,”³⁶ is therefore centrally linked to the emergence of security as a technology of power, and forms the epistemological hinge between the police and the military-diplomatic apparatuses.

The equivalence that Foucault draws between police and urbanisation still refers to the old sense of the police—which is no longer applicable to the case of the redevelopment of Nantes in the 1750s. If up to the seventeenth century, the police was concerned with organising the territory as neatly as a town—with all the hierarchical, centralised, and fixed arrangement that the classical model of town-planning entails—the eighteenth century is marked by a new problem: that of “resituating the town in a space of circulation.”³⁷ This is the main significance of the interventions in Nantes described above: they don’t just mark an opening up of the town, they signal a radical shift in the status and understanding of the city in relation to the territory. Building upon Foucault’s insights, we can say that Nantes in the eighteenth century marks the start of a long process, along which the city ceases to be understood as a bounded object to be modelled into an ideal form; rather, the city starts appearing as a node to be connected to a wider network, an area of particular density and intensity within a continuous milieu that traverses the entire territory. No longer bounded, it acquires an open-ended character both spatially and temporally—in the sense that its limits become a *process* which, as such, shall be governed. Every opening of city gate, every cutting of a new boulevard, every realignment of street does not only render traffic more fluid, but also facilitates its monitoring and regulation. What characterises the spaces of security is less the removal of barriers to circulation, than it is the improvement of their capacity to screen and filter its flows. At the same time as the problem of grain scarcity repositions the questions of agriculture and land alongside the questions pertaining specifically to the town in the new governmental horizon, the town-planning interventions of that period mark the beginning of an erosion of the strict city/countryside divide—which will redefine the entire territory as a space of circulation, as a milieu to be optimised according to a (techno)logic of security.

36 Foucault, 411.

37 Foucault, 27.

This new and essentially unbounded spatial order is, I argue, what is commonly referred to as *the urban*. This proposal builds on the essential work of several urban theorists who have developed a concept of the urban as a historically situated process which, from the moment of its emergence, would begin to replace the spatial order organised around the city/countryside binary. Building, in particular, from the work of Catalan engineer and planner Ildelfons Cerdà—who coined the term *urbanización*³⁸—the urban historians Françoise Choay and, more recently, Ross Exo Adams, have situated the moment of the formal constitution of the urban as a distinct spatial order around the second half of the nineteenth century. If, for Choay, the urban constitutes above all a spatial expression of the Industrial Revolution and of the resulting framing of circulation across the modern society as a technical problem,³⁹ Adams develops a more explicitly political reading of the same process:

“What makes the urban unique, I argue, is that, unlike any previous spatial order, the boundary separating spatial order from modes of political subjectification and control disappears almost entirely: urban space is, in its ideal form, unmediated power—a characteristic that has only intensified today with the rise of cybernetic infrastructures and the general climate of crisis in which the urban continues to re-present itself.”⁴⁰

While they each offer a different interpretation of historical significance of the birth of the urban, both Choay and Adams nonetheless converge on recognising Cerdà’s *Eixample* in Barcelona (1856) and Haussman’s Paris renovation (1852-1870) as signalling the start of this vast project of articulating the city and the territory into a single, rationalised milieu of circulation.⁴¹ By suggesting, in contrast, that the essential characters of this new spatial order are already legible in the renovation of the city of Nantes a whole century earlier, my point is not to start a historiographic quarrel with distinguished urban historians. Rather, my goal is to indicate the original link between *security* and *urbanisation*, to their inseparable character, once they are both understood as historically

38 Ildefonso Cerdà, *Teoría general de la urbanización, y aplicación de sus principios y doctrinas a la reforma y ensanche de Barcelona* (Imprenta Española, 1867).

39 Françoise Choay, *Urbanisme, utopies et réalités* (Paris: Seuil, 1965).

40 Ross Exo Adams, *Circulation and Urbanization* (SAGE Publications, 2019), 5.

41 Françoise Choay, “Le Règne de l’urbain et La Mort de La Ville,” in *La Ville, Art et Architecture En Europe, 1870-1993* (Paris: Centre Georges Pompidou, 1994), 26–35; Adams, *Circulation and Urbanization*.

situated processes manifesting the emergence of liberalism as a new rationality of government in the eighteenth century. In the conceptual framework outlined above, therefore, the link between security and urbanisation is primordial, fundamental. Security does not constitute an additional layer deployed over urban environments in response to a particular political or cultural context—such as the War on Terror, which is singled out in much of the recent scholarship on the *securitization* of urban environments. Rather, to this day, urbanisation *is* the territorialisation of security mechanisms; and the resulting spatial order, the urban, *is* the reorganisation of cities and territories according to the fundamentally differential logic by which security responds to the problem of circulation.

Tracking the first historical signs of the new spatial order of the urban, not in Paris or Barcelona, but in the frontier town of Nantes, further follows the logic of looking for radical experimentations and innovations at the edge of the territory, rather than in its centre. Most importantly, the suggested refocusing on Nantes also calls for shift of attention with regards to the key transport technology against which the emergence of urbanisation needs to be thought of. Whereas the development of the railway throughout the nineteenth century is commonly retained as the technological trigger of this new articulation of the town and the territory, insufficient consideration has so far been given to the role of an earlier, far-reaching technology in reframing the problem of circulation in territorial and political terms: namely, the slave ship.

Flowing Grounds

What makes the eighteenth century redevelopment of Nantes even more of a paradigmatic spatial expression of security—and, as such, a prototypical example of urbanisation—is something Foucault fails to note: Nantes is not only a thriving market town and the main port of France's commerce with England; it is also the largest port of the French slave trade. Between 1707 and 1831, more than 500,000 enslaved black Africans were deported to the Antilles on slave ships that left Europe from the port of Nantes.⁴²

⁴² Jean Mettas, *Répertoire des expéditions négrières françaises au XVIIIe siècle: Nantes* (Société française d'histoire d'outre-mer, 1978).

Supported by a booming commercial economy, Nantes's population will double over the course of the eighteenth century, going from 40,000 to 80,000 by 1793.⁴³ The slave trade played a key role in the sudden prosperity of this provincial town on the estuary of the Loire river, as attested by the 1765 article on Nantes in Diderot's *Encyclopédie*: "The University of Nantes was founded in 1460. But it is the university of commerce that shines in this town. Every year, they fit out multiple ships to trade slaves in the French colonies. The flow of all sorts of goods is easier and livelier in Nantes than it is in any other town of the kingdom."⁴⁴

Made possible, financially, by the town's new wealth, the redevelopment of Nantes in the 1750s was primarily intended to accommodate, and to facilitate, the increase in the "flow of all sorts of goods" through the town. Cane sugar, a particularly sought-after commodity throughout the French kingdom at the time, and which slave ships would bring back from the colonies by the ton, would make internal commerce thrive. The old market of the "port au Vin", centrally located, could no longer handle the new volume of trade. An essential part of Nantes' redevelopment was the construction of properly-sized docks along the "Quai de la Fosse", at the southwestern edge of the town: it is primarily from this newly created logistical infrastructure that the redesign of the town would be conceived, in order to establish it as an efficient node in an ocean-spanning commercial network. As such, Nantes in the second half of the eighteenth century forms a paradigmatic example of "a city [which] now defined itself *with respect to* the territory outside its walls."⁴⁵

The 1770 document titled "Plan, Profil, et Distribution du Navire La Marie Séraphique" forms an exceptional insight into the economic rationality by which the problem of circulation was seized at the dawn of liberalism.⁴⁶ It represents the purchase, embarking, and distribution of 307 slaves aboard the Marie Séraphique, a slave ship belonging to Nantes' shipowner Gruel. The plan of the different levels of the ship provides scrupulously detailed information about its internal organisation during the crossing of the Atlantic, which would take two to three months. The steerage

43 Eric Saugera, *La traite des noirs en 30 questions* (La Crèche (79260): Geste Editions, 2003).

44 "Nantes" in Diderot, *L'Encyclopédie*. (Paris, 1765) Accessed 31 August 2019, <http://xn--encyclopedie-ibb.eu/index.php/629650121-NANTES>

45 Adams, *Circulation and Urbanization*, 150.

46 "Nantes et La Traite Des Noirs Aux 18e et 19e Siècles," accessed September 18, 2019, <http://www.chateaunantes.fr/fr/enseignants/lycees/nantes-et-la-traite-des-noirs-aux-18e-et-19e-siecles-lycee-general>.

was reserved for the enslaved men, women, and children. Their orderly cramming into such confined volume is juxtaposed to the geometric pattern by which barrels are jam-packed in the ship's hold. At the bottom, a data table provides a comprehensive account of the complete trade of slaves, which started on 25 August and ended on 16 December 1769. The document doesn't only form a vivid illustration of the horror of the Middle Passage; it also explains the procedures and techniques by which this very horror was normalised, rationalised, and ultimately capitalised upon.

What the document aims to communicate, above all, is the efficiency of the entire operation. Every square inch of the ship is utilised to store valuable cargo, every transaction is meticulously accounted for. Both the violence and the uncertainty involved in the highly complex operation of slave trade is cold-bloodedly managed by resorting to the power of calculation, rationalisation, abstraction. It is important to note that the document was commissioned by the shipowner himself, as a triumphant image of his company's competence in this uniquely profitable trade. As such, it does not only illustrate the spirit of times; by expressing a sense of transparent order, the document contributes to creating the cultural conditions by which humans can be reduced to a commodity like any other, to mere cargo to be managed cost-effectively, upon which the slave trade is based.

The slave functions as a limit-concept here. The framing of the slave as commodity is a condition of possibility of its trade; as such, it is excluded from the *population* that begins to form the new governmental horizon of liberal state. As a commodity, it must circulate, across an ocean, as smoothly and orderly as possible, after which it can be traded against another commodity—sugar, cotton, or tobacco. Yet in order to function as a commodity, both the individual slave and slaves' contingent as a whole—several hundred individuals per shipment—need to undergo a process of disciplinary fixation that will force these human beings into functioning as pure commodity. Hence the chains, the punishments, the ship's hold as a carceral space of absolute subjugation. It is around the slave that the dialectic at the heart of technologies of security is revealed in its most extreme form. In the hold, the slave is simultaneously totally fixed and in total circulation. The same entity split into two, each part subjected to opposite regimes of circulation: as a human subject of power,

the slave is confined, fixed, restrained to inhuman extents; as a commodity, the slave is propelled in a circulatory system of historically unprecedented scale and speed.⁴⁸

Security is best understood as the technology tasked with managing this circulatory dialectic. The optimal, open, and smooth circulation that it orchestrates also entails the utmost restraint of every entity considered deviant or disruptive. In his course, Foucault demonstrates how the disciplinary internment of marginal populations—and in particular, of *vagrants*—forms an essential part of the development of a security *dispositif*, understood as an optimisation of the social milieu by which good circulations are fostered while bad ones are minimised. Yet it could be argued that Foucault remained blind to the domain where this dialectic was pushed to its own limits throughout the eighteenth century. Along the sinister triangles that slave ships traced in the ocean, the conditions of greater abstraction offered by the unbounded surface of the sea would radically push the development of a rationality aimed at organising life around the calculated optimisation of differential circulations. It is at the ports of the slave trade that this originally maritime rationality would begin to spill over on land. In this perspective, urbanisation may be understood as the territorialisation of security as a technology of power, and of liberalism as a political-economic rationality grown at sea.⁴⁹

The Shipped, the Contained

“The subject of the film is globalization and the sea, the ‘forgotten space’ of our modernity. Its premise is that the oceans remain the crucial space of globalization: nowhere else is the disorientation, violence and alienation of contemporary capitalism more manifest.”⁵⁰

48 Stefano Harney and Fred Moten, *The Undercommons: Fugitive Planning & Black Study* (Minor Compositions, 2013), 87.

49 Ross Exo Adams, “Mare Magnum: Urbanisation of Land and Sea,” in *Territory Beyond Terra*, by Kimberley A. Peters, Philip E. Steinberg, and Elaine Stratford (Rowman & Littlefield International, 2018).

50 Allan Sekula and Noël Burch, “The Forgotten Space: Notes for a Film,” *New Left Review*, no. 69 (June 2011), <https://newleftreview.org/issues/II69/articles/allan-sekula-noel-burch-the-forgotten-space>.

It is in these terms that Alan Sekula and Noel Birch described their jointly authored film *The Forgotten Space* (2010). Yet something else was forgotten in *The Forgotten Space*, which Black studies scholar Christina Sharpe uses as a trigger to articulate the central concept of her book *In the Wake: On Blackness and Being*.⁵¹ The missing perspective in Sekula and Birch's film is the one offered by the history of slavery, and of its role in constituting the globalised condition that the film explores. In that sense, Sharpe's critique is not only a powerful rebuttal of the blindness produced by totalising critical frameworks; it also inscribes itself, more specifically, into the critique of logistics that has recently emerged from the field of Black studies which, I argue, forms an urgent counterpoint to the one formulated through strictly Marxist categories.⁵²

51 Christina Sharpe, *In the Wake: On Blackness and Being* (Duke University Press, 2016).

⁵² It may be necessary here to clarify why I am conveying the theoretical framework of Black studies, and specifically the analysis of the Atlantic slave trade developed by a number of Black studies scholars, to bear upon an argument primarily developed around the context of Palestine. In order to avoid any misinterpretation of this argumentative trajectory, I shall start by stating that in no way I am implying an equivalence between contemporary Palestinians and the historical figure of the African slave. The immediate reason for me to reference a series of writings from the field of Black studies in this chapter is their direct engagement with the problem of logistics, which is central to the thesis. As argued in this chapter, I consider the Black studies critique of logistics as a crucial counterpoint to the more established critique of logistics articulated from a strictly Marxist perspective, in as much as the former centres around the differential character of the logistical rationality. By bringing into focus the figure of the "shipped" and/or the "contained," Moten and Harney, followed by Sharpe, underline how the establishment of the first globalised network of transnational mobility—the Atlantic slave trade—is predicated and technically dependent upon the simultaneous utmost restraint of the captive slaves. Through a critical genealogy of logistics focused on the slave trade—understood as the historical process which contributed the most to the establishment of logistics as a key infrastructure of globalised capitalism—the abovementioned scholars situate the dialectic of acceleration and restraint at the heart of the contemporary problem of logistics at large. As argued by Peter Galison (quoted in the previous chapter), "the cultural meaning of concepts or practices is indissolubly tied to their genealogy." Genealogical readings of concepts and practices enable to set their localised manifestations in the present in critical tension with historically, geographically, and culturally distant processes, without flattening them on a single plane of conceptual equivalence. It is for this particular capacity that I am using critical genealogy as a key theoretical tool throughout this thesis. A second reason for me to draw from a Black studies framework in order to develop an understanding of logistics as a technology of containment is the importance it gives to the role of race in structuring the divide between the processes to be fostered and those to be repressed. As already argued in the introduction, racialisation is crucial to the cultural construction of the Palestinian population as a threat to be contained and, in contrast, of the Israeli Jewish polity as the only legitimate occupier of the contested land of Israel/Palestine. Notwithstanding the important debates within critical race theory about the distinct forms of racialisation to which different racialised populations are subjected to in different context, what I am primarily referring to here is the generic process of othering of populations at work in racialisation processes—as analysed in the works of Edward Said, Stuart Hall, Paul Gilroy, David Theo

The Forgotten Space is a film about flow and flow only. It tells the story of the logistical turn of capitalism as if its violence was incidental, collateral—as if this global machine racing ahead at full-steam simply left many people out, or behind. As such, it is itself blind to a whole range of logistical operations, which do not only orchestrate mobility but also enforce immobility and fixation, at the same time and in a single movement. Sharpe’s critique focuses on the figure of the only Black person interviewed in the film, who, she argues, “appears only to be made to disappear:” “I had held out some hope that this film that looks at the maw of capital wouldn’t simply feed her into it, wouldn’t simply use her as a container for all of that unremarked-upon history, would not use her as an asterisk or an ellipsis to move forward the narrative.”⁵⁴

Neither acknowledged, nor accounted for: the overwhelming violence of slavery is here redoubled by the violence of the negation of its lasting afterlife. In contrast, Sharpe’s writings question “how to live in the wake of slavery”. Through the polysemy of the term *wake*, she weaves together that missing link in Sekula and Birch’s discourse and, more generally, in dominant cultural frames of the contemporary condition. The concept of the *wake* articulates what the Black Lives Matter movement has termed “the insidious and widespread assault on Black life”⁵⁵ with the maritime infrastructure upon which the slave trade, hence capitalism, was originally founded.

Among the many writers, scholars, and poets that Sharpe enters in dialogue with to develop this argument, the cultural critics Fred Moten and Stefano Harney are the ones addressing most directly the notion of logistics. Their jointly authored essay titled “Fantasy in The Hold” is an important reference for the argument developed in this thesis: it underlines the fundamentally

Goldberg, or Achille Mbembe, among many others. Finally, what is perhaps the most important reason for me to underline the links between the technologies of oppression deployed against Palestinians, on the one hand, and black people on the other, is the long history of reciprocal Black-Palestinian solidarity which has already largely contributed to identifying such links—as it is retraced in recent writings by Angela Davis, Keith P. Feldman, Alex Lubin, Ali Abunimah, or Nikhil Pal Singh. See Alex Lubin, *Geographies of Liberation: The Making of an Afro-Arab Political Imaginary* (The University of North Carolina Press, 2014); Ali Abunimah, *The Battle for Justice in Palestine* (Haymarket Books, 2014); Davis, *Freedom Is a Constant Struggle*; Keith P. Feldman, *A Shadow over Palestine: The Imperial Life of Race in America*, Reprint edition (Minneapolis: Univ Of Minnesota Press, 2017); Nikhil Pal Singh, *Race and America’s Long War* (S.I.: University of California Press, 2019).

54 Sharpe, *In the Wake*, 57.

55 “Black Lives Matter,” August 18, 2014, <https://www.facebook.com/BlackLivesMatter/posts/on-august-28th-the-black-life-matters-ride-an-initiative-of-blacklivesmatter-wil/313749382129647/>.

differential mobility orchestrated by the first modern logistical apparatus in a way that mirrors the security dispositif that would contemporaneously be established on land.⁵⁶ Challenging the commonplace account that traces the origin of logistics in the history of military campaigns, the authors argue:

“Modern logistics is founded with the first great movement of commodities, the ones that could speak. It was founded in the Atlantic slave trade, founded against the Atlantic slave. Breaking from the plundering accumulation of armies to the primitive accumulation of capital, modern logistics was marked, branded, seared with the transportation of the commodity labor that was not, and ever after would not be, no matter who was in that hold or containerized in that ship.”⁵⁷

Extending Paul Gilroy’s argument about the “double consciousness of modernity” to the domain of its material basis,⁵⁸ Moten and Harney insist that it isn’t only modern logistics, but modernity itself, which is “sutured by this hold.”⁵⁹ The slave ship forms the link between the two irreconcilable realities of the plantation and the modern metropolis, the latter needing the former to exist as the same time as it must expunge it from its horizon of *free* thought and *pure* reason. The two writers revisit this long history of shipping and containerization from the position of “the shipped”, of “the contained”:

“(…) those who were not just labor but commodity, not just in production but in circulation, not just in circulation but in distribution as property, not just property but property that reproduced and realized itself.”⁶⁰

From this original limit-condition combining utmost restraint and frictionless circulation, they excavate a conceptual framework to confront the differential regime that has emerged, over the course of three centuries, from the extension of the logistical rationality to every domain of contemporary life. It is, after all, this rapid rise of logistics to a ruling function rather than a supporting role today—both in military and civilian affairs—that Moten and Harney recognise as

56 Harney and Moten, *The Undercommons*, 87.

57 Harney and Moten, 92.

58 Paul Gilroy, *The Black Atlantic: Modernity and Double Consciousness* (London: Verso, 1993).

59 Harney and Moten, *The Undercommons*, 93.

60 Harney and Moten, 93.

their principal object of critique; in other words, the inconspicuous establishment of logistics as the organising principle of any productive and reproductive capacity: “Today logistical capitalism connects the algorithm of work on the one hand to the logistics of supply and demand on the other. Shipping remains as much at the centre of capital’s infrastructural imagination as it was in its first gruesome mobilisation.”⁶¹

It is now an established fact that the birth of the modern insurance model—from which the increasingly complex instruments of risk management supporting an ever-accelerating financialisation of the everyday life are derived—is directly connected to the history of the slave trade.⁶² Acknowledging this specific genealogical origin allows us to suggest the following: the mathematical tools upon which the principles of optimisation were founded, the ocean-spanning networks along which such principles have first been applied to problems of circulation, their cascading-effects on land with the emergence of security as a technology of power, and the latter’s territorialisation in the form of the *urban* as a new spatial order, could all be convincingly traced back to the slave ship—as the ultimate differential machine. The primordial logistical apparatus therefore develops around a process of extreme restriction of freedom for some, which in turns opens up global mobility for others.

Having now outlined the historical nexus between logistics, security, and urbanisation, it is useful to examine, through the work of specific scholars, the contemporary relation between logistics and the urban process.

Logistical Urbanism

The architecture theorist Keller Easterling’s particular take on the notions of “infrastructure space”, “disposition”, or “zone”—now influential concepts in contemporary urban and architectural theory—can be traced back to her early work on the emergence of post-war American

61 Fred Moten, “Shipping and the Shipped,” *Freethought* (blog), 2015, <http://freethought-collective.org/curatorial-projects/shipping-and-the-shipped.html>.

62 Anita Rupprecht, “Excessive Memories: Slavery, Insurance and Resistance,” *History Workshop Journal*, no. 64 (2007): 6–28.

suburbia.⁶³ Across the uniform landscape of highways and standardised houses that was thereby produced at an unprecedented speed, she argues, “the organizational protocol was not merely that which facilitated architecture; it was the architecture.”⁶⁴ Expanding this insight beyond the American context, she would later propose to consider “logistics as an organizing principle of contemporary cities”⁶⁵— a point she would further develop by referring to the (special economic) “zone” as “dominant software for making urban space” today.⁶⁶ Yet in all its various manifestations around the world, the *zone* that she identifies is above all a space of accelerated mobility, where bordering technologies are primarily tasked with reducing friction to the flow of a shapeshifting capital. Logistics, as the operational protocol that is both cause and consequence of the zone as a “world-city template”⁶⁷—is therefore, here again, essentially approached in terms of the mobility that it enables and optimises; little attention is given, in contrast, to the movements that it prevents and impedes.

Following on Easterling tracks, a number of architectural scholars have further explored the impact of logistics on contemporary urbanism, using case studies of giant companies such as FedEx or Walmart.⁶⁸ Each of these works forms a valuable contribution to an understanding of how networked systems of distributions are remaking urban geographies worldwide, especially within the architectural field. Yet, their focus on just one side of the logistical coin—namely, expedited mobility and “accelerated urbanism”⁶⁹—arguably also misses the key political dimension

63 Keller Easterling, *Extrastatecraft: The Power of Infrastructure Space* (London New York: Verso Books, 2014); Keller Easterling, *Organization Space: Landscapes, Highways and Houses in America* (Cambridge, Mass. London: MIT Press, 2001).

64 Keller Easterling, “Interchange and Container: The New Orgman,” *Perspecta* 30 (1999): 112–121.

65 Keller Easterling, “The New Orgman: Logistics as an Organizing Principle of Contemporary Cities,” in *The Cybercities Reader*, ed. Steve Graham, 1st edition (London ; New York: Routledge, 2003), 179–84.

66 Easterling, *Extrastatecraft*, 23.

67 Easterling, 40.

68 Clare Lyster, *Learning from Logistics: How Networks Change Our Cities*, Digital original edition (Basel, Berlin: Birkhauser, 2016); Jesse LeCavalier, *The Rule of Logistics* (Minneapolis ; London: University Of Minnesota Press, 2016).

69 Lyster, *Learning from Logistics*, 54.

of the relation between logistics and urbanisation. This lack of critical attention to the essentially differential mobility articulated by logistical systems reaches a quite bewildering peak when the architect Clare Lyster sets out to draw actual “lessons for the city” from her study of FedEx: “In marrying two diverse planning approaches in a single vision that simultaneously assimilates self-organisation, contemporary design practice might combine the best of what modern and postmodern planning regimes had to offer, the legibility of a big idea combined with distributed responsiveness.”⁷⁰ Behind this unrestrained enthusiasm for FedEx’s organizational and spatial efficiency lies the assumption that its extension to the whole city would result in a universal improvement of *all* forms of urban mobility. In contrast, at the heart of this thesis is the claim that, under the current rule of logistics, the acceleration of determined circulations is structurally conditional on the hindering of others.

The field of discourse formed by the predominantly Marxist critique of logistics—discussed in the opening of this chapter—is itself traversed by internal tensions; in particular, over the possibility of a “counter-logistics”. Those are encapsulated by an interesting theoretical skirmish played out in a series of essays and responses between political theorists Alberto Toscano and Jasper Bernes. In a short article titled “Logistics and Opposition”, Toscano suggests that the re-functioning of logistical apparatuses might constitute a more valid strategic objective in the struggle to overcome capitalism than their mere interruption.⁷¹ In his response, Bernes insists on identifying logistics as the primary technical means for the reproduction of contemporary capitalist relations which, as such, cannot be salvaged but rather must be opposed and negated in all their manifestations.⁷² The argument developed in this thesis leans towards Toscano’s call to “refine our understanding of the forms of power borne by logistics, the tensions they carry, and how they cannot be reduced to a direct expression of Capital.”⁷³ In this perspective, Gaza offers a vivid example of how logistical power manifests itself beyond strict processes of circulation and accumulation of capital. Returning to the urban dimension of logistics specifically, we may therefore concur with Toscano when he argues, drawing on a reading of Lewis Mumford,

70 Lyster, 64.

71 Toscano, “Logistics and Opposition.”

72 Bernes, “Logistics, Counterlogistics and the Communist Prospect.”

73 Alberto Toscano, “Lineaments of the Logistical State,” *Viewpoint Magazine*, September 28, 2014, <https://www.viewpointmag.com/2014/09/28/lineaments-of-the-logistical-state/>.

that “logistics becomes [the] primary concern [of the metropolis], its foremost product, and the basic determinant of its power;” yet this power may not play itself out only through the “intensification and expansion of supply lines,” but also through their engineered restraint and suspension, and above all, through the urban geographies of differential mobility that it thereby orchestrates.⁷⁴

In the search for a sound critical framework to reflect on contemporary security, logistical, and urban practices together, Deborah Cowen’s work on logistics offers valuable insights. In the introduction to her study of *The Deadly Life of Logistics*, the geographer addresses very directly the underlying tension within contemporary scholarship around the politics of circulation. On the one hand, she argues, we find studies of “the circulation of material and informational flows,” mainly informed by Foucault; on the other, studies of “the circulation of capital,” grounded in readings of Marx.⁷⁵ If, so far, the discourse developed in this thesis can clearly be placed in the first category, my ambition would nonetheless be to reckon with the crucial point encapsulated in Cowen’s following passage:

“While debates about circulation are experiencing resurgence, these different forms of circulation elaborated on in distinct literatures and networks rarely collide. Yet it is precisely the shifting relationship between the circulation of stuff and the circuits of capital that is at stake in the story of logistics. I suggest that on offer at this intersection is a vital political history of the economic space of the present.⁷⁶

In other words, rather than another partisan issue, the problem of logistics is here recognised as lending itself to a synthesis of the tension between Marx and Foucault—and of its polarising effects across the vast field of critical theory. By putting this insight into practice and by drawing from both traditions of scholarship to develop her argument, Cowen makes a significant contribution to the critical studies of logistics. Among the points that are most relevant to this thesis is her challenging of the common narrative of a “civilianization of logistics” after

74 Toscano, “Lineaments of the Logistical State,” September 28, 2014.

75 Deborah Cowen, *The Deadly Life of Logistics: Mapping Violence in Global Trade*, 1st edition (Minneapolis: University Of Minnesota Press, 2014), 10.

76 Deborah Cowen, *The Deadly Life of Logistics: Mapping Violence in Global Trade*, 1st edition (Minneapolis: University Of Minnesota Press, 2014), 11.

World War II.⁷⁷ Rather than the result of a transfer of knowledge from the military field where it originated to the civilian field of worldwide business, logistics is—Cowen argues—a "science [that] emerges as deeply hybrid in its influence, with logisticians that receive their training in both military academies and business schools, and with a logistics industry that provides the backbone for both corporate and military strategy."⁷⁸ The way in which the military theorists of the Network-Centric Warfare doctrine draw direct inspiration from the integrated logistics of Walmart and Amazon, as mentioned in Chapter 2, is a case in point. Logistics therefore appears as the central field of activities where the blurring, or rather the minute entanglement, between the civilian and military domains of life is effectuated. Through the pervasiveness of logistics' technical operations, the political technology of security stretches over the full spectrum of society and realises its full potential by turning from a means to an end of government. This is what Cowen means by referring to the (deadly) *life* of logistics:

"More recently, we see logistics conceptualised not only as a means to sustain life, but as a lively system in itself. Contemporary efforts to protect supply chains invest logistical systems with biological imperatives to flow and prescribe 'resilience' as a means of sustaining not only human life but the system itself. In this context, threats to circulation are treated not only as criminal acts but as profound threats to the *life* of trade. [...] Logistics is no simple story of securitisation or of distribution; it is an industry and assemblage that is at once bio-, necro- and anti-political."⁷⁹

In the understanding that Cowen proposes, logistics has a broad and deep reach; it plays a central role in articulating the dynamics of contemporary life around the globe. Unsurprisingly, then, her work also explores the relation between logistics and contemporary urbanism, through "the politics of a new global urban form: the logistics city," where "urban space is conceived for the singular purpose of securing the management and movement of globally bound *stuff*."⁸⁰ Forming a striking illustration of the present entanglement of the fields of security and logistics, the key example of a logistics city that Cowen uses is that of Basra, in southern Iraq. The Basra

77 Cowen, 6.

78 Cowen, 52.

79 Cowen, 4.

80 Cowen, 171.

zone was established on a site formerly known as Camp Bucca: “the largest U.S. military detention facility in occupied Iraq”, which at its peak was holding up to twenty-two thousand detainees. As Cowen argues, “it is not *despite* its military past that the site is so well suited to become a logistics city but *because* of it. [...] Features that were once essential to keeping Iraqis in will now serve the logistics cities efforts to maintain a secure facility by keeping Iraqis out.”⁸¹

In this perspective, Cowen’s insight on the reversibility of the logistical apparatus, as manifest in the dedicated urban forms that it produces, is particularly welcome; yet in its current form it isn’t much more than the outline of an idea to be further developed.

Cowen’s argument about the violence of logistics being located not only in what it leaves out of its global system of fast-tracked circulations, but also in the targeted confinements that it organises through its operations, arises as an afterthought in her book. The main narrative that is thereby inflected presents the logistics city—the first of which is only about a decade old—as a special case of the “logistical city,” understood as the broad product of a modern urbanism tasked with the rational organisation of circulations and the integration of the city in a space of networked flows.⁸² Interestingly, Cowen references the urban historian Christine Boyer, who insists on the disciplinary mechanisms embedded in the process of urbanisation of the United States territory, to suggest that “there is nothing novel about the joint project of containing disruption and facilitating flow.”⁸³ Yet again, this line of thought remains a tangent one, and the chapter concludes with, once more, Occupy Oakland as the example *par excellence* of the possible contestation of the “new logistical imperialism.”⁸⁴ While the present thesis takes much on board from Cowen’s critique of logistics, it also sets out to reconstruct it from a different perspective: bringing the idea of the essential reversibility of the logistical apparatus from its current marginal position to the very centre of the critique to be articulated. This means approaching the processes of enclosure, isolation, and fixation of mobility across the world *as logistical operations*—in fact, as a mirror image of the fast-tracking operations that logistics is primarily known for.

81 Cowen, 165.

82 Cowen, 174.

83 Cowen, 175.

84 Cowen, 195.

In a recent article co-authored by several prominent figures of the current field of critical logistics studies, Charmaine Chua, Martin Danyluk, Deborah Cowen, and Laleh Khalili together argue that “logistics is not reducible to a mundane science of cargo movement or a discrete industry among others...it is better understood as a calculative rationality and a suite of spatial practices aimed at facilitating circulation—including, in its mainstream incarnations, the circulatory imperatives of capital and war.”⁸⁵ While the conceptual framework I use is certainly aligned with such broad understanding of logistics—as “a calculative rationality and a suite of spatial practices”—my point is to challenge the assumption that it is “aimed”, fundamentally, “at *facilitating* circulations.” Equally complex calculations and operations are required to hinder certain flows and to accelerate others; what is more, these calculations and operations are often undertaken by the very same logistical infrastructure. The essential counterpoint offered by the Black studies’ critique of logistics enables to return to, and to complete, the partial account of security provided by Foucault—at the same time as it underlines, historically, the original coupling of logistics and security. Developing an understanding of the logistics-security couple as a differential technology of power may enable us to connect, both conceptually and practically, the forms of resistance to an overpowering circulation of capital with the many concurrent struggles over the denial of mobility.

85 Charmaine Chua et al., “Introduction: Turbulent Circulation: Building a Critical Engagement with Logistics,” *Environment and Planning D: Society and Space* 36, no. 4 (August 1, 2018): 617–29, <https://doi.org/10.1177/0263775818783101>.

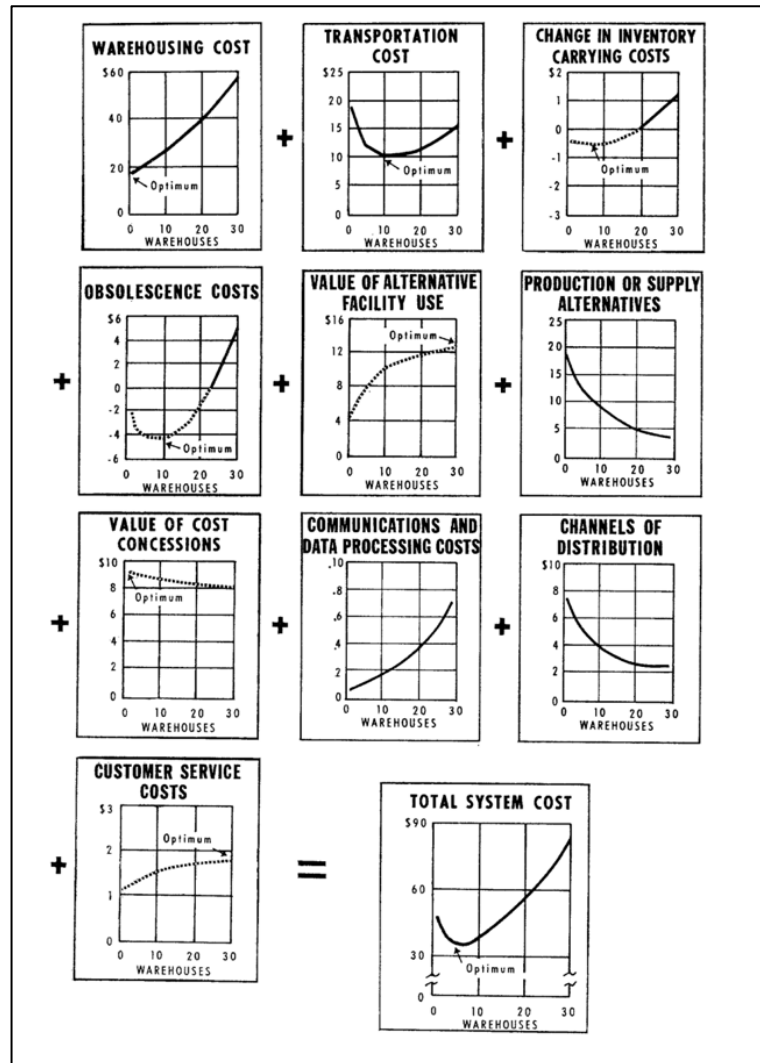


Fig. 15—Total Cost Approach. Source: LeKashman and Stolle, 1965.

Becoming-environmental

Does the deployment of a logistical rationality at urban scale differ fundamentally from what was, so far, referred to as smart urbanism? Based on the expanded understanding of logistics developed throughout this chapter, the answer I offer is 'no'. Just like smart cities, modern-day logistics rely on a vastly distributed infrastructure of computation to perform its task of optimising global mobilities. Besides, the spatial and computational protocols of logistics have long been recognised as a driving force of contemporary urbanism. In this perspective, smart urbanism appears to form an extension of the logistical rationality, by which the application of the principles and techniques of logistics is no longer limited to the domain of urban transport and

mobility; but is expanded to the optimisation of every urban process. Accordingly, smartness can be understood as the “becoming-environmental” of the logistical rationality.⁸⁶

The filiation between logistics and smartness is a recurrent theme in the work of the media theorist Orit Halpern, who is developing a thorough critique of smartness as a new reference paradigm for the management of socio-technical systems at large. With a specific attention to the material and infrastructural dimension of the digital world, her research examines “the on-going penetration of computation—through smart cities, grids, logistical systems, finance—into the earth.”⁸⁸ Her co-authored piece “The Smartness Mandate” remains, to this day, the most comprehensive attempt to engage critically with the notion of smartness as a whole, rather than with its particular instantiations. The piece examines smartness transversally, as it “pervades cell phones, delivery trucks, and healthcare systems and relies intrinsically on the interactions among, and the individual idiosyncrasies of, millions or even billions of individuals around the planet.”⁸⁹

Among the theses that the authors put forward in an attempt to outline “the deep logic of smartness and its mandate,” the first one claims that “the territory of smartness is *the zone*.”⁹⁰ By that term, they refer precisely to the liminal territorial constructs embodied by logistical or free trade zones which I have previously discussed through the conceptual lens offered by Keller Easterling’s work. Their argument is as follows: on the one hand, the operations of smartness rely on vast networks of distributed interactions which, more often than not, cannot be neatly contained within the territory of a nation-state; on the other, smartness relies on a delicate material infrastructure which requires the physical and legal security offered by a state. In the same way as the zone—this *outside within* a state—offers an ideal setting for the undertaking of transnational logistical operations, it does so for the operations of smartness as well. The key example used in this argument comes from Halpern’s research into the smart city of Songdo, in South

⁸⁶ Here, I am borrowing a formulation proposed by Jennifer Gabrys in her book *Program Earth*, which “addresses the programmability of the planet by focusing on the becoming environmental of computation.” See Jennifer Gabrys, *Program Earth*, 4.

⁸⁸ Orit Halpern, “Hopeful Resilience,” *E-Flux Architecture* (blog), 2017, <https://www.e-flux.com/architecture/accumulation/96421/hopeful-resilience/>.

⁸⁹ Halpern, Mitchell, and Geoghegan, “The Smartness Mandate,” 110.

⁹⁰ Halpern, Mitchell, and Geoghegan, 111.

Korea, which is developed in the specifically created Incheon Free Economic Zone. In order to accommodate the many special requirements of an experimental, hyperconnected, data-driven urban development, the zone is used as a space of exception where legal and financial frameworks can be bent all the while falling within the recognised jurisdiction of the South Korean state.

Pushing further the argument of Halpern et al., there is also a directly spatial motive for smartness to territorialise as zones, which is intrinsic to the logic of optimisation at the heart of both logistics and smartness. As discussed at the end of the previous chapter, zones offer a neat territorial solution to an array of logistical demands, the critical infrastructure and core operations of which are concentrated into a single compact area while its connections and linkages can extend far beyond the limits of the zone. Similarly, a model of smartness understood as the maximisation of urban efficiency will favour a concentration of the core urban processes in a compact area, so as to minimise the costs and friction that come along with distance or dispersal. In the process, of course, everything that is considered a non-core urban process finds itself pushed away from the centre, possibly outside of the zone boundaries. Here, smartness needs to be understood in relation to the process of infrastructural splintering analysed by Steven Graham and Simon Marvin twenty years ago already.⁹¹ In its first civilian applications to the urban domain, from smart highways to smart grids, smartness designates the differential management of urban processes and flows by prioritising some and marginalising others. The growth of smartness into an all-purpose management rationality and its application to entire urban systems results, unsurprisingly, in a corresponding process of territorial splintering. In that sense, both the privileged enclaves formed by zones and the marginalised exclaves formed by camps constitute smart territorial solutions for the targeted delivery of services to distinct urban populations. Hence, it is not so much that smartness takes place *within* the confines of zones, but rather that smartness “aims to globalize the zonal logic.”⁹²

Furthermore, by defining smartness through the fundamental process of *optimisation* that it operates, Halpern et al. implicitly point to the field of logistics which, in the post-World War II period, formed the main domain where the science of computer-assisted algorithmic optimisation was developed. By searching optimal solutions to problems of profit-maximisation along an

91 Graham and Marvin, *Splintering Urbanism*.

92 Halpern, Mitchell, and Geoghegan, “The Smartness Mandate,” 113.

increasingly complex supply chain, the post-war logisticians developed the generic optimisation tools that have since been adapted to a wide spectrum of activities: from traffic management to energy distribution, from the dynamic pricing of a cross-town ride to resource allocation in healthcare.⁹³ The proposed description of smartness as the becoming-environmental of logistics can be read in two ways. Metaphorically, it points to the fact that the logistical rationality now surrounds us: it forms the calculative matrix in which everyday life tends to be constituted. But this environmental extension of logistics can be understood in a more material sense too. The astounding increase in the efficiency of modern logistics, which both supported and fuelled what is now commonly called the Great Acceleration in the second half of the twentieth century,⁹⁴ was largely enabled by the progressive consolidation of the global logistical infrastructure as a highly distributed, “information-enabled” network. In it, every node needs to communicate with its surroundings to enable the network to constantly readjust to fast-shifting conditions of operation and to settle for the best relative solution according to the program it is designed to run. Indeed, a brute force approach to the calculation of the best solution to any modern logistical problem is impossible, due to the complexity of its operational environment. The efficiency of such networked operation is less dependent on the computational power of any *central* control unit issuing vertical orders, than it is on the capacity of many, distributed, and partly autonomous control units to take “good enough” decisions and to quickly inform their surrounding nodes of their updated status.⁹⁶ Today, not only the component parts of this

⁹³ Niels Agatz et al., “Optimization for Dynamic Ride-Sharing: A Review,” *European Journal of Operational Research* 223, no. 2 (December 1, 2012): 295–303, <https://doi.org/10.1016/j.ejor.2012.05.028>; David Desmmon Linz, “Optimizing Population Healthcare Resource Allocation Under Uncertainty Using Global Optimization Methods” (Thesis, 2018), <https://digital.lib.washington.edu:443/researchworks/handle/1773/43077>.

⁹⁴ Will Steffen et al., “The Trajectory of the Anthropocene: The Great Acceleration,” *The Anthropocene Review* 2, no. 1 (April 1, 2015): 81–98, <https://doi.org/10.1177/2053019614564785>.

⁹⁶ This is the key realisation underpinning the military theorist David S. Alberts’ call for the US military to turn into an “edge organisation” applying the principles of “power to the edge” to its management structure. Three years after the publication of *Network-Centric Warfare*, Alberts extends his argument from the domain of military operations to the broader realm of the governance architecture of the military. To Alberts, centralised models of optimization based on the calculation of a global optimum—of the absolute “best” choice or move—at each tick of the infosphere is too slow, and ultimately inefficient, for an organisation to achieve its objectives while operating in conditions of complexity and uncertainty. The decentralization of decision-making regarding the execution of a programme—“the empowerment of people of individuals at the edge of an organization (where the organization interacts with its operating

distributed logistical infrastructure, but also the very products delivered by global logistics tend to be increasingly sensor-enabled and connected—ushering in a condition often described as an Internet of Things. The result in an exponential increase in the capillarity of the information networks employed in the new categorical imperative of optimisation. Through their deep extension, these fundamentally cybernetic networks are increasingly indistinguishable from their environment of operation. This is, it seems, what Moten and Harney point to when they ask: “Logistics is no longer content with diagrams or with flows, with calculations or with predictions. It wants to live in the concrete itself in space at once, time at once, form at once. We must ask where it got this ambition and how it could come to imagine it could dwell in or so close to the concrete, the material world in its informality, the thing before there is anything. How does it propose to dwell in nothing, and why?”⁹⁷

The acknowledgement of the historical context within which the logistical rationality first emerged provides a solid ground to problematise the process of its becoming—environmental through the rise of smartness. If data has replaced gold as the ultimate container of value, its ever-accelerating circulation still requires the fixation of a vast labour force to its assigned role in a globalised chain of production and, more generally, the containment of any circulation considered unworthy according to the specific value system in place. Using the theoretical articulation developed throughout this chapter, it can be argued that it is, in fact, the logistics-security couple that is environmentally extended through smartness. In turn, the process of optimisation at its heart shall be understood not as the neutral calculation of the objectively best possible solution, but as a differential mechanism of prioritisation and impediments defined in accordance with specific interests. As Halpern et al. argue, the development of optimisation as a global operational principal “(...) does not mean the withering of geographically based security apparatuses; on the contrary, optimization often requires strengthening these to protect the concrete infrastructures that enable smart networks and to implement optimization protocols. Yet, like the weather or global warming, optimization is not to be restricted to, or fundamentally

environment to have an impact or effect on that environment) or, in the case of systems, edge devices”—is retained as fundamental to the success of any operations in the Information Age. See David S. Alberts, Richard E. Hayes, and Wilfried Honekamp, *Power to the Edge: Command... Control... in the Information Age* (Command and Control Research Program, 2003).

97 Harney and Moten, *The Undercommons*, 88.

parsed by, the territories that fund and provide these security apparatuses but must be allowed to operate as a sort of external environmental force.”⁹⁸

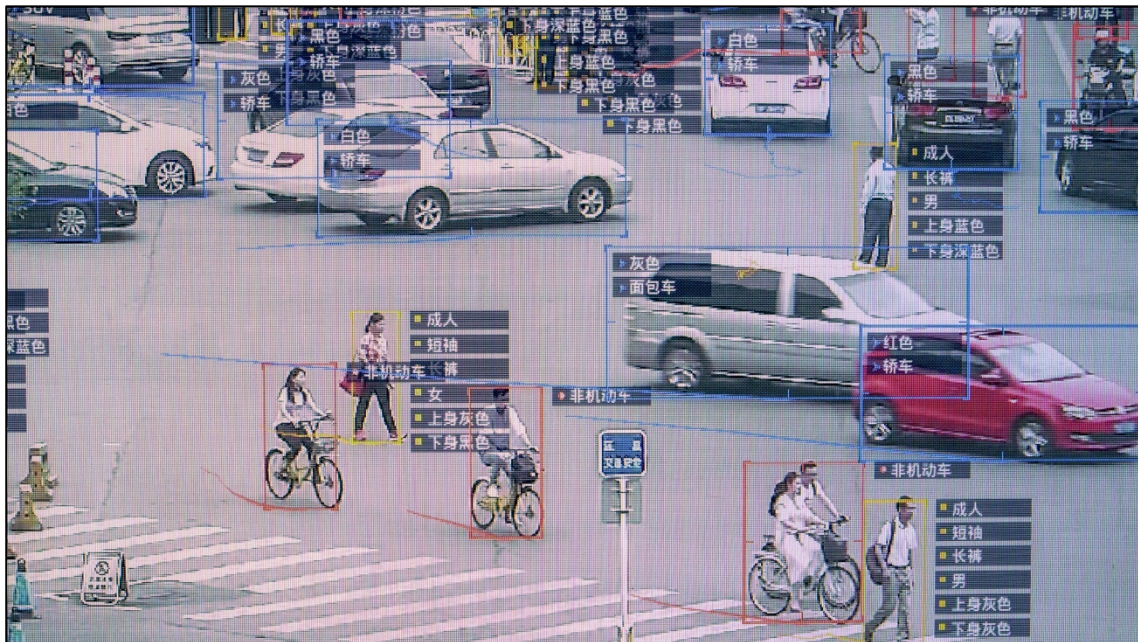


Fig. 16—Demonstration of face + object recognition software by SenseTime, China’s leading artificial intelligence start-up, August 2019. SenseTime products are widely used by the Chinese government as part of its vast security operation in Xinjiang, where millions of Uighurs, a largely Muslim minority, are systematically tracked, targeted, and detained. (Photo: Nikkei Asian Review).

Rather than an open one, the resulting environment is, in fact, an environment saturated with borders, visible and invisible ones, where every single node of a self-optimising integrated urban process partakes in defining, in real-time, the regime of mobility and access rights available to each user. The differential logic is thereby extended to the totality of the population of users in an increasingly dense, globally interconnected network. According to the same logic of sifting, sorting, and ranking, it soon *makes sense* to cluster similar profiles and user populations together, whether in zones or in camps, with a view to optimise the use of resources across the resulting global borderscape.

98 Halpern, Mitchell, and Geoghegan, “The Smartness Mandate,” 121.

To conclude, I shall return to the notion that underpins the argument developed throughout this chapter, namely that of the differential. Approaching it through a Deleuzian framework, difference is primarily understood as a particular modality of relation between two entities. A differential is a difference that can only be defined in relation to the other, that thereby affirms rather than negates the other.⁹⁹ A differential holds together different entities, assigning a position to each that is not only relative, but also dependent upon the others. The slave ship is a differential machine because it generates a radical differential of mobility; it produces the frictionless, globally circulating commodity labour at the same time as it produces the slave in its absolute restraint. In that particular case, the differential it produces stretches across the individual subjectivity of each enslaved human being, thereby breaking it apart. More generally, logistics is a differential technology in as much as it works through the acceleration of certain flows *and* the hindering of others. In so doing, it assigns a mobility status to each user on the network that is relative and dependent upon the status of every other user. Because it generalises the application of the logistical rationality to any operation involving multiplicities, choices, and judgements, smartness can be understood as the becoming-environmental of logistics.

⁹⁹ “The false genesis of affirmation, which takes the form of the negation of the negation and is produced by the negative, is substituted for the complementarity of the positive and the affirmative, of differential positing and the affirmation of difference. (...) History progresses not by negation and the negation of negation, but by deciding problems and affirming differences. It is no less bloody and cruel as a result.” Gilles Deleuze, *Difference and Repetition*, Revised edition (New York, N.Y: Columbia University Press, 1994), 268.

Part II

Intercalation 2: Patterns

The following projects form a hinge between my four years of full-time practice as a Researcher and Project Coordinator at Forensic Architecture, and the start of the doctoral research presented in this thesis. The initial focus of the Forensic Architecture project was to explore the legal and political consequences of the urbanisation of warfare. My work thus required to take a deep dive into the military logic applied to the urban territory: much of our collective research has consisted in efforts to reverse-engineer it from the traces and wounds it had left behind.

The most extensive Gaza investigation I worked on concerned the 2014 Israeli military operation Protective Edge. Developed in close collaboration with Amnesty International, it resulted into two distinct, yet complementary reports.

Starting from one particular airstrike, the Black Friday report is a highly detailed reconstruction of the events of a single day of the 2014 war in Gaza, those being distributed across the urban territory of Rafah, its outskirts, and its underground. Through this specific case study, the report presents a tactical-level analysis of Operation Protective Edge. According to Amnesty International's legal team, our report provided strong evidence that Israel had committed war crimes in that particular instance.

This report constitutes the most advanced example of urban analysis and reconstruction that I had the opportunity to work on at Forensic Architecture. By piecing together a diverse range of media fragments, we were able to reconstruct, and to visualise, the entire unfolding of the day's events: from the capture of an Israeli soldier in the outskirts of Rafah, through its abduction into the tunnel network under the area, to the decision by the Israeli military to stop this capture by all means necessary and the resulting bombing of every structure suspected to cover a tunnel shaft. Beyond the accurate plotting, in time and in space, of each of main incidents that caused the death of over a hundred civilians on that day, the key value of our report lied in the fact that it brought these incidents together into a common structure and, thereby, indicated the systematic and intentional character of that particular military operation.

The Gaza platform, on the other hand, offers an operational-level analysis of the 2014 conflict: using a wider composite lens, it captures the big picture of the 51 day-long Israeli Operation. At the time of its launch on 8 July 2015, it featured 2,695 individual events, recording the precise circumstances of the deaths of 1,989 people, including 1,655 civilians and 532 children. Drawing from the thousands of strikes and incidents reports that were

emerging from the field, we developed a mapping and data visualisation tool for the specific purpose of revealing patterns in the conduct of the military operation. The platform captures a vast pool of diffused information into a structured database; it attaches spatial and temporal coordinates to each reported incident and extends it with a range of attributes: photos, videos, audio recordings and satellite imagery.

Unlike the situation at the time of the 2009 war (see previous Intercalation), there were a lot of smartphones around in Gaza in 2014 and, as a result, a lot of image- or text-based civilian reporting of what was happening. Yet the dispersed and fragmentary nature of this crowd-reporting ended up recreating a new kind of ‘fog of war;’ it transformed the challenge of establishing facts on the ground into the question of how to make sense of a critical mass of media traces. The Gaza Platform responded to this challenge by aggregating verified reports into a single explorable interface, which provided a vast composite picture of the conduct of military operations by the Israeli military during that war. By collecting all the reported material about each incident in a single database, it enabled a process of cross-referencing of information; by integrating interactive data charting tools, it facilitated the detection of patterns in the attacks.

The focus of the Gaza platform is not any particular strike or group of strikes, but their distribution and recurrence in terms of weaponry, targets, or deadliness. Its exploration allows to reveal the broad dynamics of the operation across all dimensions of the ‘battlespace’, comprising of airborne, ground, and underground combat. Our main goal has been to reconstruct the top-sight view of the Israeli military leadership as they were piloting the operation. By revealing consistent patterns among vastly distributed and seemingly unrelated actions, the Gaza Platform points directly to the particular form of decentralised command-and control which—I would later learn— was being theorised in the contemporary Israeli military doctrine of Diffused Warfare.

It is important to note that such patterns are fundamental to prove the responsibility of high-ranking military commanders with regards to alleged war crimes; furthermore, the said responsibility is a condition for the possible intervention of the International Criminal Court (ICC), whose mandate is limited to the indictment of those responsible for “widespread and systematic attacks against a civilian population.” The combination of narrow and wide lenses offered by our work on the 2014 war in Gaza—through the the Black Friday report and the Gaza platform, respectively—as well as the innovative methods that each project demonstrated, caught the attention of the Office of the Prosecutor at the ICC. In response to their invitation, on 3 September 2015 the Director of Forensic Architecture Eyal Weizman and myself, the Project Coordinator, travelled to the Hague to present these reports to the Office of the Prosecutor.

The Gaza Platform formed the pilot project of Patrn: an open source tool for data-driven, participatory fact-mapping. Patrn is a proof-of-concept project that I have initiated and secured funding for within Forensic Architecture. Based on our previous research experiences, such as the 2013 drone strikes investigation of the UN Special Rapporteur on Counter Terrorism and Human Rights, it became clear that the new *fog of war* would result not from scarcity of information, but from its excess. Patrn emerged as a direct response to the challenge of investigating and reporting on the diffused and highly mediated forms of contemporary violence. As our initial ideas on the topic matured, another war broke out in the Gaza Strip. We thus decided to use Gaza as the prototypical context to conceive, design, and develop Patrn. After the launch of the Gaza platform, my work on the project has consisted in overseeing the development of a generic digital tool that would enable to run, collaboratively, the same kind of data-driven cartographic analysis we conducted on operation Protective Edge. Released in January 2016, Patrn is still an active project and has been used by several HR organisations, such as Bellingcat, Amnesty International, Tactical Tech Collective, and others. It also forms the conceptual and software basis of ulterior mapping projects by Forensic Architecture, such as the Ayotzinapa or the Yazidi platform. As argued in the first chapters of this thesis, Israel's diffused warfare forms one of the most forceful manifestation of what Derek Gregory has termed the condition of the "everywhere war." For this reason, the search for patterns behind its nebulous form is not only relevant for Gaza; instead, it may serve the general purpose of seizing the violence that permeates the contemporary urban condition.

Together, these three projects capture the shift of focus that I set out to initiate through my doctoral research: from the explosive violence of localised incidents, to the structural violence of the condition where these recurrently take place. Through the lens of Gaza, this shift brought me examine the regime of the blockade—itsself a paradigmatic example of the containment technologies currently being deployed across the world for the purpose of managing of an exploding population of outcasts.

Black Friday

URL	https://blackfriday.amnesty.org
Project type	Interactive report
Date of release	01/08/2015
Collaborators	Forensic Architecture, Amnesty International
Role	Researcher, Coordination Support

The kidnapping of an Israeli soldier by Hamas during the 2014 Gaza conflict resulted in four days of bombardment, in which over two thousand homes were destroyed. Lt. Hadar Goldin's abduction led Israeli military leadership to implement what was known as the 'Hannibal Directive', a classified military order that is understood to permit Israeli soldiers, in the event of a fellow soldier's capture by enemy forces, to target the captive and his captors with maximum available firepower. The bombardment of Rafah on 1 August was intended to destroy the tunnels under the city into which the soldier had been taken.

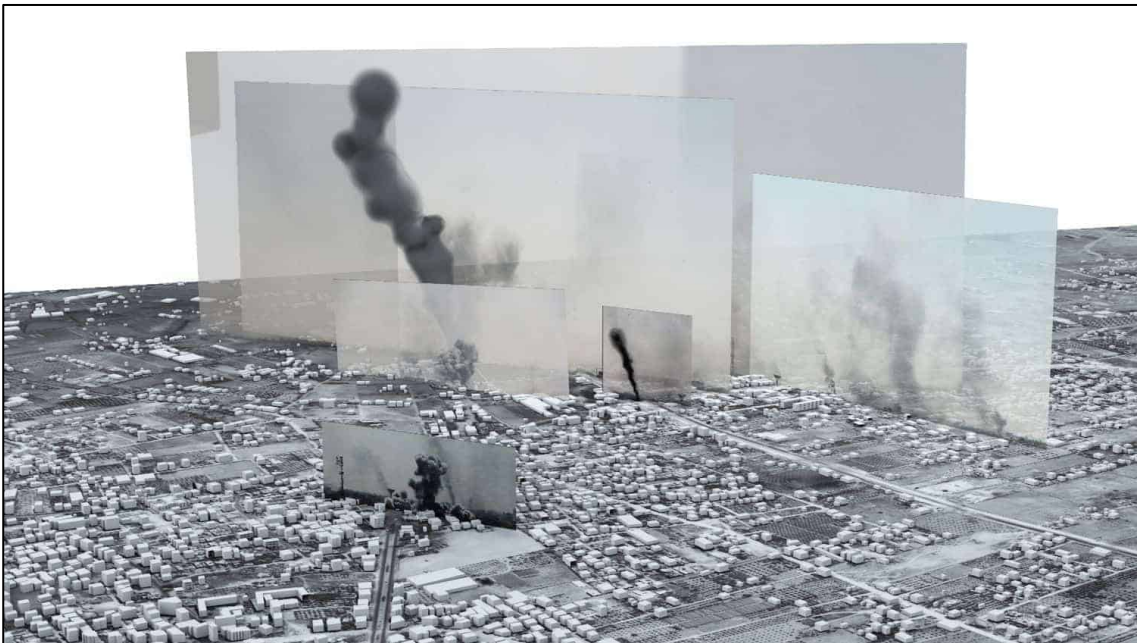
Our investigation into the bombardment of Rafah relied on thousands of images and videos shared online. Through a process of locating cameras and incidents within a digital model, and subsequent analysis of satellite and ground-level images, smoke clouds, shadows and impact craters, we mapped hundreds of air-to-surface and artillery strikes that hit the city of Rafah on 1 August.

Our research supported the following conclusions by Amnesty International in their report 'Black Friday: Carnage in Rafah': "There is overwhelming evidence that Israeli forces committed disproportionate, or otherwise indiscriminate, attacks which killed scores of civilians in their homes, on the streets and in vehicles and injured many more. This includes repeatedly firing artillery and other imprecise explosive weapons in densely populated civilian areas during the attacks on Rafah between 1 and 4 August. In some cases, there are indications that they directly fired at and killed civilians, including people fleeing."

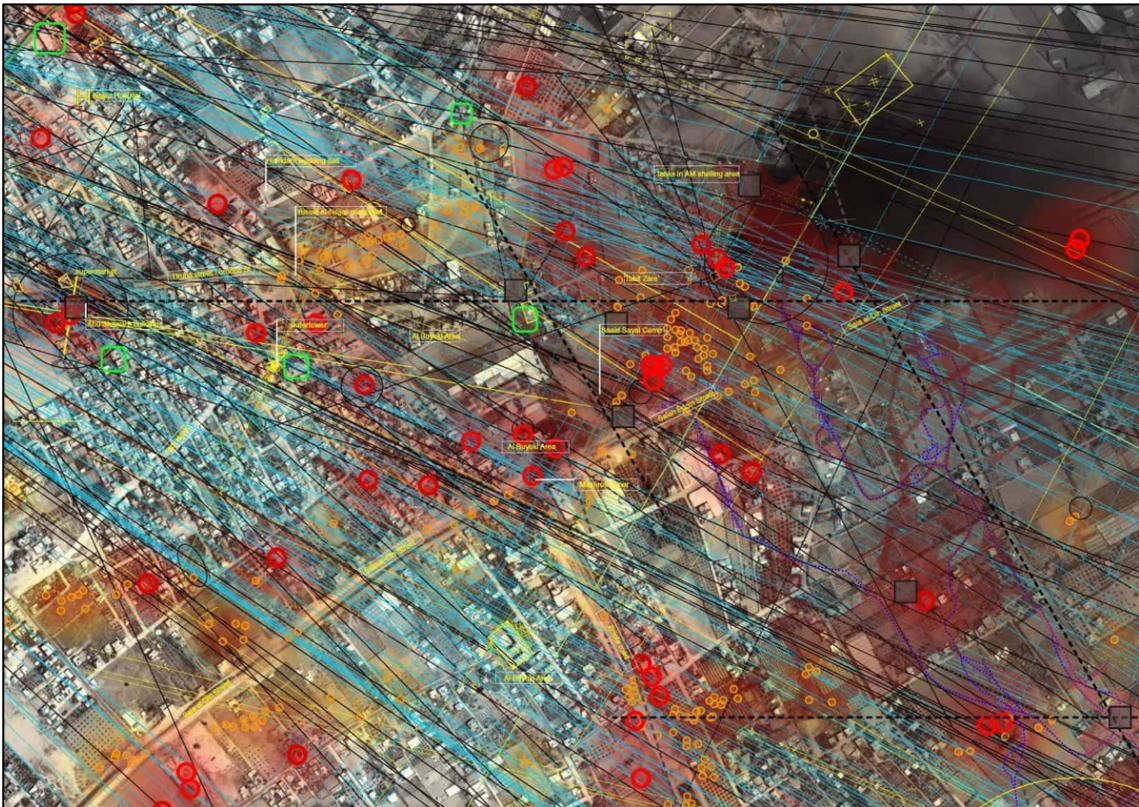
Following pages	Stills from video analysis / report extracts
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Video still showing two bombs in midair fractions of a second before impact in the Al Tannur neighbourhood in Rafah, Gaza. (Forensic Architecture)



Multiple images and reconstructed bomb clouds are arranged within a 3D model of Rafah, Gaza. (Forensic Architecture)



A composite image of every piece of spatial analysis conducted by Forensic Architecture and Amnesty International in relation to Rafah on 1 August 2014. (Forensic Architecture)

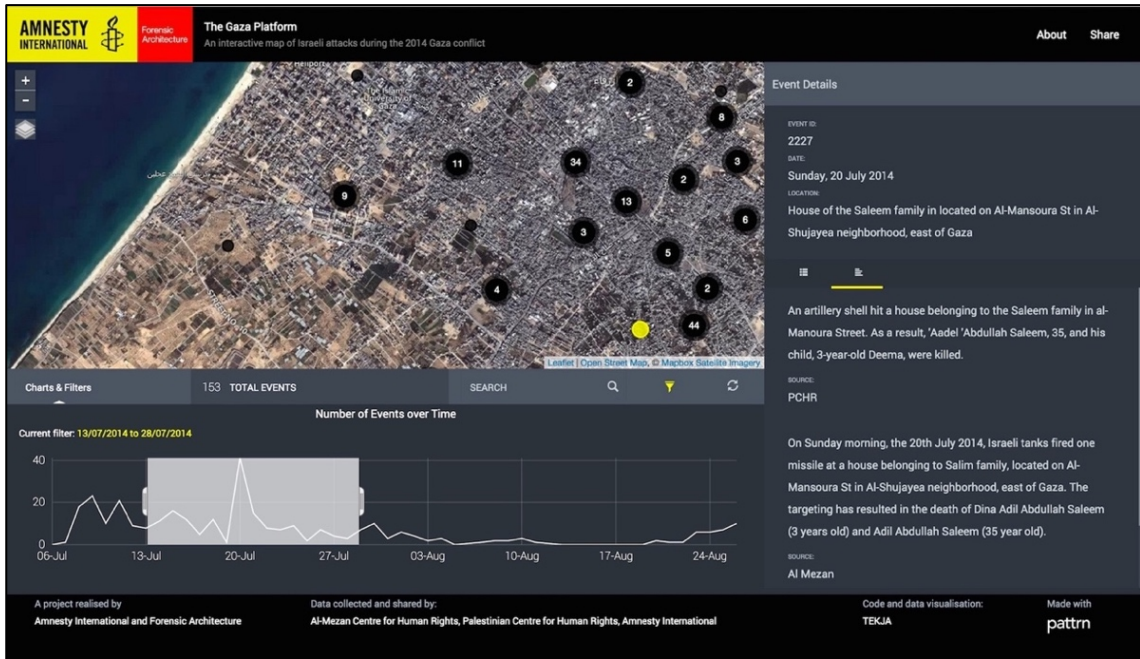
Gaza Platform

URL	https://gazapatform.amnesty.org
Project type	Interactive mapping platform
Date of release	08/07/2015
Collaborators	Forensic Architecture, Amnesty International, Al Mezan Center for Human Rights, the Palestinian Centre for Human Rights (PCHR), TEKJA
Role	Initiator, Project Coordinator

The Gaza Platform is the most comprehensive public repository of information about the 2014 Israeli military operation in the Gaza Strip. It lists 2,695 events, and records the deaths of 1,989 people, including 1,665 civilians, 532 of them children.

Beyond offering aggregate figures and statistics about operation Protective Edge, the platform enables to explore every individual incident reported during the conflict; for each of these incidents, it provides access to all the available details and material (text reports, photos, videos, audio recordings, and satellite imagery.) The platform does not only give access to a large quantity of otherwise dispersed data, but also helps to make sense of it by revealing trends and making links between dispersed individual events. Patterns identified across fifty days of conflict contribute to an assessment of the conduct of Israeli forces and their conformity or otherwise with the provisions of international humanitarian law.

Following pages	Views of the Gaza Platform
	Original proposal for the Gaza Platform (05/08/2014—during the 2014 war)
	Amnesty International's press release (29/07/2015)
	Selected press coverage



View of the Gaza Platform—interactive time-period filtering (2015)



View of the Gaza Platform—interactive filtering by category (2015)

THE GAZA PLATFORM

An interactive cartography of the on-going conflict in the Gaza Strip

Proposal date: 5 August 2014

Forensic Architecture
Department of Visual Cultures
Goldsmiths, University of London

Principal Investigator: Prof. Eyal Weizman
Project Team: Francesco Sebregondi, Jacob
Burns, Jesse Connuck

Forensic Architecture

Goldsmiths
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ABSTRACT

The death toll and extent of the destruction from the latest conflict in Gaza has already exceeded that of the two previous military operations in Gaza in 2008-9 and 2012. While a 72-hour cease-fire was agreed to this morning and hopes are rising for a definitive end to the four-week long conflict, efforts to represent the war and its overall human cost increasingly come up against an old difficulty: how to reflect the sheer amount of civilian casualties and damage without reducing the devastation to a statistical account blurring the material reality and individual tragedies of the war.

At [Forensic Architecture](#) we have set out to tackle this problem by producing a comprehensive online cartography of the on-going conflict in Gaza. Powered by cutting-edge digital mapping technology, our interactive platform will both provide its users with an accessible overall picture of the conflict and its aftermath; as well as allow them to “zoom in” and explore each specific incident in the Gaza Strip since the start of the latest escalation.

Combining thorough micro-scale documentation of incidents and macro-scale analysis of the conflict as a whole, the Gaza platform will assemble the most comprehensive repository of information around Operation Protective Edge. Beyond supporting public information campaigns, the platform will collect materials for both investigations into alleged violations of international law, and efforts to bring accountability for those in the post-conflict period. By collating the work of many organisations and arranging it in new ways, the Gaza platform will provide a lens in which previously obscure details can become clearly defined.

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* Internal + financial information redacted. 1 page omitted from original document.



NEWS

ISRAEL AND OCCUPIED PALESTINIAN TERRITORIES ARMED CONFLICT

SHARE



Launch of innovative digital tool to help expose patterns of Israeli violations in Gaza

8 July 2015, 00:01 UTC

An investigative online tool mapping Israeli attacks in Gaza during the conflict of July and August 2014 has been unveiled by Amnesty International and [Forensic Architecture](#) today. Its purpose is [to help push for accountability for war crimes and other violations of international humanitarian law](#).

[The Gaza Platform](#) enables the user to explore and analyse data about Israel's 2014 military operation in Gaza. The preliminary data currently plotted on the Platform, which will be updated over the coming months, already highlights a number of patterns in the attacks by Israeli forces that indicate that grave and systemic violations were committed.

"The Gaza Platform is the most comprehensive record of attacks during the 2014 conflict to date. It allows us to piece together more than 2,500 individual attacks, illustrating the vast scale of destruction caused by Israel's military operations in Gaza during the 50-day war last summer," said Philip Luther, Director of Amnesty International's Middle East and North Africa Programme.

"By revealing patterns rather than just presenting a series of individual attacks, the Gaza Platform has the potential to expose the systematic nature of Israeli violations committed during the conflict. Our aim is for it to become an invaluable resource for human rights investigators pushing for accountability for violations committed during the conflict."

“ By revealing patterns rather than just presenting a series of individual attacks, the Gaza Platform has the potential to expose the systematic nature of Israeli violations committed during the conflict. ”

Philip Luther, Director of Amnesty International's Middle East and North Africa Programme

How the Gaza Platform works

The Platform records the time and location of each attack on an interactive map and classifies it according to numerous criteria including type of attack, site struck and number of casualties to highlight patterns. Photos, videos, eyewitness testimony and satellite imagery for attacks are also included where available. With the help of new data visualization and digital mapping technology, users can view and search this information to detect patterns in the Israeli forces' conduct during the conflict. The aim is to identify and publicize patterns which can help in the analysis of whether particular attacks constitute violations of international humanitarian law, including war crimes.

A team of researchers in London and Gaza has been working over several months to collate and input onto the Platform data collected on the ground by the Gaza-based human rights organizations Al Mezan and the Palestinian Center for Human Rights (PCHR), as well as information gathered by Amnesty International.

The launch of the Platform is just the start of the project – it will be updated with new information as work to gather further evidence relating to the conflict continues.

Patterns of Israeli violations

While a vast amount of multimedia information, including testimony, photos, videos and satellite imagery, is still being processed, the Gaza Platform currently shows that more than 270 Israeli attacks were carried out using artillery fire during the 2014 conflict, killing more than 320 civilians. The repeated use of artillery, an imprecise explosive weapon, in densely populated civilian areas constitutes indiscriminate attacks that should be investigated as war crimes.

The Platform also clearly illustrates an overwhelming pattern of targeting residential homes, with more than 1,200 Israeli attacks on houses resulting in more than 1,100 civilian deaths. Direct attacks on civilians not directly participating in hostilities and on civilian objects are prohibited under international humanitarian law, or “the laws of war”. Amnesty International, the UN Commission of Inquiry and other conflict monitoring organizations have raised the alarm about the high number of such attacks during the 2014 conflict.

Users can also note other disturbing patterns, such as Israeli attacks striking first responders, medical workers and facilities, as well as the extensive use of “knock on the roof” warning attacks, where a missile fired from a drone is followed shortly afterwards by a larger bomb. Amnesty International does not consider that such strikes constitute an effective warning, nor do they absolve Israel from the clear obligation not to direct attacks at civilians or civilian property.

Innovative tool for human rights research

“The launch of the Gaza Platform today, a year after the start of the conflict, is a significant step in the process of documenting the full scale of violations that took place in Gaza last year. It is also a call for individuals and other organizations to send more photographs, testimonies and other forms of evidence about attacks they have experienced or documented during the conflict,” said Eyal Weizman, Director of Forensic Architecture.

The digital age has rapidly increased the pace and means of information gathering during a human rights crisis such as last year’s conflict in Gaza. Multimedia evidence can often play an instrumental role in confirming what took place after the fact. The Platform offers an efficient new method of processing and cross-referencing different types of information.

“ The Gaza Platform exploits the power of new digital tools to shed light on complex events such as the latest war in Gaza. It enables users to move across scales, from the granular details of each incident to the big picture of the overall conflict, by revealing connections between scattered events ”

Francesco Sebregondi, Coordinator of the Gaza Platform project at Forensic Architecture

“The Gaza Platform exploits the power of new digital tools to shed light on complex events such as the latest war in Gaza. It enables users to move across scales, from the granular details of each incident to the big picture of the overall conflict, by revealing connections between scattered events,” said Francesco Sebregondi, Research Fellow at Forensic Architecture and Coordinator of the Gaza Platform project.

“We see this project as a first step towards more effective conflict monitoring efforts, supported by collaborative platforms that facilitate the sharing of data between witnesses on the ground, organizations, and citizens worldwide.”

Background

Forensic Architecture is a research project and consultancy based at Goldsmiths, University of London.

The Gaza Platform is a pilot project of a new mapping and data visualization tool to support research around armed conflicts and human rights violations. Entitled [PATTRN](#), the tool has been developed by Forensic Architecture and first put into practice by Amnesty International in partnership with Palestinian human rights organizations Al Mezan and PCHR. For the realisation of the Gaza Platform and the development of the PATTRN tool, Forensic Architecture has worked closely with TEKJA, a data analysis and visualisation company based in London.

The long-term goal is to create a tool that can be used more widely by human rights researchers, investigators, journalists, and citizens to enable them to share information and to monitor conflicts and crises collaboratively.

Topics



Gaza Platform Findings (Video, 10:02)

Produced and released by Amnesty International, 10 July 2015

<https://www.youtube.com/watch?v=sIEH91fu0Gw>

Press coverage

- **Amnesty International uses 'The Gaza Platform' map to visualise every Israeli strike on Gaza** (The Independent, 8 July 2015)
<https://www.independent.co.uk/news/world/middle-east/amnesty-international-uses-the-gaza-platform-map-to-visualise-every-israeli-strike-on-gaza-10376313.html>
- **New online digital mapping tool shows inside story of Israeli assault on Gaza** (Mondoweiss, 8 July 2015)
<https://mondoweiss.net/2015/07/digital-mapping-assault/>
- **Un an après la guerre de Gaza, une carte pour visualiser les attaques israéliennes** (Le Monde, 14 July 2015)
Available at : https://www.lemonde.fr/proche-orient/article/2015/07/16/un-an-apres-la-guerre-de-gaza-une-carte-pour-visualiser-les-attaques-israeliennes_4685997_3218.html

Patrn

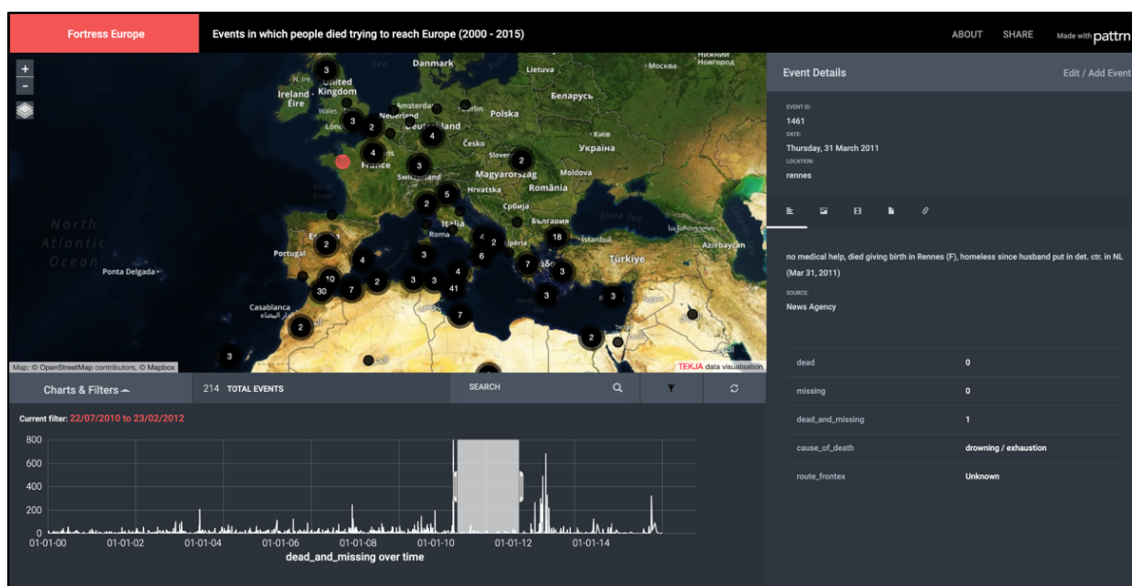
URL	https://patrn.co
Project type	Open source software
Date of release	12/01/2016
Collaborators	Forensic Architecture, TEKJA
Role	Initiator, Project Architect

Patrn is a tool to map complex events—such as conflicts, protests, or crises—as they unfold. Working as an aggregator of data in various media formats, as well as a powerful data visualisation platform, PATTRN enables its community of users to share and collate first-hand reports of events on the ground and to make sense of diffused fragments of information.

Its principle is simple: everything that happens does so at a given place and time. The tool enables its users to collaborate on build collaboratively a database of events with space and time coordinates, and to add tags, media, and content to these events. The database can then be explored through a visualisation platform, which simultaneously provides access to the details of each singular event and, through interactive graphs and charts, to the big picture of an overall situation.

PATTRN is primarily developed for use by non-governmental organisations as a tool to support research and information around armed conflicts and human rights violations. PATTRN goes beyond mapping out individual events: it integrates an advanced analytic tool that allows for temporal and spatial trends to be revealed. Developed as an open-source participatory tool that leverages the power of user-contributed data and crowd-sourced analysis, it has great potential applications in a variety of fields—from journalism to education, through public policy, citizen science, and research at large.

Following pages	View of Patrn dashboard
	Testimonials



View of “Fortress Europe” mapping project, developed with The Migrants Files dataset (2016)

Testimonials

The PATTRN tool has the potential to be a game-changer. It is designed to meet the needs of conflict research, on the level of data collection, organisation, and querying, while offering visualization functionality key to effective campaigning and advocacy. PATTRN can be an extremely valuable asset for Amnesty International in order to address the challenges of human rights work in the digital age. We look forward to working closely with their team on the shift from a prototype to a reference tool in the field.

—Scott Edwards, Amnesty International Crisis Response Programme

This is the best conflict mapping tool I have ever seen, with huge development potential. I look forward to working with it.

—Eliot Higgins, founder of Bellingcat

Targeting Architecture

While the networked city inherited from the 19th century was almost exclusively based on flow management, the smart city promises to master events, situations and scenarios.

—Antoine Picon

It might well be, for that matter, that we are entering targeted societies.

—Grégoire Chamayou

Aftermath

The 2014 operation code-named ‘Protective Edge’ was not only the deadliest of the three attacks carried out by the Israeli military in Gaza since 2009; it also stands out for the extent of the destruction it brought about to the built environment of the Palestinian enclave.³ Overall, military experts estimate that 20,000 tons of explosives have been dropped over Gaza—the equivalent of two low-yield tactical nuclear weapons. The consortium of United Nations agencies, Palestinian Authority (PA) administrations, and international NGOs that are still, five years later, overseeing the efforts of reconstruction have been working with the following figures: 11,000 housing units completely destroyed; 12,500 severely damaged; and 147,500 in need of repair.⁴ Roughly one in every three houses in Gaza was affected by the war. In spite of the critical need for reconstruction in the aftermath of the war, the blockade of Gaza remained in force: a population of then 1.8 million people were denied exit to the outside world, and the entry of building materials continued to

³ According to the report by the Independent Commission of Inquiry on the 2014 Gaza Conflict appointed by the UN Human Rights Council, 2,251 Palestinians were killed during operation Protective Edge, including 1,462 civilians, and 551 children.

⁴ “Palestine: Shelter Cluster Factsheet—May 2016”, accessed 31 August 2019, http://shelterpalestine.org/wp-content/uploads/2017/11/pdf_doc_shelter-4.pdf.

be extremely restricted. As soon as the smoke of 'Protective Edge' cleared and Gaza revealed its new flattened profile, the vital problem for tens of thousands of families shifted from avoiding the bombs to securing a shelter. In the absence of the basic means to rebuild, life after the ceasefire threatened to turn into a vast humanitarian crisis.

In September 2014, the UN Office of the Special Coordinator for the Middle East Peace Process (UNSCO) brokered a temporary tripartite agreement between Israel, the PA, and the UN. Titled the Gaza Reconstruction Mechanism (GRM), it was presented as a means to lift some of the enforced restrictions and to facilitate the inflow of construction materials. In practice, it functions through a newly set up online database of unprecedented size and granularity, named GRAMMS— an acronym standing for Gaza Reconstruction And Materials Monitoring System. For each building project, from single housing unit repairs to municipal infrastructure, an application must be submitted electronically that includes the details of the applicant, the exact location of the building, the purpose of the construction, and the amount of materials requested. Assembled and maintained by the UN with distant involvement from the PA, the database is then regularly reviewed by Israeli authorities who approve or reject projects, thereby determining which packets of materials will be allowed into the enclave and which ones will be refused.⁵ Overall, the GRM introduces a centralized database system that gathers granular data coming from every corner of Gaza and enables a modulated response in real-time: after it was levelled by smart bombs, Gaza is arguably being turned into a smart city.

Officially presented as a mere technical solution to the problem of coordinating the trade of materials across the Gaza border, the implementation of the GRM has far-reaching political and urbanistic consequences. As soon as it was announced, the mechanism was strongly criticised by a number of observers as a move towards an institutionalisation of the blockade—which remains illegal by all international standards.⁶ Legal experts have argued that, by playing an active

⁵ Only a short fact sheet regarding the Gaza Reconstruction Mechanism was released publicly by the UNSCO. The full text of the agreement was meant to remain secret but ended up being leaked online in January 2016. Much of the analysis developed in this essay relies on a close reading of the procedures and regulations described in the full document. See Ali Abunimah, "UN database for Gaza aid may give Israel targets to attack—secret memo", *Electronic Intifada*, 13 January 2016, accessed 31 August 2019, <https://electronicintifada.net/blogs/ali-abunimah/un-database-gaza-aid-may-give-israel-targets-attack-secret-memo>.

⁶ Nuriya Oswald, "Gaza Reconstruction Mechanism: Profiting Israel, Entrenching the Blockade," *Jadaliyya*, July 7, 2015, <https://www.jadaliyya.com/Details/32264>.

part in establishing and maintaining this ad-hoc mechanism, the UN itself was in violation of international law, as well as of its own mandate.⁷ Furthermore, over the course of nearly five years of activity, the GRM has plainly demonstrated to be unfit for its official task—a point of criticism which is regularly voiced by humanitarian actors on the ground.⁸ Two years after the ceasefire, of the 100,000 Palestinians who had their homes destroyed or severely damaged as a result of the 2014 hostilities, 65,000 remained displaced. As of February 2019, this number fell down to 12,300, yet one fifth of the cement needed to complete the 2014 housing reconstruction caseload is still missing.⁹ As a circulatory machine, not only is its overall flow rate insufficient to meet the material needs of the people in Gaza, but also, the irregular and intermittent character of its output keeps choking off the entire building industry it is supposed to support.¹⁰ Just like it marks a further step in the process of normalisation of the blockade in the sphere of international discourse, it entrenches the material power relations that the blockade established.

As a result, the people of Gaza find themselves even more vulnerable than they already were to minute reductions, or interruptions, of the inflow of their most basic needs—from electricity to water, fuel, calories, and now cement. The now infamous "red lines" policy, which was publicly exposed by the investigative journalists Yotam Feldman and Uri Blau, revealed the chilling calculations of calories used by the Israeli authorities to determine the daily amount of food necessary to avoid actual hunger in Gaza—which were then converted into the maximum amount it

7 White, Nigel. 'Expert Opinion on the Legality of the Gaza Reconstruction Mechanism (GRM)', 26 January 2015. The full text of this confidential expert opinion was also leaked and made available at: <https://electronicintifada.net/blogs/ali-abunimah/un-database-gaza-aid-may-give-israel-targets-attack-secret-memo> (accessed 31 August 2019).

8 UN Humanitarian Chief, "Palestinians stuck in a perpetual cycle of humanitarian relief". Statement to the Security Council on the Humanitarian Situation in the oPt, 23 Nov 2016. Available at: <http://www.unocha.org/country/top-stories/all-stories/palestinians-stuck-perpetual-cycle-humanitarian-relief-un-humanitarian-chief> (accessed 31 August 2019).

9 "Palestine: Shelter Cluster Factsheet—Feb 2019", accessed 31 August 2019, https://www.shelter-cluster.org/sites/default/files/docs/one_page_factsheet_feb_2019.pdf

10 The option of gripping the mechanism is always available to Israeli authorities, as demonstrated recently. On 3 April 2016, the Coordination of Government Activities in the Territories (COGAT) suddenly imposed a complete ban on private imports of cement, following allegations that cement was being diverted from its intended beneficiaries by Hamas. The ban was only lifted 45 days later. See also the saw-tooth graph of average waiting time for the approval of dual-use items on the GRM website, at: <https://grm.report/#/DualUse/Approvals> (accessed 1 Sep 2017)

would allow in every day.¹¹ As confirmed by these revelations, cutting down the already minimal inflow of supplies has long constituted the policy of choice of the Israeli state to put pressure on the Hamas-controlled enclave.¹² While the GRM supports the continuation of this broad policy, it also marks a significant shift in the technology of power that enables it.

This chapter explores the architecture and politics of *targeting*, with a specific focus on its application to the management of urban systems today. Using the case of the GRM as its primary example, the next section continues the analysis of its functioning and diverse levels of impact on the living conditions in Gaza. A third section links the GRM to the broader apparatus of targeting that is built into the blockade as an urban system, reviewing several other mechanisms by which the Israeli authorities are able to manage a system of real-time, high-resolution containment of Gaza. The last two sections connect the particular situation of Gaza to the global phenomenon of smart urbanism. They draw from the history of real-time computation to consider the problem of the rise of *real-time* as the dominant operational temporality of urban systems today, and its consequences for the very concept of the city.

GRAMMS

In Gaza, the built environment tends to be measured in weight: millions of tons of rubble had to be cleared before more millions of tons of cement could be allocated in the program of reconstruction.¹³ As a consequence of its cyclical unmaking and remaking, architecture is caught in a discourse that reduces it to an uncountable substance; broken down into mere quantities of its elementary components, it becomes prey to a vast apparatus of calculation. This is nowhere more manifest than in the public façade of the GRM.¹⁴ On this dedicated website full of bold

11 “2,279 Calories per Person: How Israel Made Sure Gaza Didn’t Starve,” *Haaretz*, October 17, 2012, <https://www.haaretz.com/.premium-israel-s-gaza-quota-2-279-calories-a-day-1.5193157>.

12 GISHA, ‘Reader: “Food Consumption in the Gaza Strip - Red Lines”’. Position Paper, October 2012. Online at: <http://www.gisha.org/UserFiles/File/publications/redlines/redlines-position-paper-eng.pdf> (accessed 1 Sep 2017)

13 “War Left Four Million Tons of Rubble in Gaza, Says Environmental Group,” *Haaretz*, September 16, 2014, <https://www.haaretz.com/report-war-left-4m-tons-of-rubble-in-gaza-1.5301847>.

14 UNOPS, “The Gaza Reconstruction Mechanism (Online Report Updated in Real Time),” accessed September 15, 2019, <https://grm.report/>.

figures and interactive data charts, one can track how much ‘ABC material’—A for aggregate, B for reinforced steel bars, C for cement—is entering Gaza each month; how many tons of each are allocated to the ‘shelter’, ‘residential’, ‘finishing’, or ‘infrastructure’ project streams; and how many applications for those projects were received by the GRM administration, with a breakdown according to their present status. All the while a real-time data feed provides updates about the latest transactions on the GRM market: “3 hours ago, [anonymous] beneficiary purchased 20 bags of [generic] cement.”¹⁵

As a database management system, GRAMMS requires structured data. This is what enables it to compute aggregate figures or issue statistical assessments. The benefits for coordination among the disparate actors of the reconstruction is evident: the system provides them all with a common template by which building activities can be applied for, reviewed, monitored, approved, or rejected. The data template is the means by which a multiplicity of diverse objects—in this case, architectural and urban projects—is captured in the regular net of a database. Yet because it was established as the only route by which any building can be materially realised, the GRM actually converts its own tabular logic into a virtual urban grid, which it projects over the entire territory of Gaza. As it delineates the strict parameters of the possible—i.e., a choice of shelter, finishing, residential, or infrastructure projects, in a circumscribed location, all to be built in ABC material—the GRM can only be described as the new matrix of Gaza’s urban fabric, which is coming into being one bag of cement at a time.

The GRM also brings about a replacement of the administrative division of Gaza’s territory with its own fine-grained grid. Designed to bypass the Hamas-led administration of the enclave, the mechanism requires that individual applications for construction materials be entered into the system by the PA, via its Ministry of Civil Affairs in Ramallah. In the same way that civil society was left out of any discussion about its establishment, the architecture of the GRM prevents the essential question of reconstruction from being addressed at any collective level—be it that of a district, municipality, or neighbourhood. Instead, it imposes that each individual plot of land be treated separately. Thereby, it largely hinders—if it doesn’t rule out completely—the possibility of *composing* spaces together, beyond the scale of each separate building projects. The lines of its tables isolate plots just like they separate cells, and as it feeds on disaggregated data, the GRM regurgitates a disaggregated urbanism.

15 UNOPS.

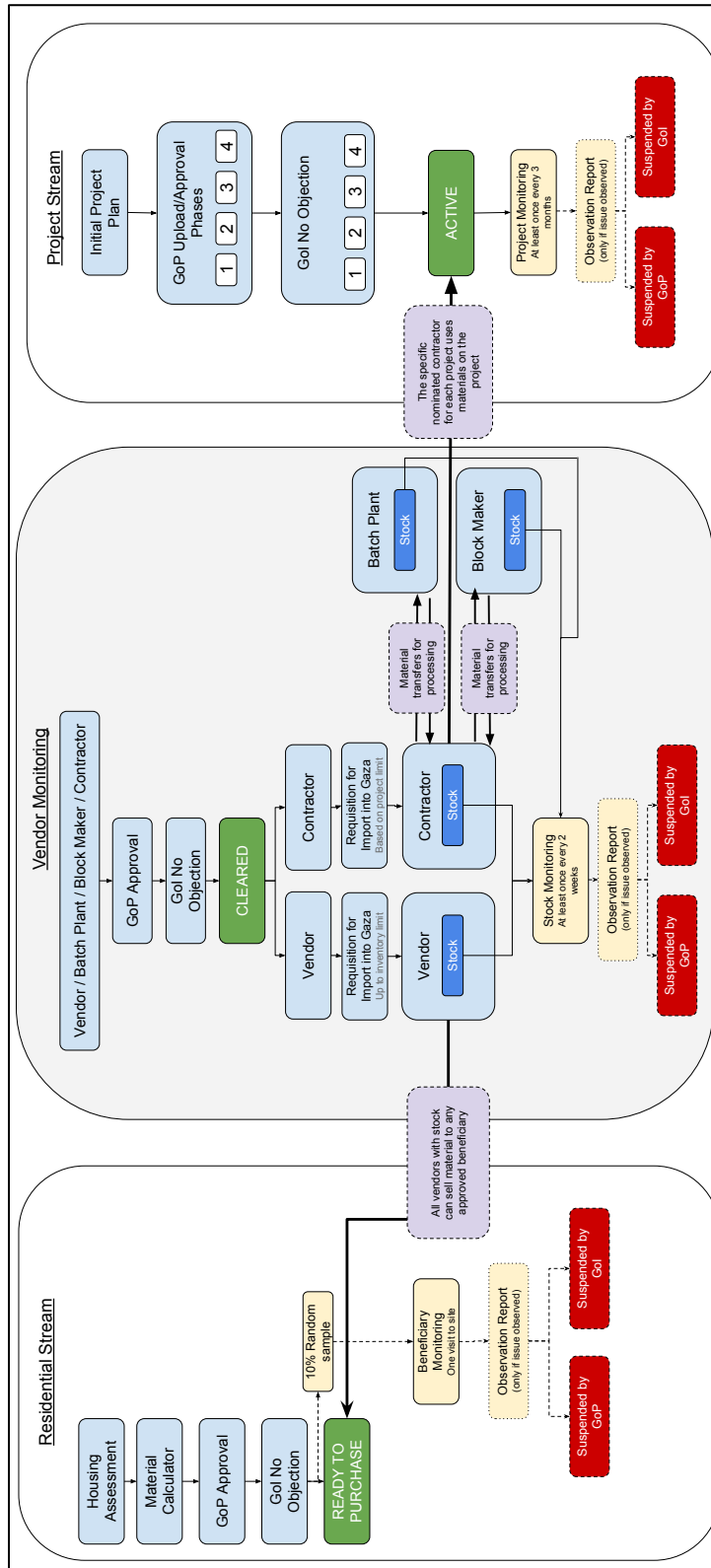


Fig. 17—UNSCO, Diagram of the GRM Process (2014)

This a priori fragmentation of a shared condition in space goes hand in hand with a splintering of time into an array of discrete temporalities. The GRM regulations require that each application be divided into four distinct phases, each of which must be submitted and approved separately. Each project is thereby assigned its own parallel timeline, along which progress is contingent to the intermediate checks by the Materials Monitoring Unit—a UN body policing the enclave in armoured vehicles to “monitor contract compliance and report via the central IT database.”¹⁶ Broken down into so many conditional and at-all-times interruptible timelines, progress of the overall reconstruction towards completion is made impossible to assess in any definitive manner.

What is more, at the core of the GRM is a logic of control over the import of so-called “dual-use” items into Gaza—namely items which are “liable to be used, side by side with their civilian purposes, for the development, production, installation or enhancement of military capabilities and terrorist capacities.”¹⁷ Following this logic, because they could be used to build ‘terror tunnels’, even the most basic building materials, such as cement and rebar, are treated by Israeli authorities as potential weapons. It is by invoking this threat, and its own sovereign right to pre-empt it, that the State of Israel was able to obtain, through the GRM, the power to oversee every step of the circulation of cement across Gaza. While ABC materials are far from constituting the only items considered ‘dual-use’, the Coordinator of Government Activities in the Territories (COGAT) has been wary not to publish any precise list of those items, and instead reserves the right to review and decide on a project-by-project basis. In lieu of it, a list of the requests submitted through the mechanism is published on the GRM website; it comprises more than 10,000 distinct construction items and includes statistics about the actual approval rate of each.¹⁸ While this list is meant to help “contractors and project managers operating under the GRM to anticipate the materials that will generally be available”, what it actually brings to light is the depth of the control exercised by the Israeli authorities over the urban form that is

16 “Gaza Reconstruction Mechanism – Full Document (Leaked),” September 2014, 6.

17 Israel Ministry of Foreign Affairs, ‘Gaza: Lists of Controlled Entry Items’. Announcement, 4 Jul 2010, http://www.mfa.gov.il/mfa/foreignpolicy/peace/humanitarian/pages/lists_controlled_entry_items_4-jul-2010.aspx

18 Available at: <https://grm.report/#/DualUse/List> (accessed 31 August 2019)

to emerge in Gaza—down to the most minute architectural detail. From the approval of building phases to that of dual-use items, GRM applicants in Gaza never cease to be subordinated to an external sovereign decision to determine what they can build, how, where, and when. Yet even more than its right to decide, it is the State of Israel's right to indefinitely suspend its decision which best captures the power it exercises over the reconstruction of Gaza—and over the people that depend on it.

During the previous processes of reconstruction under blockade—following Operation Cast Lead and Operation Pillar of Defense—only a very limited number of organisations were allowed to import cement: essentially, the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) and the United Nations Development Program (UNDP). An important innovation of the GRM is to involve Gaza's private sector in the logistics of import and distribution of construction materials. From a situation in which a few large organisations would negotiate the bulk import of considerable amounts of cement—which they would later administer and distribute with relative autonomy in Gaza—the GRM marks a shift towards a much higher number of smaller structures involved in the import process—yet under a much tighter level of control. Indeed, as part of its internal regulations, the GRM imposes that any potential distributor in Gaza equip its warehouse with 24h CCTV cameras, the recording feed of which must be directly transmitted to the UN Material Monitoring Unit (MMU). Moreover, distributors must guarantee permanent access to the warehouse to the MMU monitors on the ground for physical inspection of the stock of materials at any time.

An officer from the MMU in Gaza—who agreed to speak to me on condition of anonymity—confirmed that their main activity on the ground consists in running inspections operations, not only in businesses warehouses, but also within individual families building sites.¹⁹ Among their 95 staff permanently on site, 70 are monitors tasked with patrolling the whole Strip to check stocks of cement. When a discrepancy is found between the actual stock on site and the stock logged in the system, the MMU monitor files an online report, called “observation”, which is then reviewed by the other parties in the GRM agreement. While the PA has never acted on any observation in practice, the Israeli authorities (specifically, COGAT)

¹⁹ Remote interview conducted in September 2016 with an officer from the UNOPS Material Monitoring Unit in Gaza, on condition of anonymity.

have been doing so on a regular basis: based on the nature of the observation, they may decide to suspend or ban a beneficiary, or a vendor, from taking part in the GRM. “Our job ends when the governments have been informed”, the MMU official told me.

When I asked which data protection framework was used by GRAMMS to process the personal data of hundreds of thousands of individual beneficiaries of the GRM, the answer I got was: “none.” As an ad-hoc mechanism, it is not required to abide by any recognised legal standards, nor does it fall under any national jurisdiction. This lack of legal protection—enabled by the exceptional status of Gaza under blockade—should be considered in relation to another point made by a higher-ranking official of UNSCO, who also requested to remain anonymous. “We know that [Israel’s internal security agency] Shin Bet is behind COGAT’s decisions. Whether they decide to ease the pressure, or to tighten it up again: such decisions are always based on security assessments.”²⁰ The fact that the feed of individually-detailed observations provided by the MMU is more or less directly delivered to Israel’s security apparatus is disturbing to say the least: pending on the content of the observation, nothing would impede Israel from employing a much stronger form of targeted response towards any signalled individual or location than its mere ban from the GRM.

As the main interface of Gaza's vast urban reconstruction, the GRM features a deeply asymmetrical architecture: it collects granular data from a highly distributed pool of users on one side of the Gaza border, and presents it all for review by one central authority on the other side. While the UN still attempts to frame it as "an agreement between the Government of Palestine and the Government of Israel", in practice, the mechanism gives the Israeli authorities the last word on the approval or rejection of every project, every applicant, every vendor, and every piece of building material used. As they massively trade their personal data for a meagre allocation of cement, the people of Gaza are further fragmented, isolated, assigned to their respective cell in the overall matrix of the GRM. As a result of its coming into force, every single plot of constructible land in Gaza was brought under direct supervision by the Israeli security apparatus—thereby turning it, effectively, into the ultimate planning authority in Gaza. In that sense, the establishment of the GRM constitutes an extension of Israel’s "military urbanism", the end-goal of which is to make the built environment entirely *transparent* to the authorities in

²⁰ Interview with high-ranking UNSCO officer conducted in Jerusalem, September 2016, on condition of anonymity.

charge of monitoring it.²¹ After the targeted destruction of alleged tunnel networks—and everything covering them above ground—or the deployment of a horde of autonomous ‘eyes in the sky’ continuously patrolling over Gaza, the GRM represents a significant upgrade of Israel's surveillance capability: it constructs a nearly one-to-one map of the urban and social fabric of Gaza, updated in real time by the very users it is forced upon. Anticipating a chilling feedback loop of the mechanism, experts have pointed out "the potential misuse of the database by the Government of Israel for the identification of targets" in the next war.²²

In February 2018, the UN began a joint review of the GRM with the Israeli government and the PA. The goal of the review was to assess the functionality of the temporary mechanism nearly four years after its entry into operation, and as the end of the reconstruction phase of the 2014 case load was finally in sight. While the full details of the revision to the functioning of the GRM are yet to be made public, I was informed by the same high-ranking UNSCO official, who directly took part in the negotiations of the revised agreement, that it essentially consisted in a transition out of the strict reconstruction phase.²³ From 2019 onwards, the GRM is expected to start functioning as the default framework for the import of building materials into Gaza, including for any new constructions; as such, it will form the durable matrix of Gaza's urban environment. Adding to the long list of UN-sanctioned temporary measures and projects that turned into permanent institutions in occupied Palestine, the GRM is tracing the same trajectory: from officially temporary to *de facto* permanent. In the process, all the flaws and biases of its architecture, which its proponents initially justified by invoking the emergency of the situation it was meant to respond to, end up durably defining the daily life of the two million people living under the Gaza blockade.

21 Graham, *Cities Under Siege*, 2011.

22 Nigel White, “Expert Opinion on the Legality of the Gaza Reconstruction Mechanism (GRM),” January 26, 2015, 11.

23 Interview with high-ranking UNSCO officer conducted in Jerusalem, September 2016, on condition of anonymity.

Targeted Response

Having exposed how the GRM is designed to function as a high-resolution, deep-penetration instrument of surveillance, it is now necessary to connect it to the other mechanisms by which Gaza's urban and social fabric is permanently monitored and targeted. Together, those will be described as forming a *targeting apparatus*. By themselves, the terms 'surveillance' or 'monitoring' would merely indicate a form of passive observation from the authorities in control of this apparatus. It is therefore important to integrate the response dimension in the description of this apparatus, which uses the same integrated infrastructure to both acquire information in real-time and to produce targeted responses, including pre-emptively, to any perceived or potential threat.

First of all, the GRM needs to be understood as a further manifestation of what the media scholar Helga Tawil-Souri has named a "digital occupation."²⁴ With this term, Tawil-Souri describes Israel's deep and extensive control over the information and communication infrastructure of Palestinians. While this is also true of the West Bank, it is in Gaza that this digital occupation is most drastic and shows its most pernicious effects. As a form of compensation for the intelligence capability lost after the withdrawal of its physical presence on the ground in 2005, Israel has retained access to, and control of, the entire land line, cellular, and internet communication network:

"A telephone call made on a land-line, even between Gaza City and Khan Yunis, is physically routed through Israel. Internet traffic is routed through switches located outside the Gaza Strip. Even on the ubiquitous cellular phones, calls must touch the Israeli backbone at some point. Like much else about the Gaza Strip, telecommunication infrastructures are limited by Israeli policies. Geographic mobility, economic growth, political mobilization, and territory are contained, but so are digital flows: Gazans live under a regime of digital occupation."²⁵

Technically comparable to the NSA's long-standing practice of tapping the undersea fibre optic cables of the internet's global network, Israel's hold on the deepest layer of Gaza's communication infrastructure makes it possible for it to eavesdrop on every single voice conversation of

24 Tawil-Souri, "Digital Occupation."

25 Tawil-Souri, 28.

Gazans, read any emails or messages sent from or received in Gaza, or intercept any digital exchange reaching Gaza regardless of the system, network, or application used higher up the communication stack.²⁶ What is more, in Gaza, Israel's digital occupation does not stop at intercepting communications; it also regularly manifests itself as active interventions upon communication networks. This intervention can take the form of jamming—for example, cellular phone or TV satellite signals are jammed whenever an Israeli drone is flying overhead—but it can also take the form of an emission of targeted messages. Over the past years, there have been regular reports of text or voice messages sent by the Israeli military to every mobile phone within a specific area, as a means to “warn” civilians of an impending airstrike.²⁷ This practice has been interpreted as a legal tactic of the Israeli military to recast any potential casualty of a given strike that would have received a warning message as a voluntary human shield, which would thereby exclude them from the count of civilian casualties. Regardless of the content of the message, it is the very capacity of Israeli authorities to make such targeted interruptions into the daily life of Gazans, down to the scale of a single hand-held device, which best signals the level of control they retain over Gaza. As a digitally enabled interface regulating individual access to building materials in Gaza, the GRM pursues and upgrades the same logic of digital occupation. Its capillary network enables the Israeli authorities to effectively govern the material constitution of Gaza's urban environment down to the residential scale of each household.

26 It should be noted that the recent popularisation of end-to-end encryption across online voice and text messaging applications may, in some cases, provide some form of privacy.

27 Steven Erlanger and Fares Akram, “Israel Warns Gaza Targets by Phone and Leaflet,” *The New York Times*, July 8, 2014, sec. World, <https://www.nytimes.com/2014/07/09/world/middleeast/by-phone-and-leaflet-israeli-attackers-warn-gazans.html>.

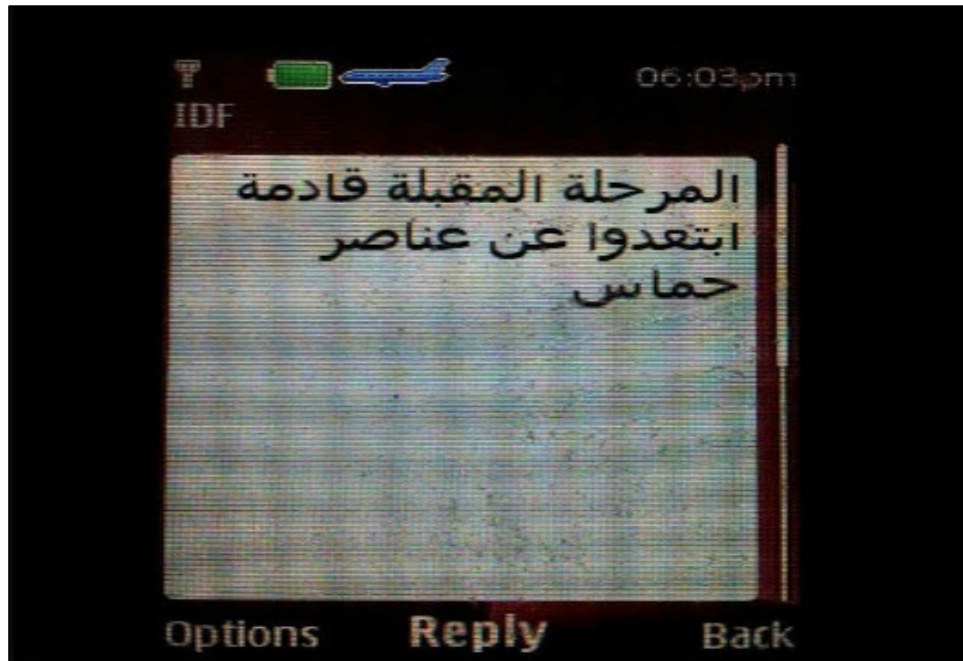


Fig. 18—“The next phase is on the way. Stay away from Hamas elements.” Text message sent by the IDF to mobile phones in Gaza, 16 November 2012, during Operation Pillar of Defense. (Source: @RanaGaza on Twitter)

The most forceful component of Israel’s apparatus of targeting is the use of aerial drones for a joint surveillance and targeted killing program over Gaza. The Israeli government officially maintains a stance of secrecy around its use of armed drones—in order to facilitate, some have argued, the sale of its drone technology abroad, including to countries which are officially reluctant to purchasing drones that can be armed.²⁸ Nonetheless, numerous proofs of such use have surfaced over the past years. Those include the NSA-leaked surveillance images of an Israeli drone armed with missiles, dating back to 2010, as well as footage of drone video feed released by the Israeli military itself allegedly showing its policy of calling off strikes in proximity to civilians.²⁹ According to the Palestinian Centre for Human Right’s documentation, “since 2004, 636 Palestinians, including 392 civilians (this number includes 184 children and 14 women), have been killed and 438 others, including 401 civilians (this number includes 364 children and 4

28 Robert Mackey, “Secret Israeli Report Reveals Armed Drone Killed Four Boys Playing on Gaza Beach in 2014,” *The Intercept* (blog), August 11, 2018, <https://theintercept.com/2018/08/11/israel-palestine-drone-strike-operation-protective-edge/>.

29 Mackey.

women) have been wounded in attacks launched by Israeli drones.”³⁰ The killing of four boys aged between 10 and 11 as they were playing on a Gaza beach, on 16 July 2014, was widely reported in foreign media not least so because it was directly witnessed by a number of international reporters in Gaza at the time. It was later confirmed to have been carried out by an armed drone. Its operators later stated that they had mistaken the boys for Hamas militants.³¹

While that particular strike took place during Operation Protective Edge, targeted strikes launched either by F-16 fighter jets or by drones are regularly carried out in between full-scale military operations in Gaza. According to the *Washington Post* reporter Scott Wilson, “Gazans use a quick calculus to assess an attack: A destroyed building, such as the small police post, is the result of an F-16. A strike on a sedan, or a group of men clustered at an intersection, is the work of a drone.”³² In an urban environment thoroughly monitored in real-time by an invisible yet nearly all-seeing power, each entity is matched with a specific targeting tool according to its size and mobility. Moreover, the permanency of such monitoring process—which can, in the blink of an eye, turn into a deadly strike—is constantly reminded to Gazans by the noise of the circling drones above their head, in the occupied sky. “When you hear drones, you hear death,”³³ commented Gaza resident Hamdi Shaqura; his statement which vividly resonates with those of many other people “living under drones,” from Pakistan to Yemen or East Africa. All stress the unbearable anxiety that the buzzing sound of drones causes in their daily life.³⁴

In recent years, the intersections between targeting practices across the military and civilian domains have been the object of considerable research. Expanding upon the “drone theory” he proposed a few years ago, Chamayou suggested that we may have entered the era of “targeted

30 Palestinian Centre for Human Rights (PCHR), “In Extra-Judicial Execution Attempt, Israeli Drone Targets Motorbike Wounding Member of Palestinian Armed Group and Child in North Gaza,” accessed September 15, 2019, <https://pchrghaza.org/en/?p=1703>.

31 Mackey, “Secret Israeli Report Reveals Armed Drone Killed Four Boys Playing on Gaza Beach in 2014.”

32 Scott Wilson, “In Gaza, Lives Shaped by Drones,” *Washington Post*, December 3, 2011, sec. National Security, https://www.washingtonpost.com/world/national-security/in-gaza-lives-shaped-by-drones/2011/11/30/gIQAjP6OO_story.html.

33 Wilson.

34 Cavallaro, Sonnenberg, and Knuckey, “Living Under Drones.”

societies.”³⁵ The basis for the notion of targeting outlined by the author is the “Activity-Based Intelligence” doctrine formally adopted by the top US Intelligence agencies in 2010:

“This methodology is based on, among other things, the use of data mining applied to trajectories of movements in order to discover, within gigantic assortments of paths, periodic patterns or signatures corresponding to characteristic segments of habits. Beyond tracking singular itineraries, the goal here is to progressively extract typical schemas of activity. Regular routes progressively thicken on the screen, like paths frequently taken by a flock dig their furrows in the grass of a field.”³⁶

Considering the particular mode of individuation that is at work in this data-driven nexus of knowledge and power, Chamayou remarks that it corresponds neither to the model of disciplinary individualisation—organised around the mass/individual pair—nor to the ‘dividualising’ model of control. The author argues:

“The corresponding object of power here is neither the individual taken as an element in a mass, nor the dividual appearing with a code in a databank, but something else: a patterned individuality that is woven out of statistical dividualities and cut out onto a thread of reticular activities, against which it progressively silhouettes in time as a distinctive perceptible unit in the eyes of the machine.”³⁷

It is this specific process of individuation that Chamayou calls *targeting*. Far from being limited to the field of militarised intelligence, the same logic can be found at work in a number of other domains, including policing activities—such as data profiling and predictive policing—or digital marketing—whereby every online user is targeted with profile-specific ads and suggestions based on its tracked activities and preferences. Following from this is a blurring of the distinction between what could be termed ‘repressive’ and ‘liberal’ modes of targeting. This blurring is caused by the fact that, in many cases, the same data-gathering and data-processing infrastructure is used for either purposes; in turn, this common infrastructure supports the potential reversion, at any given time, of one mode of targeting into another. Just like the GRM

35 Chamayou, *Drone Theory*; Grégoire Chamayou, “Patterns of Life: A Very Short History of Schematic Bodies,” *The Funambulist*, December 4, 2014, <https://thefunambulist.net/history/the-funambulist-papers-57-schematic-bodies-notes-on-a-patterns-genealogy-by-gregoire-chamayou>.

36 Chamayou, “Patterns of Life.”

37 Chamayou.

facilitates access to cement to individual Palestinian families, it has been argued that it may also constitute a resource for the identification of security targets in Gaza. Similarly, yet at a much larger scale, one of the most shocking revelation to have emerged from the 2013 Snowden leaks is the fact that the top-secret PRISM program of the US National Security Agency had direct access to user data stored in the servers of the world's largest internet companies—including Google, Facebook, Microsoft, Yahoo, or Apple.³⁸

Writing about the emergence of “big data surveillance”—yet speaking, in essence, about the same process of targeting—the scholar of security Claudia Aradau further argues that it signals an important epistemic shift.³⁹ The author opposes the model of conjectural knowledge epitomized by the typical detective—who uses his extensive comprehension of existing norms within a given social reality to detect abnormal details—to the method of detection deployed by big data surveillance systems. In the latter, the norm and the anomaly are created in a single movement, *in real-time*. Processing of large amounts of data enables to draw the behavioural patterns of millions of tracked objects, through which a norm is statistically established solely based on the empirically recorded reality; simultaneously, such processing enables to isolate objects that do not conform to the empirical norm which, simply because of this internal discrepancy, emerge as targets of diffuse surveillance systems. There is, therefore, an essential tension at work in big data surveillance/targeting practices: between the voracious approach to the mass collection of information, whereby an ideal apparatus of targeting would be able to access and process data about everyone and everything in real-time; and the infinitesimal scale of the response it is expected to produce, whereby the ultra-wide lens of the monitoring system performs a vertiginous zoom into the microscopic elements that stand out from the whole.

Importantly, from profile-specific online ads to signature drone strikes on suspected terrorists, what is being targeted is not an individual whose identity is known by the system, but a particular behavioural pattern, a particular node within a relational network, which is algorithmically defined as indicative of a certain profile. This type of predictive algorithms is behind the tailor-made model of service-provision that Amazon or Google offers to each of its users

38 Glenn Greenwald and Ewen MacAskill, “NSA Prism Program Taps in to User Data of Apple, Google and Others,” *The Guardian*, June 7, 2013, sec. US news, <https://www.theguardian.com/world/2013/jun/06/us-tech-giants-nsa-data>.

39 Aradau, “Claudia Aradau.”

online—and which proponents of smart urbanism would like to see extended to all services in the urban environment. In the frontiers of a globally diffuse condition of war, where intelligence is no longer collected prior to the launch of an operation but is integrated in real-time into a permanent operational stage, the same process of data-driven individuation can turn lethal very quickly. From a machinic perspective, the elimination of potential hinderances is as important as the fast-tracking of priority processes to the overall objective of optimisation of a system.

Given the highly sensitive nature of this information, it is impossible to evaluate with precision how deep and how extensive Israel's *targeting apparatus* over Gaza really is. Based on what is already known about it and looking at its most recent upgrades—the GRM constituting a telling example—this apparatus can only be described as increasingly thorough, at the same time as it operates at an ever-higher resolution. Comprising of elements ranging from the fully-militarised type—such as armed drones scrutinising every square foot of the confined urban environment—to seemingly inoffensive ones—such as digital interfaces for the faster and smarter processing of administrative procedures—this apparatus constitutes one of the three key pillars of the blockade as a system of remote-controlled, real-time urban containment. The other two, respectively the *bordering* and *resilience* apparatuses, will be examined in the next two chapters.

It is nonetheless important to already bear in mind the situation of Gaza behind an impenetrable security fence when discussing the operations of targeting at work there. One may otherwise fall into the trap of uncritically accepting the self-proclaimed omniscience and omnipotence of such high-tech power apparatuses without acknowledging their recurrent failures. Indeed, the gigantic racial operation of “othering” that Gaza's bordering apparatus produces towards the population on the wrong side of the fence is a fundamental condition to the deployment of targeting measures in such an extreme and lethal form.⁴⁰ It is because the lives of Palestinians in Gaza are *a priori* poorly valued by Israeli authorities—just like the lives of racialized civilian populations in the Federally Administered Tribal Areas of Pakistan, Yemen, or Somalia, are poorly valued by the US military—that, in both cases, experimental programmes of

40 Said, *Orientalism*.

data-driven, “activity-based intelligence” with a demonstrable track record of unreliability are nonetheless allowed to trigger targeted responses that regularly take human lives.⁴¹

While there are undeniable crossovers between the targeting apparatuses at work in the privileged heartlands of the connected urban world and those operating in its militarised frontiers, borders continue to play an essential role in differentiating territories and populations according to the acceptable regime of targeting to which they are each to be subjected.

Real-Time Control

Following a detailed examination of the GRM and a description of the targeting apparatus of which it forms the latest upgrade, it is time to de-zoom even further to consider the links that can be traced between the particular activities of targeting in Gaza and the global development of real-time management systems for urban environments.

A first point to mention is one that was brought up in passing by the interviewed official from the MMU during our interview. The GRM is directly at the origin of another monitoring system deployed by the UN, this time in relation to the Saudi Arabia-led blockade (and deadly war) over Yemen. The same digital infrastructure and the same logic of a UN team of monitors on the ground is applied to the inspection of all shipments to Yemen, and to report to the blockade-enforcing international coalition about any unauthorised item. Justified as a humanitarian measure, the model where UN personnel serve part of a high-resolution monitoring operation over a territory under blockade has already begun to export itself outside of Gaza.⁴²

More generally, a management system such as the GRM vividly captures the argument of the architectural and urban historian Antoine Picon, who has recently suggested that the emergence of the smart city as a global urban model may signal a significant historical shift: from an “urbanism of flows” to one of “occurrences.”⁴³ The optimisation of the urban medium—understood, primarily, as a medium of circulation—involves the reduction of the latency with which it

41 Forensic Architecture, The Bureau of Investigative Journalism, and Situ Studio, *Where The Drones Strike*, 2013, 2013, <http://wherethedronesstrike.com/>.

42 Remote interview conducted in September 2016 with an official from the UNOPS Material Monitoring Unit in Gaza, on condition of anonymity.

43 Picon, *Smart Cities*, 119.

can react and adjust to new conditions. The smart city, where physical and digital infrastructure are thoroughly entangled, marks a considerable upgrade of the urban capacity to respond to shifting circumstances and to reconfigure itself in real-time. If modern urbanism emerged out of an engineering effort to channel relatively constant and predictable hydraulic flows across the city,⁴⁴ contemporary urban networks are expected to perform much better, by adjusting to the minute variations, over time and in space, of all circulatory flows. This demands an acceleration of their response time to fast-shifting conditions; as well as much more localised adjustments to such phenomena and conditions, via responses that are targeted to specific locations and to mobile users.

By channelling swarms of signals and responses, the digital technology underpinning “smart city” initiatives supports a process of specification of the circulatory regime available to each user within the urban system, at any time. Increasingly the problem of circulation is no longer addressed by aggregating numbers and defining a single integrated response to accommodate a large population of users; but rather by processing disaggregated real-time data and formulating as many custom responses as computationally possible. As software takes over regulatory functions that were formerly only performed by mechanical and hydraulic infrastructure, the most thorough transformations of urban systems may no longer be registered at the macro-scale of their material configuration, but rather at the micro-scale of the multitude of circulations that they mediate.

Accordingly, the model of urbanism ingrained in the GRM is no longer, strictly-speaking, one of flows. By breaking down the material circulation of cement into infinitesimal allocations moving through a highly ramified distribution network, it turned such flows into “occurrences”: material arrangements that are specific and conditional to the present moment. There is no assured continuity between those occurrences, no causal nor dynamic link: for a GRM user in Gaza, access to a given allocation of cement does not guarantee its renewal at the following building phase, nor that her neighbour with the exact same needs will be granted comparable access. In that sense, they are actual *events*—which the GRM, via a combination of physical and digital infrastructure, channels to each user while monitoring the status of the entire system. The default user of a system such as the GRM finds itself captured in a *discrete* universe: no

44 Matthew Gandy, *The Fabric of Space: Water, Modernity, and the Urban Imagination* (Cambridge, Massachusetts: The MIT Press, 2014).

longer entitled to a continuous subjectivity, its profile is constantly re-assessed, at every tick of the system, against the whole environment under monitoring. The approval or rejection of its requests is, as a consequence, *at the discretion* of an algorithmically assisted authority. The disaggregation of both supply and demand within a system of circulation enables the production of a modulated, targeted response that can produce macro-effects while only acting on micro-inputs. As a result, whatever entity can access and act upon the full set of data collected by the system in real-time, finds itself in a position of exceptional power over every *and* all of its users.

At this stage, it is necessary to be specific about the meaning of the term “real-time.” As already evoked, the beginning of real-time computation is commonly accepted to correspond with the launch of the SAGE anti-aircraft system—the pinnacle of Cold War-era military cybernetics. The particular innovation of SAGE was that it enabled its users not only to visualise regularly updated data on a monitor screen, but also to interact with this data through the same monitor, with the use of a specifically designed “light gun.” This two-way communication through a screen is the crucial element that distinguishes SAGE from, for example, radar systems—whose screens were the first to display real-time information. In his analysis of the different meanings of real time, the media scholar Tung Hui-Hu notes that, as with many other live media, SAGE’s liveness was but an illusion.⁴⁵ The system “could only refresh its ‘display-scope’ every 30 seconds, leaving a lengthy delay between event and image.”⁴⁶ Importantly, the *real* in real-time does not correspond to an actual synchronicity between events and their representation on a visual media; but rather, it refers to the operational temporality of the technical system itself—the time that it takes for the system to process an input and generate an output. In the first real-time computing systems, this highly relative, functional speed of real-time could range from seconds (SAGE) to several hours (Minitrack satellite tracking system).⁴⁷

From the first evocation of theoretical real-time computers by pioneering computer scientist John Presper Eckert in 1946, the problem of real-time computation has consisted in converting a universe of continuous variables into a meaningful set of discrete data points; in other

45 Tung-Hui Hu, “Real Time/Zero Time,” *Discourse* 34, no. 2–3 (2012): 163, <https://doi.org/10.13110/discourse.34.2-3.0163>.

46 Tung-Hui Hu, 167.

47 Devin Kennedy, “What’s ‘Real’ About ‘Real-Time’? Time and Responsiveness in Early Post-War Computing” (SHoT-SIGCIS, Albuquerque, October 11, 2015). Unpublished presentation.

words, to turn the *real* into a computable process.⁴⁸ In order for computers to be used in the time-sensitive contexts of continuous operations management, their input signals must first be *analysed*—namely, decomposed into discrete units of data—before that data can be processed, and a new *synthesis* can be produced in the form of a computed output. The partition of the extent of time and space into discrete bits, ticks, and pixels is an essential feature of digital computation; recent advances in this form of computation have popularised the application of real-time management frameworks to very large systems, including urban systems.

Whatever their degree of militarisation, contemporary urban environments tend to be saturated with networked sensors and control units—a condition which has been termed “ubiquitous” or “pervasive computing.”⁴⁹ The drive to keep track and to make sense of the volume of discrete data points that are thereby constantly generated has produced its own interfaces. Control rooms, or the fantasy of synoptic urban oversight and autopilot governance, has been a major selling points of smart city packages to municipalities worldwide—with Rio de Janeiro’s notorious Centre of Operations now replicated in dozens of cities worldwide. Considering their recent proliferations around the world, it could be argued that today, the data dashboard is replacing the master plan as the primary tool by which urban environments are envisioned and acted upon.

48 Kennedy.

49 Dana Cuff, “Immanent Domain,” *Journal of Architectural Education* 57, no. 1 (September 1, 2003): 43–49, <https://doi.org/10.1162/104648803322336575>; Greenfield, *Everyware*.



Fig. 19—Rio Operations Center, Rio De Janeiro, 2014. (Source: IBM News Room)

Dashboard Urbanism

Retracing the history of the urban dashboard, media historian Shannon Mattern points to the particularly evocative origin of the term “dashboard” itself: dating back from 1864, it first designated the board in front of carriages that screened the interior from any projections of mud from the horses or wheels.⁵⁰ Mattern articulates her critique of the phenomenon of urban dashboards around a metaphorical interpretation of this origin. Today’s *mud* would be all the data “that don’t lend themselves to quantification and visualisation, (...) all the insights that don’t accommodate tidy operationalization and air-tight widgetization.” The problem posed by the proliferation of dashboards—as an instrument of urban governance and as a public-facing urban representation device—has to do, for Mattern, with how they frame its users’ vision and understanding of urban environments. An example would be the choice of the parameters or Key Performance Indicators (KPIs) to monitor a city’s status—a decision upon which the residents themselves rarely have their say.

⁵⁰ Shannon Mattern, “Mission Control: A History of the Urban Dashboard,” *Places Journal*, no. 2015 (March 9, 2015), <https://doi.org/10.22269/150309>.

By imposing its tremendously restrictive categories and variables upon the entire project of Gaza's reconstruction, the GRM has established itself as the matrix of the Gaza's urban environment. Although it tends to manifest itself in milder forms elsewhere, it is a similar process that is taking place worldwide around cities that equip themselves with real-time urban management systems. Once operationalised through its entry into function, the epistemology of the dashboard also turns into an ontology: it sets the frame around not only what the city is and is not, but also around what it can and can't be(come). Establishing itself as the reference lens through which the city is perceived, as well as a more or less compulsory interface between city users and urban authorities, the dashboard ends up "structur[ing] the agency and subjectivity of the dashboard's user."⁵¹ Primarily addressing cases of deployment of such tools in relatively privileged cities of the Global North, Mattern's critique is formulated as a warning of a potential drift:

"Cities are messy, complex systems, and we can't understand them without the methodological and epistemological mud. Given that much of what we perceive on our urban dashboards is sanitized, decontextualized, and necessarily partial, we have to wonder, too, about the political and ethical implications of this framing: what ideals of "openness" and "accountability" and "participation" are represented by the sterilized quasi-transparency of the dashboard?"⁵²

Among the examples enumerated by Mattern to signal the current proliferation of urban dashboards is the Dublin Dashboard—an output of the Programable City project led by the urban geographer Rob Kitchin. In the relatively narrow sub-field of critical smart urbanism, Kitchin counts among the leading scholarly voices; at the same time, the scholar advises and takes an active part in the co-development of actual smart city initiatives. Kitchin's piece titled "The Real-Time City" is indicative of this particular position and captures the general meaning of his critique.⁵³ In Kitchin's writings, the potential benefit of cities adopting a real-time management approach is acknowledged and not in question; rather, the problem with smart city initiatives has essentially to do with the way those are designed and implemented. Generally framed as an opportunity for greater efficiency, sustainability, or transparency, the real-time city nonetheless "raises a number of concerns." Those listed by Kitchin largely intersect with Mattern's: the partiality of the data used in city-scale, real-time monitoring and response systems; how such systems support

51 Mattern.

52 Mattern.

53 Kitchin, "The Real-Time City?"

models of technocratic governance and urban “solutionism”; how they are vulnerable to both corporatization, on the one hand, and possible digital hacks, on the other; or how they may further rise the level of surveillance to which urban residents would be subjected.

While recognising the validity of both Mattern’s and Kitchin’s critiques of data-driven, real-time urban management systems, I want to suggest that they are still too indulgent, considering the major power imbalances that are directly built into the current models of dashboard urbanism. Examining those through the extreme case of Gaza does not only confirm the legitimacy of the aforementioned concerns; it also helps getting a better grasp of the core problem with real-time systems and dashboard urbanism. By way of conclusion of this chapter, I will summarise this problem as follows:

Real-time computation carries a technical disposition towards the breaking up of continuous wholes into discrete infinitesimal units to be addressed and processed individually. The specific use of real-time computation to run command-and-control activities over extended environments has progressively supported the emergence of *targeting* as a specific mode of exercise of power. Grounded on the permanent and thorough monitoring of a complex whole, a targeting apparatus tracks and analyses the behaviour of each of its component entities and, according to the program it is designed to follow, assigns a profile to each on a spectrum going from optimal to alarming behaviour. On that basis, targeted action towards each of the individually monitored entity is taken.

If such action can take the form of an encouragement of desirable behaviour (fostering activities, targeted ads), the military origin of such apparatuses means that their primary mode of functioning is in the form of repressive action towards undesirable or suspicious activity. Regardless of whether it is used in ‘liberal’ or ‘repressive’ mode, the power of targeting comes primarily from the specification that it operates: real-time control systems tend to construct a different *reality* for each of the entities composing the environment under their control. Applying an upgraded version of the “divide and rule” principle, a targeting apparatus functions by capturing an entire fabric of relations within its nets and, by addressing each of its component entities individually, it tends to prevent any transversal connections among these. Ultimately, what it produces is a generalised condition of isolation.⁵⁴

54 Francesco Sebregondi, “A Future Now Exhausted: Notes on High-Rise,” *The Avery Review*, no. 17 (October 2016), <http://averyreview.com/issues/17/a-future-now-exhausted>.

Such problems have been amply discussed, in recent years, with regards to digital platforms having acquired, all over the world, a near-monopolistic status in mediating our online sociality. Through the example of filter bubbles—resulting from the algorithmic segmentation of social communities into distinct profiles, each *fed* with its own matching content—the effects of such targeting operations have begun to spill out of the online sphere into the world of national politics.⁵⁵ The entanglement of digital and urban infrastructure and, more importantly, their integration into real-time control systems through the global advance of smart urbanism means that the social disaggregation problem already experienced in the online sphere is increasingly turning into an urban problem too.

Whether it is explicitly designated as targeting or through the more acceptable term of “responsiveness”, the drive to make urban environments capable of delivering tailored services to each of their users is real; it forms one of the clearest manifestations of the global rise of smart urbanism. Sold as a means to optimise the circulation of the privileged users of the global urban network, the current, deeply asymmetrical model of smart city infrastructure can and most likely will simultaneously be used to further hinder the mobility of all its unworthy users. Wherever a dialectic of fast lanes and enclosures and is at play, it will dramatically reinforce its effects. In the process, what is challenged is the very concept of the city as a collective space, as a collective media, where collective subjectivities can assemble and emerge. It may be that, through the deployment of real-time control systems at urban scale, what is being targeted above all is precisely the collective dimension of the city.

Considering the depth of the surveillance to which it is subjected, the opacity of the protocols employed to this aim, and the ultra-centralised dashboard from which every monitored entity and process can be both supervised and acted upon individually, Gaza can be recognised as an extreme manifestation of existing trends in real-time control systems at urban scale. Based on this recognition, it is no longer possible to merely voice concerns over a potential drift of the smart city into a dreadfully oppressive machine: that machine already exists, it is full operation across the blockaded Gaza Strip.

⁵⁵ I am specifically referring to the targeting operations ran by companies such as Cambridge Analytica and their role in both the Brexit referendum and the election of US President Donald Trump. See “The Cambridge Analytica Files”, *The Guardian*, accessed 31 August 2019, <https://www.theguardian.com/news/series/cambridge-analytica-files>. See also Karim Amer and Jehane Noujaim, *The Great Hack* (Netflix, 2019), <http://www.imdb.com/title/tt9358204/>.

By making this claim, I am not arguing for a blanket refusal of any form of real-time management of urban environments. Rather, my aim is to underline a concrete example of a condition where a technology introduced under the guise of facilitating the execution of a particular urban programme grows into the main mechanism by which an urban environment is addressed and managed. Just like in the military field, where the adoption of a real-time, distributed approach to command-and-control has brought about the merging of the formerly separate processes of planning and execution, dashboard urbanism tends towards the effective replacement of urban planning—understood as a reflexive and projective practice aimed towards a desired future state of an urban environment. Gaza shows, perhaps more vividly than any other place in the world, how the politics of quick fixes pursued through real-time monitoring and targeted responses ultimately produces a durable fixation of an urban environment within an established structure of power relations: the blockade itself. In lieu of a project for Gaza, the only programme pursued by the managing authorities of the blockade appears to be the containment of the population, the maintenance of the occupation, and the conservation of their ruling power. Real-time control at urban scale can quickly turn into a mechanism for the perpetuation and consolidation of established power relations, as well as a means to prevent any collective project for the city to be articulated.

Intercalation 3: Circulation

The following two projects, a map and a conference, constitute the main examples of my practice-based work around the question of circulation and its governance. Two years into my doctoral research, it was clear that the notion of *security* would be central to the argument I was seeking to formulate. I began to identify it as the conceptual vector that would enable me to set Gaza in tension with some of the defining traits the contemporary urban condition. Through the lens offered by Foucault's writings, the blockaded Gaza Strip no longer appeared as an exception, but as a unique deployment of security as a technology of power concerned with the government of circulations. Following an in-depth examination of the operations of security in Gaza, understanding the parallels that could be traced between these and a multiplicity of other sites became the new focus of my research.

My fieldtrips to Israel and the West Bank brought me in touch with B'Tselem, currently the most prominent non-governmental organisation to stand against the enduring Israeli occupation of Palestine. Back in 2016, I approached B'Tselem on behalf of Forensic Architecture to suggest a collaboration that would mark the symbolic threshold of 50 years of occupation, in 2017. Due to organizational constraints, the project was postponed and only re-activated in 2018, when B'Tselem reached out to me to commission the development of a comprehensive cartography of the occupation since 1967.

With the director, Eyal Weizman, we agreed that I would run this project autonomously, by assembling a dedicated team of collaborators, while receiving support and feedback from the FA office. Based on the narrative skeleton and a wealth of maps shared by B'Tselem, we developed an interactive cartography that retraces the progressive establishment of the occupation as a model territorial control. The incremental growth of the areas declared off-limits to Palestinians and the parallel expansion of Israeli settlements across the West Bank and Gaza is but one dimension of the occupation as a territorial project; the other, which we tried to underline in the platform, is the constitution of a network of roads, checkpoints, and barriers that obstructs the mobility of Palestinians *at the same time* as it facilitates the circulation of settlers in the occupied territory.

This detailed cartographic study informed the thesis presented here in at least two ways. By retracing the territorial contours of every village and settlement in the occupied territories, as well as every road and checkpoint, every twist and turn of the separation

barrier, every (quasi-) legal instrument employed in over half a century of land grab, I have gained an in-depth understanding of the occupation as a long and layered territorial process. In turn, this understanding directly informs my argument against the separation of the West Bank and Gaza as two distinct models of occupation (developed in the following chapter). Instead, my joint study of these two territorial entities suggests the consolidation of a single model of occupation that combines the logic of territorial enclosure with a process of modulation of distributed signals and flows. Furthermore, through this cartographic study developed for B'Tselem, I have acquired a long historical perspective on the occupation of the Gaza Strip, whose current form—the blockade, or an occupation at a distance—has only emerged over the last decade. Arguably, the general goal of the occupation has remained a constant for half a century: namely, to secure Israeli dominion over the land between the Mediterranean and the Jordan valley. Yet the diversity of modalities, techniques, and territorial strategies by which Israel has been pursuing it reflect the heterogeneity of the forces at work in this vast settler colonial project.

Under this light, the blockade of the Gaza Strip appears as the culmination of a long process of *securitisation* of the contested and entangled territory of Israel/Palestine. Largely based on Israel's control of circulations across the full extent of this territory, the occupation can be understood as, primarily, the production and maintenance of a differential regime of mobility. It is this particular mode of power which I describe as *logistical* in the next chapter of the thesis, not least so because it relies on increasingly advanced technologies of monitoring and coordination to achieve the original governmental objective of security.

In parallel, a number of my colleagues at the Centre for Research Architecture were also grappling with circulation as a spatio-political problem. In late 2017, I reached out to Dele Adeyemo—whose research explores “slavery as the ghost in the machine of logistics”—and Andrea Bagnato—whose work examines the relation between epidemiology and urbanisation—to put together an interdisciplinary workshop and public conference on “Circulation(s).” Our main aim in organising it was to assess the soundness of the idea that was emerging from our discussions: whether logistics had begun to form a general purpose, technical rationality for the government of circulations within our highly interconnected societies: from people to data, through commodities, energy, capital, or pathogens.

Organised in May 2018, the workshop brought together a very diverse group of scholars: a geographer, a historian of science, two urbanists, a media studies scholar, a scholar of migration, a political scientist, an epidemiologist, a literature scholar, three architects, a number of attendees from the arts and humanities at large. Unsurprisingly, over two

days, we did not manage to agree on a new common conceptual framework to articulate our respective research approaches on the problem of circulation and of its government; yet a number of intersections were identified among our disparate studies. Importantly, participants in the workshop appeared to converge on recognising the following: whether it manifests itself in a securitarian, logistical, or yet another modality, the political rationality concerned with the government of circulations increasingly forms the ambient matrix within which social relations tend to be constituted today.

As part of this workshop and conference, we brought Professor Christina Sharpe to Goldsmiths for the first time. Based on the reactions I could gather from the crowd that attended it, the keynote she delivered, “Black. Still. Life”, was, to many, an eye-opening event. As far as I am concerned, her intervention largely contributed to re-orient my work towards the Black studies critique of logistics. In this body of work, I found the conceptual ground to develop the notion of “differentiality” that I have articulated in the third chapter of the thesis, in relation to the security-logistics couple.

Conquer and Divide

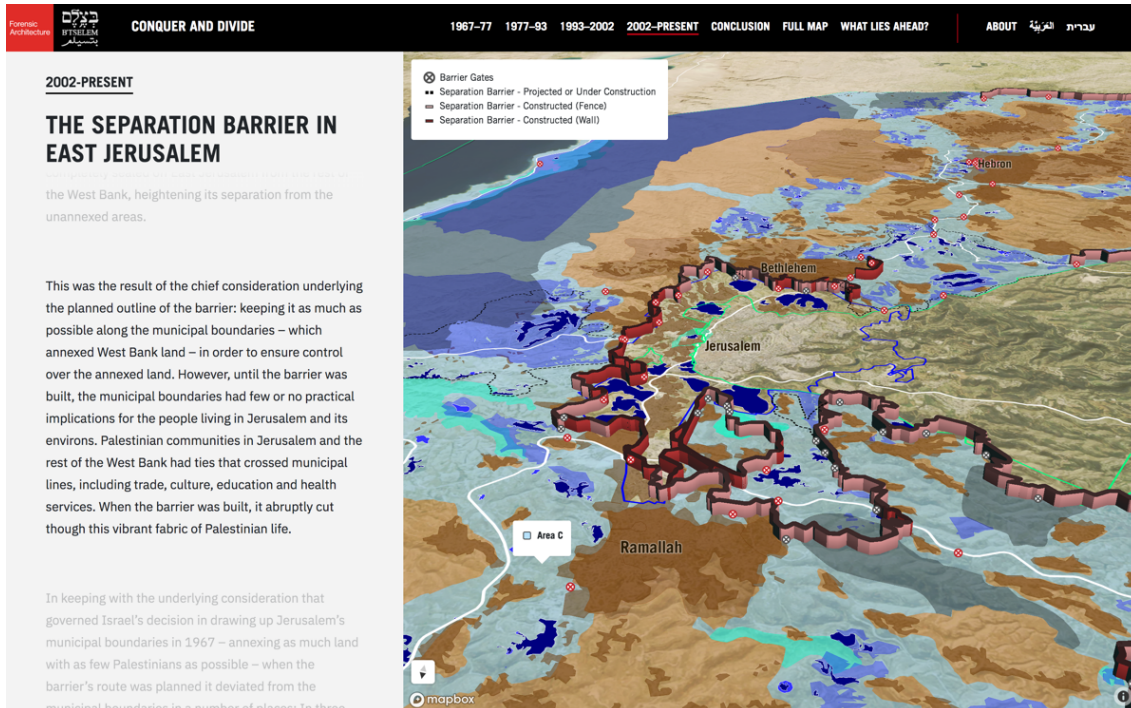
URL	https://conquer-and-divide.btselem.org
Project type	Interactive mapping platform
Date of release	05/06/2019
Collaborators	Forensic Architecture, B'Tselem
Role	Initiator, Project Lead

Forensic Architecture was commissioned by the Israeli NGO B'Tselem to produce an interactive cartography retracing the various territorial measures by which Israel has implemented its occupation of the West Bank (including East Jerusalem) and the Gaza Strip since 1967.

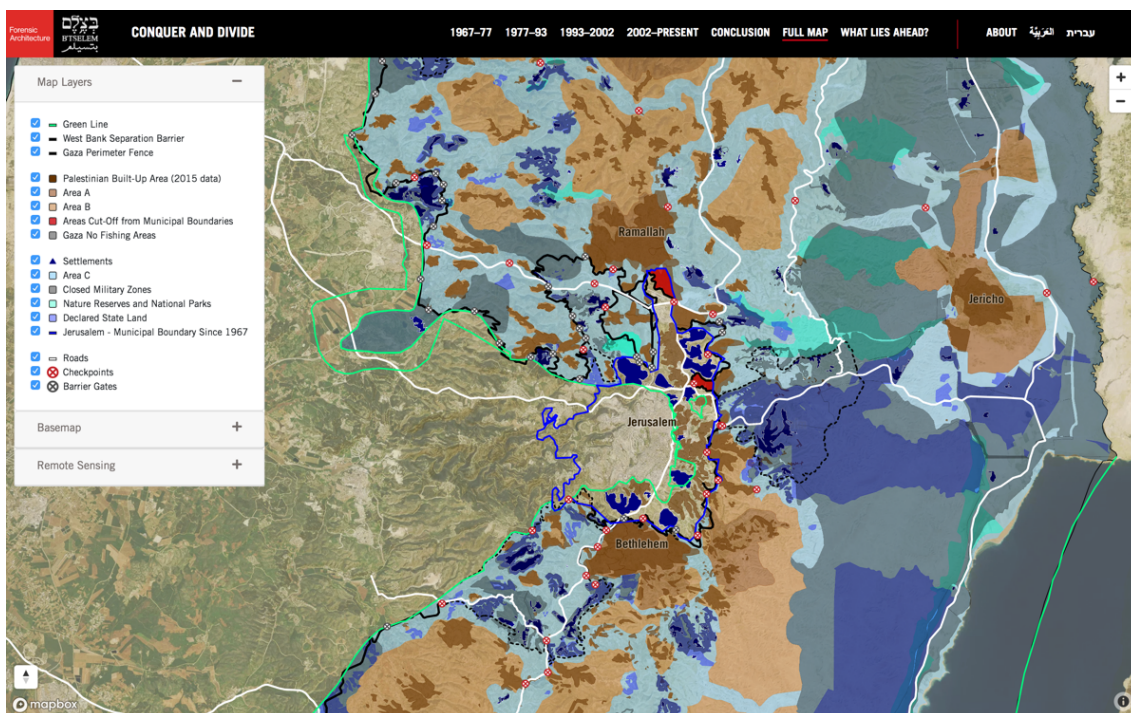
In the West Bank, Israel has minimised Palestinian presence, condensing it into dozens of densely populated, isolated enclaves, while exploiting the region's resources for its own benefit. In the Gaza Strip, nearly two million Palestinians are imprisoned in appalling conditions, exposed to persistent violence by Israeli security forces. While these two territorial entities are maintained apart by Israel's official "separation policy", the close examination of their historical and current form reveals that the common colonial logic of "conquer and divide" remains at work across the entire occupied Palestinian territory.

Direct or indirect control over Palestinian territory is enacted by a series of ever-shifting means of physical separation, which respond to changing legislative, legal, planning, funding, and defence rationales. The result is a political project that operates through the fragmentation of Palestinian space, breaking apart the Palestinian polity, making it easier to rule and exploit, and shattering the social and spatial fabric of Palestinian communities.

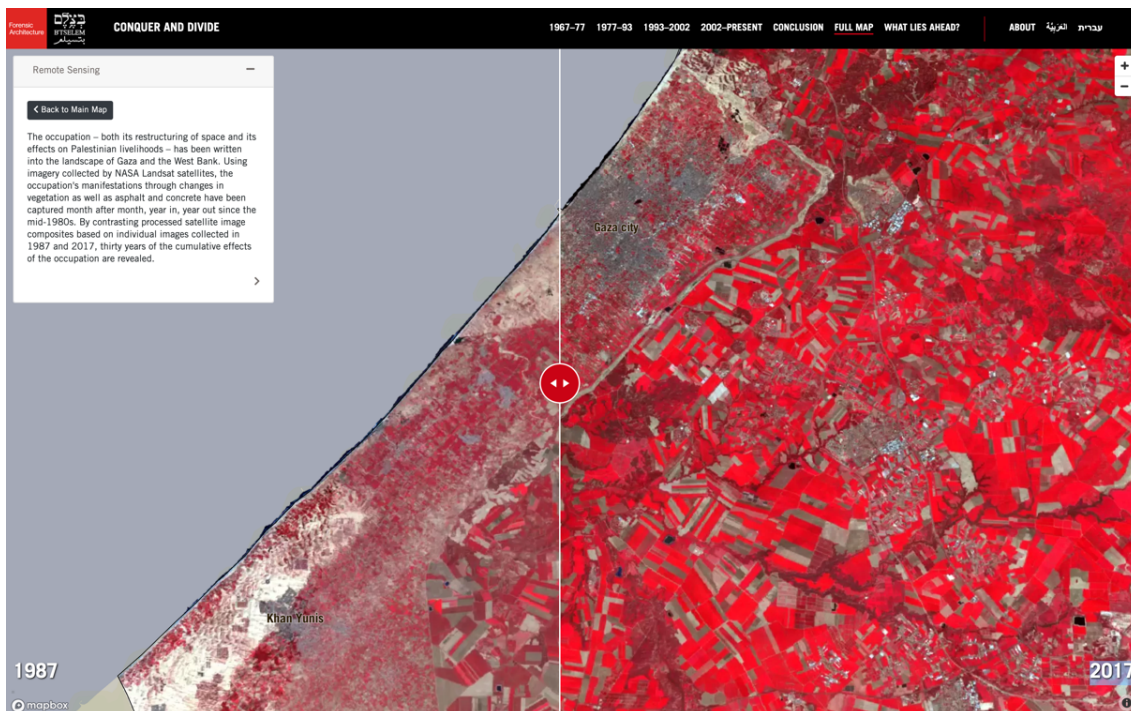
Following pages	Views of the Conquer & Divide platform
	Letter from B'Tselem Director Hagai El-Ad, following the launch of the platform



View of Conquer and Divide interactive platform. Scrolling down the narrative section (left) animates the 3D map (right).



View of Conquer and Divide interactive platform. The "full map" section enables to turn on and off the territorial layers of the occupation.



View of Conquer and Divide interactive platform. The “remote sensing” section offers an interactive comparative view of two false-colour composite satellite images of the occupied Palestinian territories from 1987 (left) and from 2017 (right). The interface reveals that the effects of half a century of occupation are so deeply inscribed into the territory that they are visible from space.

De: Hagai El-Ad hagai@btselem.org

Objet: Conquer and Divide

Date: 8 juin 2019 à 15:00

À: Eyal Weizman ew@forensic-architecture.org, Francesco Sebgondi fs@forensic-architecture.org, bobtrafford@gmail.com

Cc: Roy Yellin ryellin@btselem.org, Amit Gilutz amit@btselem.org



Dear forensics,

I've had quite a few professional opportunities to date to launch various projects.

But I don't recall ever launching something that was met with such warm enthusiasm as **Conquer and Divide**. Further, not just the volume of positive responses (and sharing online), but what I also found that was especially interesting is that we're getting this positive vibe from very diverse perspectives, from seasoned experts (someone wrote to me privately: "The project is amazing to me. Even as a person who has been involved in the field for quite a few years, including in the context of maps and timelines, it is so precise, visually spectacular, and very effective tool to explain the occupation.") to activists to random people online – **wow**. You can see much of this online, on the [@btselem](#) twitter feed and facebook, but I've also copy/pasted a sample below. My favorite response is the following one (translated from Hebrew): "It really does not matter what you think about B'Tselem, Breaking the Silence or other organizations. Here is reality, as most of us do not know, in a multilayered map full of information. Annexation of Area C? Blocks? Two states? Here's the situation on the ground."

Thank you so much for making this project a reality. Kudos.

Best,
Hagai

Jamil Dakwar (ACLU): "52 years ago this week Israel occupied the West Bank and Gaza Strip solidifying its control over 100% of historic Palestine. Check out this important interactive project from Israel's premier human rights group [@btselem](#) in collaboration with [@ForensicArchi](#)."

Harry Reis (NIF): "If you're not spending your day perusing [@btselem](#) incredible new [#interactive](#) resource "Conquer and Divide" documenting and breaking down 52 years of policies of [#occupation](#), what are you even doing?"

Jehad Affoneh: "Amazing tool to explore Israel's continued policy of military occupation and the shattering of Palestinian space. Take a look and read through the historical record alongside an interactive map of the reality for Palestinians living there."

Yonah Lieberman (IfNotNow): "Thank you to [@btselem](#) for creating this fantastic resource, bringing the brutal reality of Israel's military occupation on the ground to people around the world. CC: American Jews."

Martin Konecny (EuMEP): "One of the best resources ever for understanding what Israeli occupation & settlements are about."

Chris Doyle (Caabu): "A terrific way to understand the horror of 52 years of occupation - once again we are in debt to [@btselem](#)"

Khaled Elgindy (Brookings Inst): "If [@jaredkushner](#), [@jdgreenblatt45](#), & [@USAmblsrael](#) are serious about peace, they should start by familiarizing themselves with how Israeli occupation fragments Palestinian life and space and systematically denies them of their rights."

AIUSA Israel/OPT/PA: "Excellent presentation of facts"

NIF: "A map of Israel and the West Bank like you've never seen before. Check out [@btselem](#)"

[@btselem](#)'s interactive map which lays out the history and mechanisms of occupation. Human rights organizations help us face reality in order to create a better one."

Yaniv Junam (Ir Amim): "Wow! [@btselem](#) and [@ForensicArchi](#) created the single most comprehensive, full and nuanced map of the Israeli expansion in the west bank, East Jerusalem & Gaza - interactive and organized chronologically it's everything you need to know about the occupation."

Trocaire: "Our Israeli partner organisation [@btselem](#) has launched a new interactive map to mark 52 years since the Israeli occupation of the Palestinian [#WestBank](#) and [#Gaza](#) began. Very informative with lots of background information - well worth spending some time looking at this."

J Street: "In their new project "Conquer and Divide," [@btselem](#) brilliantly visualizes 52 years of occupation. Check it out"

Nathan Thrall (ICG): "Israeli human rights organization [@btselem](#) has put together a rich interactive map showing the history of Israeli occupation, land grabs, and segregation of Palestinians from one another and from Israelis."

Adam Shinar: "A stunning and depressing spatial visual project by [@btselem](#) shows you how the occupation came to be what it is today, and why it's not going away anytime soon."

Emily Hauser: "This is remarkable work from Israel's most renowned human rights org. Note the last thing on this list - functionally preventing contact between Israelis and Palestinians has always played a key role in maintaining the occupation & denying Palestinian rights."

Elizabeth Tsurkov: "This is just phenomenal work. Wow"

נוגה מלכין: העבודה של בצלם עם הפרוייקט האינטראקטיבי הזה פשוט מדהימה, כל הכבוד, עכשיו אפשר רק לקוות שנלמד משהו מזה

אבנר גבריהו (שוברים): פרוייקט מדהים ביופיו וכואב לב בעוצמתו על 52 שנות כיבוש צבאי בשטחים. בשיתוף פעולה של בצלם [@ForensicArchi](#) שיחד עושים קסמים

יניב (עיר עמים, הפעם בעברית): וואו! מפה מדהימה של התרחבות הכיבוש בגדה, מזרח ירושלים ועזה. זה כלי מדהים של פצצת אינפורמציה מאורגנת בצורה מדהימה כרונולוגית וגיאוגרפית וכולל כל מה שאתן צריכות לדעת על הכיבוש. תנו לזה הצצה

רעות מור: כשאנחנו מתכוננים לעוד מערכת בחירות שבה חמישה מיליון מתושבי הארץ הזו מנועים מלהצביע ולהשפיע על עתידם וגורלם, בצלם ממשיכים להוביל את הקול שמכריח אותנו כישראלים להסתכל למפלצת הכיבוש והאפרטהייד בעיניים

איתמר שלתיאל: פרויקט מושקע של בצלם שמתעד איך הגענו עד הלום. לא סיימתי לקרוא, אבל עשוי היטב ויופי של קריאה מדכאת לבוקר

חובב ינאי: פרויקט מדהים של בצלם על מדיניות הכיבוש הצבאי בשטחים. הכיבוש מעולם לא נראה ברור יותר.

צביקה ארן: זה ממש לא משנה מה אתם חושבים על בצלם, שוברים שתיקה או ארגונים אחרים. הנה המציאות כמו שרובנו לא מכירים, במפה מרובדת מלאת מידע. סיפוח שטחי סי? גושים? שתי מדינות? - הנה המצב בשטח. שיהיה לנו בהצלחה.

Circulation(s): On the Logistical Condition

Project type	Workshop and conference
Date	17-18/05/2019
Collaborators	Andrea Bagnato, Dele Adeyemo
Role	Initiator, co-organiser

Behind each of the crises that define our enduring neoliberal present lies a problem of circulation. Whether it takes a migratory, financial, humanitarian, securitarian, ecological, or epidemiological form, a crisis is declared when things don't flow the way they should.

Gathering researchers and projects that engage with a wide range of contemporary emergencies, the Circulations workshop set out to explore the intersections that can be traced between different modes of governing circulation today. It asked whether the commonalities among diverse circulatory regimes allow us to posit the notion of a logistics of power, which would account for how entities circulate in our highly interconnected societies—from people to data, through commodities, energy, capital, pathogens. In order to assess the validity of such broad and cross-disciplinary notion, the workshop set out to examine the spaces, technologies, rationalities, and epistemologies currently at work within, or produced by, diverse circulatory regimes.

With a specific focus on our increasingly urban condition, we looked at how paradigms of circulation materialized in the physical space of the modern city, seeking resonances and divergences across the European and colonial context. Turning to contemporary urban and territorial formations predicated upon the notions of 'resilience' and/or 'smartness', we pondered whether those constitute a mere update, or an actual mutation, of the modern paradigm of circulation. Addressing the processes of optimisation at the heart of the logistical imaginary, we challenged their declared neutrality, paying particular attention to the role of racialised operations in the management of systems of circulation.

Following pages	Poster for the "Circulations" workshop and conference
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Circulation(s)

On the Logistical Condition

Behind each of the crises that define our enduring neoliberal present lies a problem of circulation. Whether it takes a migratory, financial, humanitarian, securitarian, ecological, or epidemiological form, a crisis is declared when things don't flow the way they should.

The conference explores the spaces, processes, and technologies regulating how entities circulate in our highly interconnected societies – from people to data, through commodities, resources, capital, and pathogens. With its relentless pursuit of secure and optimised regimes of mobility, has the logistical rationality spilled over into every domain of contemporary life?

Free and Open to all

Organised by Francesco Sebregondi, Dele Adeyemo, and Andrea Bagnato.

Supported by

CHASE (Consortium for the Humanities and the Arts in South-East England)
Media and Communications
Centre for Research Architecture
Graham Foundation

Thursday 17 May, 6-7.30pm
Professor Stuart Hall Building, LG02

Keynote by

Christina Sharpe

Friday 18 May, 2-6.30pm
Professor Stuart Hall Building, LG02

Interventions by

Ross Exo Adams
Dele Adeyemo
Claudia Aradau
Andrea Bagnato
Orit Halpern
Shehab Ismail
Azadeh Mashayekhi
Nida Rehman
Anita Rupprecht
Francesco Sebregondi
Martina Tazzioli

The Zone in Reverse

It is true that capitalism has retained as a constant the extreme poverty of three quarters of humanity, too poor for debt, too numerous for confinement: control will not only have to deal with erosions of frontiers but with the explosions of shanty towns or ghettos.

—Gilles Deleuze

People live in places, power rules through flows.

—Manuel Castells

Membrane

The blockade of Gaza does not completely cut off the supply lines of the Palestinian enclave; on the contrary, the inflow of a minimal amount of goods and resources is a condition of the maintenance of the blockade as a particular form of occupation. The approval or denial of any crossings of the Gaza border is the remit of the Coordination of Government Activities in the Territories (COGAT), a unit subordinate to Israel's Minister of Defence and commanded by a Major General of the IDF. Every day, via its official Twitter account, COGAT posts detailed statistics about the number of trucks it allowed into Gaza, the total quantity of goods they transported in tons, or the number of ambulance crossings it allowed.³ As an inexpensive public relations campaign, these daily tweets perform two distinct tasks. The obvious one is to downplay any allegations that Israel is strangling Gaza, by minimising, in the eyes of the general public, the degree of restriction to the flow of goods and people imposed by the blockade. The other one reveals, or rather affirms, the real purpose of the blockade as a regime of power. Rather than simply obstructing passage, the closure of the Gaza border enables, above all, a form of centralised and meticulous oversight over the circulations of people and goods—rendered by the detailed figures that COGAT is so keen to

³ “@cogatonline”, accessed 31 August 2019, <https://twitter.com/cogatonline?lang=en>

tweet. With the establishment of the blockade, the Israeli authorities have gained the ability to channel, monitor, and modulate the flow of nearly everything going into and out of the Palestinian enclave. The general condition of obstruction makes every cross-border circulation a matter of vital importance in Gaza and thereby gives great leverage to the authorities in charge of deciding what may enter or exit the Strip. The blockade does not undermine logistics; rather, the blockade is itself a vast logistical operation.

The fifth chapter of this thesis turns to the dialectic of borders and flows by examining and interpreting Gaza's *bordering apparatus*. In the first and second section, I describe the bordering of Gaza as a permanent military operation. Beginning with an examination of the targeting of tunnels, I further argue that the blockade produces an inversion of the classical relation between war and logistics. A third section unpacks the functioning of the Gaza blockade as a logistical operation; in the process, I consider the similarities between the two (extra-)territorial formations of the zone and the camp. A fourth section zooms into the functioning of Gaza's crossings and discusses the power of the terminal as an architectural device. The final section examines the relation between modulation and enclosure; it concludes by suggesting that the blockaded Gaza strip forms a *zone in reverse*—a notion through which the essentially differential character of the rule of logistics is affirmed.



Fig. 20—IDF Soldiers near the Kerem Shalom crossing at the Israel-Gaza border, 19 November 2014.
(Photo: Amit Shechter, IDF Spokesperson Unit)

Tunnel Effects

Since the blockade entered into force, in 2007, Gaza has endured three wars. These caused thousands of civilian casualties and brought about the recurrent, extensive destruction of its built environment. Every time it launched a full-scale military operations in Gaza, Israel justified it publicly as a retaliation against rocket fire from the Strip and, more generally, as a necessary measure to secure its own territory and contain the threat posed by Hamas. In turn, insurgent groups in Gaza claiming responsibility for rocket fire and other violent operations frame their actions as part of an armed struggle against Israel's occupation of Palestine, and of Gaza in particular. Today, the blockade is widely recognised by local and international observers alike as the structural trigger of each of the recurrent wars in Gaza. Going further, I argue that the upholding of the blockade has also constituted the primary stake of the military operations launched by Israel.

From Operation Cast Lead in 2008-09 to Protective Edge in 2014, Israel's decision to launch full-scale military operations in Gaza cannot be detached from the level of activity of Gaza's cross-border tunnel network. A relatively marginal phenomenon throughout the period of direct Israeli occupation of the Strip, smuggling activity across Gaza's border with Egypt began to rise exponentially after the blockade entered into force. Soon after it took control of the Strip, Hamas oversaw the transformation of the tunnel industry "from a clandestine, makeshift operation into a major commercial enterprise, regulated, taxed, and bureaucratized."⁴ With imports and exports drastically reduced by the closure, Gaza's tunnel network soon turned into the "lungs through which Gaza breathed."⁵ Between 2005 and 2008, it is estimated that the number of tunnels had grown from a few dozens to at least five hundred, with the trade revenue going from about \$30 million per year to \$36 million per month. Tunnels thereby became the main logistical route to support the economy of a polity of 1.5 million people at the time. In the process, the considerable tax revenue collected from the formalized tunnel trade also turned into the main source of revenue of the otherwise isolated Hamas government of the Strip. In contrast with the declared aims of its architects, the blockade was to some extent benefitting Hamas in the first years of its enforcement,

4 Nicolas Pelham, "Gaza's Tunnel Phenomenon: The Unintended Dynamics of Israel's Siege," *Journal of Palestine Studies* 41, no. 4 (July 2012): 6, <https://doi.org/10.1525/jps.2012.XLI.4.6>. Much of the data referenced in this section of the chapter is taken from Pelham's unique study of Gaza's tunnel phenomenon.

5 Pelham, 9.

helping it to transition from a clandestine militant network into a structured governmental authority. As commented by a Hamas official: “The siege is a blessing in disguise. It is weaning us off of Israel and sixty years of aid, and helping us to help ourselves.”⁶

Neither Israel nor Mubarak’s Egypt looked on the consolidation of Hamas’ power through the tunnel economy from a favourable eye. While Israel had launched occasional air and drone strikes against suspected tunnel shafts since 2006, the vigour of its response against tunnels escalated with the launch of Operation Cast Lead in December 2008. By the second day of the war, over forty smuggling tunnels along the Gaza-Egypt border were targeted.⁷ Over the next two weeks of hostilities, the heavy aerial bombardment in the Rafah area caused severe damage to the tunnel network and brought the commercial traffic to a temporary halt. As part of the internationally brokered ceasefire, Egypt committed to step up its action against the Gaza tunnels. By the end of 2010, it claimed to have sabotaged over 600 tunnels, using measures that included flooding them with sewage.⁸ Nonetheless, neither Cast Lead nor the measures taken in its aftermath managed to put a full stop to Gaza’s tunnel economy. Digging deeper—up to 40 meters—and longer—up to 1.5 kilometres—tunnel operators quickly re-established a considerable volume of trade that soon expanded well beyond the 2008 levels.⁹ By mid-2009, cars were driven from Egypt into Gaza through enlarged commercial tunnels; by late 2010, such tunnels were able to shift an estimated 170 tons of raw material per day. Arguably, the key logistical achievement of Gaza’s tunnel network has been to enable the reconstruction of Gaza’s devastated urban fabric in the aftermath of Cast Lead, while Israel and the international community failed to agree on terms that would allow the import of construction materials. In his May 2010 briefing to the UN Security Council, UNSCO chief Robert Serry—one of the main architects of what would become the Gaza Reconstruction Mechanism—would complain that “the flourishing illegitimate tunnel trade permits smugglers and militants to control commerce,” while

6 Pelham, 22.

7 Daphné Richemond-Barak, *Underground Warfare* (Oxford University Press, 2017), 27.

8 Pelham, “Gaza’s Tunnel Phenomenon,” 14.

9 Pelham, 15.

“international agencies and local contractors who wish to procure goods entering through legitimate crossings too often stand idle due to the Israeli closure.”¹⁰

Following the Egyptian people’s ousting of Hosni Mubarak in February 2011 and during the short-lived Muslim Brotherhood government of Mohammed Morsi, (June 2012 - July 2013), the tunnel trade between Egypt and Gaza proliferated. At its peak, it is estimated that between 1,200 and 1,500 tunnels were in operation, “accounting for over 80% of Gaza’s supply of construction materials, medical supplies, food, and other goods.”¹¹ It is around that time that Israel would launch Operation Pillar of Defense (14-21 November 2012), officially triggered as a response to over a hundred rockets being fired into Israel from Gaza over a twenty-four hour period. Over the course of the operation, hundreds of tunnel-related targets would be hit, most of them smuggling tunnels along the Egyptian border. Israel’s new round of heavy bombardment certainly incapacitated, once again, Gaza’s tunnel network and economy. Yet another event would soon precipitate its drastic decline: General el-Sisi’s coup in Egypt in July 2013, and the almost immediate crackdown on Gaza’s tunnels that ensued. Soon after taking power, el-Sisi imposed a life sentence on anyone “who digs, prepares, or uses a road, a passage, or an underground tunnel at border areas to communicate with a foreign body, a state, or one of its subjects.”¹² The Philadelphi corridor, a buffer zone established along the Gaza-Egypt border, was further expanded to a width of 1 km, with residential areas in Egyptian Rafah forcefully cleared. Among the different measures taken in this crackdown, the Egyptian military began to pump water from the Mediterranean Sea directly into any tunnel shaft it discovered. The measure widely condemned as an environmental disaster since it ended up contaminating Rafah’s meagre reserves of ground water. According to the Egyptian government, between 2013 and 2014 its army had destroyed 1,370 cross-border tunnels.¹³

With the trade activity across the Egyptian border nearly extinct, Gaza’s economic situation began to deteriorate very quickly. No longer able to count on the economic infrastructure it had established to maintain itself in power, Hamas was left with nothing but its military foot to

10 Pelham, 21.

11 “EU Heads of Missions’ report on Gaza 2013,” 2013, <http://www.eccpalestine.org/eu-heads-of-missions-report-on-gaza/>.

12 Richemond-Barak, *Underground Warfare*, 24.

13 Richemond-Barak, 24.

stand upon. While the vast majority of Gaza's tunnels were dug for the purpose of trade, Palestinian armed factions have been using tunnels for guerrilla activities since the early 1980s at least. As journalist Nicolas Pelham's reference study of the Gaza tunnel phenomenon indicates, from the start of the Hamas-led large-scale tunnelling programme in Gaza, "there was a de facto distinction between the factional tunnels, used for military and operational purposes and off-limits to government inspectors and customs authorities, and the privately-owned tunnels, which were Gaza's primary source of imports."¹⁴ Given the essentially secretive nature of the topic, there is little information available to confirm or invalidate Israel's claim that all tunnels under Gaza could potentially be repurposed for military activities by Hamas and, as such, should all be considered as 'terrorist infrastructure.' Nonetheless, the existence of defensive tunnels inside Gaza used for underground movement, cover, or weapon storage, as well as of offensive tunnels leading to Israel from Gaza, has been amply documented; Hamas leaders themselves regularly refer to the tunnels as strategic weapons of resistance.¹⁵ In the limited and often biased literature on the topic, the use of tunnels by Hamas and other Palestinian armed factions is regularly referred to as one of the most advanced examples of underground warfare.¹⁶ In particular, what makes the case of the Gaza tunnels unique is that they bring together underground, cross-border, and urban warfare into a single, entangled condition. Just like the density of the urban battlespace helps insurgent armed groups to counterbalance the power asymmetry of fighting against an air-powered enemy, the underground provides further cover from the enemy's targeting apparatus as a whole. "In sum," writes legal scholar and counter-terrorism researcher Daphné Richmond-Barak, "tunnels dug by Hamas between Gaza and Israel embody a shift towards the use of cross-border tunnels by non-state actors, as part of a long-term strategy designed to overcome the technological superiority of their opponents."¹⁷

As part of Israel's hostility towards any tunnel in Gaza, those crossing into its territory are the most feared ones, and the object of its most forceful response. The case of Gilad Shalit—an

14 Pelham, "Gaza's Tunnel Phenomenon," 10.

15 "Hamas's Tunnels: Preparation For The Next Conflict With Israel," MEMRI: Middle East Media Research Institute, April 20, 2016, <https://www.memri.org/reports/hamass-tunnels-preparation-next-conflict-israel>.

16 Richmond-Barak, *Underground Warfare*, 30.

17 Richmond-Barak, 30.

Israeli soldier abducted in 2006 by Hamas militants on the Israeli side of the Gaza order, who was brought back to Gaza via a tunnel, held captive for five years, and finally released in 2011 in exchange for the liberation of over a thousand Palestinian prisoners—taught the Israeli military and political leadership a hard lesson as to the damage tunnels could cause. In the midst of a general escalation of violence between Israel and an increasingly isolated Hamas in the spring and early summer of 2014, Israel decided to launch a full-scale military operation on the 8th of July 2014. Aptly code-named “Protective Edge”, it is the first operation that had for declared objective the destruction of Gaza’s network of tunnels.¹⁸

To justify the massive destruction of the urban fabric of the strip during the following eight weeks of heavy bombardment, the Israeli military has since regularly resorted to unverifiable claims that it had only struck buildings used to cover tunnels, shafts, and other “terrorist infrastructure.” Among the many example of unrestrained use of firepower in densely populated civilian areas, the Israeli military’s conduct in Rafah on 1 August 2014 stands out for the carnage it left behind. As mentioned in the introduction, these events were the focus of a thorough report which, as part of Forensic Architecture and in collaboration with Amnesty International, I have contributed to produce. Perhaps more vividly than in any other incident over the course of the 2014 war, tunnels were at the centre of the unfolding of events that our work helped to uncover: after another Israeli soldier was taken prisoner into a tunnel in the outskirts of Rafah in the morning of the 1st of August, the Israeli military triggered the controversial Hannibal directive, which orders its commanders to stop an ongoing abduction situation by all means necessary—including killing their own soldier. The rain of high explosive bombs, missiles, and artillery rounds which subsequently fell upon Rafah was therefore primarily targeting the suspected tunnels underneath the city. Manifesting a ruthless disregard for the international legal principle of distinction, in that instance the Israeli military viewed the whole city of Rafah merely as an opaque surface to bomb through in order to attain an invisible underground target.¹⁹

18 State of Israel, ‘2014 Gaza Conflict: Factual and Legal Aspects’ (May 2015), accessed 31 August 2019, <https://mfa.gov.il/MFA/ForeignPolicy/IsraelGaza2014/Pages/2014-Gaza-Conflict-Factual-and-Legal-Aspects.aspx>

19 Forensic Architecture and Amnesty International, “Black Friday’: Carnage in Rafah during 2014 Israel/Gaza Conflict,” 2015, <https://blackfriday.amnesty.org/>.

Complementing the Egyptian army's expeditious methods to put a stop to underground smuggling activities, Operation Protective Edge was Israel's own, in-depth crackdown on Gaza's tunnels and its urban ramifications. It is easy to understand a blockading power's abhorrence of clandestine tunnels: by opening up channels of unmonitored communication across the border, the Gaza tunnels posed indeed a fundamental—one may say *topological*—threat to the exercise of a mode of power based on the meticulous control of all forms of circulation. On both the southern and eastern side of the Gaza border, the military was thus called on to remodel a contested terrain—to fill in the dangerous cavities through which Gaza was quite literally undercutting both Israel's and Egypt's authority.

Rule of Logistics

The Israeli military's role in shaping the spatial conditions by which Gaza is governed can be identified in many other instances and extends beyond the timeframes of its mobilisation for large-scale military operations. Another example of this practice can be found in the permanent 'buffer zone' that runs along the internal perimeter of Gaza, considerably increasing the fence's encroachment into Palestinian territory. Its thickness is variable—from 100 metres up to 3 kilometres during military operations.²⁰ Regardless of the lines on a map, the territory where the people of Gaza can venture effectively ends where the army's bullets land; and it is through the regular shooting of anyone crossing that invisible boundary that the soldiers permanently posted along the fence remind the residents of Gaza of the current extent of the buffer-zone—or inform them of its new width.²¹ Between 2010 and 2017, over 3,000 Gazans were shot by Israeli forces in the buffer zone—either by soldiers patrolling the fence, by operators of remotely controlled weapons mounted on watch-towers, or during one of the regular incursions of soldiers into the strip. Of them, 161 were killed.²²

20 UN Office for the Coordination of Humanitarian Affairs—Occupied Palestinian Territory, 'Gaza Strip Access and Movement—August 2016' (16 August 2016), accessed 31 August 2019, <https://www.ochaopt.org/content/gaza-strip-access-and-movement-august-2016>.

21 Al-Haq, 'Israel Routinely Attacks Palestinian Civilians in the Buffer Zone', 24 March 2016, accessed 31 August 2019, <http://www.alhaq.org/documentation/weekly-focuses/1034-israel-routinely-attacks-palestinian-civilians-in-the-buffer-zone>.

22 Gisha, "Closing In: Life and Death in Gaza's Access Restricted Areas," Gisha, 2017, <https://features.gisha.org/closing-in/>.

Those figures exploded since the start of the Great March of Return weekly protests:²³ between the 30 March 2018 and 30 March 2020, over 8,000 unarmed protesters were shot with live ammunition along Gaza's perimeter fence, of which 214 were killed, including 46 children.²⁴

This process of live-fire modulation of the land border finds its counterpart on the maritime border of Gaza, where the limit of the permitted fishing area ebbs and flows according to how close to the coast the Israeli navy's ships are effectively patrolling.²⁶ The 1995 interim Israeli-Palestinian agreement established that Gazans would be able to access an area stretching 20 nautical miles off the coast of Gaza, for fishing as well as other economic activities. The pledge was never fulfilled, and Israel unilaterally reduced the extent of that area to 12 nautical miles in 2002 during the second Intifada, then to 6 nautical miles in 2006, in the aftermath of Gilad Shalit's capture. As part of the enforcement of the blockade, from 2007 onwards, the fishing zone was further reduced to only 3 nautical miles off the coast—thereby drastically reducing the diversity and size of the catch available to Gaza's many fishermen and considerably harming their livelihood. Over the past decade, the officially permitted fishing zone has regularly oscillated between 3 and 6 nautical miles, contracting during times of heightened tension between Israel and Hamas, expanding again after a relative calm returned. It is by simple decree that the Israeli authorities erratically revise the extent of the fishing zone. In practice, though, this abstract border at sea is materially enforced by the Israeli Navy's patrolling vessels. As part of the

23 "The so-called Great March of Return (GMR) protests began on 30 March 2018—known as "Palestinian Land Day"—when 40,000-50,000 Palestinian men, women and children, the vast majority of them peaceful demonstrators, took to the perimeter fence separating Gaza from Israel, in popular protest, to demand the end of the Israeli blockade and the right of return for refugees. Weekly demonstrations have continued now for a year and have attracted large and diverse crowds, including women and children, elders, civil society, political activists and public figures. Initially protestors gathered every Friday after prayers in five sites along the fence, however, GMR activities have evolved during the past twelve months and have included night-time disruptions along the fence and demonstrations along the Gaza coastline." Source: UNRWA.

24 "Two Years on: People Injured and Traumatized during the 'Great March of Return' Are Still Struggling," United Nations Office for the Coordination of Humanitarian Affairs - occupied Palestinian territory, accessed April 30, 2020, <https://www.ochaopt.org/content/two-years-people-injured-and-traumatized-during-great-march-return-are-still-struggling>.

26 PCHR, "Report on: Israeli Attacks against Palestinian Fishermen in the Gaza Strip (01 January – 31 October 2016) | Palestinian Center for Human Rights," accessed September 17, 2019, <https://pchr.org/en/?p=9631>.

numerous incidents of fishermen attacked by such patrols, many reported having been shot or shot at while they found themselves within the officially permitted zone. The limits and red lines that Israel imposes over Gaza are to be understood as theoretical maxima, while the reality on the ground, or at sea, always falls below these lines. Between 2010 and 2017, 976 incidents at sea have been reported, resulting in 5 deaths, 106 injuries, 489 detentions, and 250 cases of confiscation of or damage to properties (essentially the fishermen's boats).²⁷

Among the first measures taken by Israel in the gradual confinement of the Gaza strip was the destruction of its key transport and logistical infrastructure, namely the seaport and airport. Gaza's seaport was another unfulfilled promise of the 1993 Oslo accord. After long negotiations as to when the construction works would commence, they were finally allowed to start in July 2000. Merely two months later, Israeli tanks shelled and destroyed the project site, as part of Israel's response to the breakout of the second Intifada. Since then, the construction was never allowed to resume. Gaza's only airport met a very similar fate. A significant provision of the 1995 Oslo II agreement, the Yasser Arafat International Airport opened on 24 November 1998. It was built for a transit capacity of 700,000 passengers per year, and briefly served as the home of Palestinian Airlines. In December 2001, the Israeli Air Force bombed the radar and control tower of the airport, putting a definitive halt to its operations. In May 2002, the army further bulldozed the runway. An extra round of bombing during Operation Cast Lead finished to reduce this former symbol of a promised Palestinian statehood to mere rubble. Today it mainly serves as a site for foraging gravel and other construction materials.²⁸

Manifesting a thorough blurring of the distinction between the military and civilian domains, the Israeli army is increasingly mobilised to build durable infrastructural projects designed to upgrade the security architecture of the Gaza blockade. Since the summer of 2017, it has been busy constructing a 60-kilometre long underground barrier that runs all along the Gaza fence, with the objective of getting rid, once and for all, of the problem of the Gaza tunnels.²⁹ Its depth is not communicated publicly, but the Israeli military has let rumours leak that it would reach down "dozens of

27 Gisha, "Closing In: Life and Death in Gaza's Access Restricted Areas."

28 Gisha, *Gaza Strip: Mapping Movement and Access*, September 2013, September 2013, <https://www.gisha.org/UserFiles/File/publications/map-2013/map-english-2013.pdf>.

29 Daniel Estrin, "Israel Speeds Up Underground Border Wall To Block Gaza Tunnels," NPR.org, accessed September 17, 2019, <https://www.npr.org/sections/parallels/2018/01/24/579180146/israel-speeds-up-underground-border-wall-to-block-gaza-tunnels>.

meters” into the subsoil. Made of concrete poured into a deep and narrow trench, the underground barrier is not really expected to work as a physically impassable obstacle. (Palestinian tunnel operators didn’t have much trouble cutting through the underground steel barrier that Egypt had partially built along its border with Gaza in 2009.) It is rather designed to function as a deep sensory membrane, which would be able to alert the Israeli military of any drilling activity in proximity of the barrier. No detail has been made public about the specific smart detection features of the underground barrier, but the total cost of the project is expected to reach close to \$1 billion.³⁰

After it was deployed on the terrestrial, maritime, and aerial domain, the blockade’s reach into the subsoil appears to complete Israel’s project to hermetically seal off the Gaza Strip—except for the few gateways that remain under its total control. Gaza’s variable geography must thus be understood as actively enforced and violently modelled by the Israeli military, so as to constantly adjust the degree of tightening of the blockade. In its practical implementation, the blockade is a permanent military operation. Forming a peak of intensity in this enduring economy of violence, war is employed as a radical instrument in the continuous process of conformation of Gaza’s territory to the mode of power it is subjected to.

The power of the blockade, nonetheless, cannot be understood without considering, in parallel to the enforcement of a closure, the activities of the Israeli authorities that are geared towards enabling specific circulations across Gaza’s bordering apparatus. Emptied out of any semblance of rule of law, the blockaded Gaza strip was opened up to what could be called *a rule of logistics*: a mode of power exerted through the channelling, regulation, and modulation of all forms of circulation across delimited territories. Far from constituting a simplification of the legal structure of power, this process has rather led to a reconfiguration of its operational logic. The very etymology of our modern notion of logistics seems to echo this shift. While the term is commonly traced back to the Greek root *logos*, some linguists have stressed the etymological detour of the term through the Middle French *logis*, ‘shelter for an army, encampment’, itself from the Proto-Germanic *laubja*—‘shelter’.³¹ Accordingly, it is outside the *polis* and along military campaigns that logistics, it would seem, has departed from the *logos* of the law. With this shift, the main problem of power is no longer to legislate, but to lodge; no

30 Judah Ari Gross, “Revealing Details of Gaza Tunnel-Thwarting Barrier, IDF Says It Could Spark War,” accessed September 17, 2019, <http://www.timesofisrael.com/revealing-details-of-gaza-tunnel-thwarting-barrier-idf-says-it-could-spark-war/>.

31 Christian Heinen, *Geschichte der Logistik. Zwischenprüfungsarbeit* [Master Thesis], *BWL - Wirtschafts- und Sozialgeschichte*: 2004. p.3.

longer to posit a frame, but to structure a motion. Whether the moving parts of such overall motion shall be hastened or restrained depends on the objectives of any given logistical deployment.

The Gaza Strip under blockade thus points to an inversion of the classical relation between war and logistics, whereby war is turned into an instrument to support the durable enforcement of logistics as a mode of power. The purpose of the Gaza blockade is not to cut all ties with a political and territorial entity that has been declared ‘hostile’, but rather to establish a particular kind of control over it, based on the monitoring and regulation of all the flows that traverse it. In a movement that mirrors that of the Israeli disengagement, the locus of power under the blockade regime shifts from the centre of the territory to its borders. It is indeed at the border—or rather, within a thick bordering apparatus—that the technical infrastructure necessary to the enforcement of the rule of logistics is situated. The key result of such logistical operations is a territorial differential, produced and maintained through the orchestration of a particular regime of mobility between an inside and an outside. But one may ask: which one is which?



*Fig. 21—Nuctech MB1215DE container scanner in operation at the customs at the port of Rotterdam, 2018
(Photo: ANP)*



Fig. 22—Israel's Minister of Defense Avigdor Lieberman at the Kerem Shalom terminal, 2 November 2018. In the back, the same MB1215DE container scanner as in the port of Rotterdam—a gift from the Dutch government. (Source: Israeli Ministry of Defense)

The Zone and the Camp

Sprung out of the ruins of Mandatory Palestine, the Gaza strip is an accidental territorial entity—its geographical contours corresponding to an entrenching of the frontline of the Arab-Israeli war at the time of the 1949 cease-fire. As such, the Gaza Strip was born as a vast refugee camp; in many respects, it still is to this day. Throughout the period of its administration by Egypt, from 1949, and ever since its occupation by Israel, from 1967 onwards, the borders of Gaza have remained militarised. During the 1970s and 80s, the residents of Gaza were generally granted permission to leave the Strip, primarily to be employed as a cheap labour force in Israel and its settlements. Following Israel's revocation of all Gaza workers' permits during the 1991 Gulf War, the first Israel-Gaza security barrier was built in 1994. The process of gradual tightening of the border, through both economic and architectural measures, led to the

establishment of the blockade in 2007.³² With it, the degree of permeability of the Gaza border has reached new lows; but cross-border circulation has not stopped, it is simply under much tighter control.

As a fenced-off territorial formation characterised by the special regime of circulation applying to everything that finds itself within its confines, the Gaza Strip is not unreminiscent of a zone—this essential territorial tool for the assemblage of transnational logistical networks.³³ While the zone and the camp are both common notions in architectural and urban theory today, they also tend to be approached as polar opposites and, as such, to be treated in separate literatures. In contrast, I will argue that the zone and the camp form each other's mirror image and, together, constitute the spatial product of the rule of logistics.

Drawing from the seminal work of Keller Easterling, the zone can be defined as a territorial entity hosted by a state while enjoying a special status in relation to the order of sovereignty normally applicable over that state's territory. Its particularity thus lies in its liminal condition, neither fully within, nor completely outside of the state. The plasticity of this legal and territorial status lends itself to a wide range of adjustments and exemptions from the constraints of the nation-state—particularly with regard to tax and labour laws—which makes the zone an especially attractive base for transnational economic activities. With historical origins in the free ports of the Hanseatic league, the zone has turned into a crucial tool for the development and interconnection of global logistical networks. As an easily reproducible template, it functions as a spatial lubricant to the flow of goods, labour, and capital around the world—creating a compact space where barriers to such highly valued flows can be radically lowered. Yet, in order to operate as a “frictionless realm of exemption,”³⁴ the zone must be established as an enclosure, its spatial boundaries clearly delimited and, in most cases, materialised by an actual fence. In apparent contrast with the narrative of freedom and openness that sustains its worldwide proliferation, “the zone is often a place of secrets, hyper-control, and segregation.”³⁵

When the zone is approached as the territorial paradigm of logistics, its material functioning as a closed and off-limit space tends to remain under-examined. Conversely, as long as the

32 Filiu, *Gaza*.

33 Easterling, *Extrastatecraft*, 25.

34 Easterling, 58.

35 Easterling, 67.

camp remains predominantly framed as a singular exception, approached in static terms, with a focus on the regime of immobility to which it suspends those whom it encloses, what remains obscured are the essential displacements and circulations that sustain the camp as a particular spatial and political regime. As the philosopher Paul Virilio has argued: “The precious lesson of the camps and the gulags has not been heeded, because it was erroneously presented not only as an ideological phenomenon, but also as a static one, an enclosure. Its absolute “inhumanity” was but the ostensible reintroduction in history of the original social bestiary, of the immense mass of domestic bodies, bodies unknown and unknowable, (...) a floating population linked to the satisfaction of logistical demands.”³⁶

About two thirds of the people living in Gaza are food insecure today. The United Nations Relief and Works Agency for Palestine Refugees (UNRWA) “currently provides food assistance to more than 996,000 Palestinian refugees in Gaza, who do not have the financial means to cover their basic food needs. ... A further 245,000 food-insecure non-refugees, all falling below the deep poverty line, are targeted by [the World Food Programme] with food and cash-based transfers.”³⁷ As a result of the blockade, the internal economy of the Gaza Strip has collapsed; starting with food, the fulfilment of the most basic needs of the Gaza population is largely dependent on external inputs and foreign resources, delivered through the complex circuits of humanitarian logistics. For this reason, the blockade is to be understood as a logistical operation not only in terms of the circulations that it obstructs but also because of the ones that it sets in motion.

Now an established theoretical tradition, the understanding of the camp as the paradigmatic space of exception tends to focus on the “bare life” to which it would reduce its prisoner subjects.³⁸ Studies of contemporary camps and other ‘states of emergency’ point, in contrast, to the fundamentally logistical rationality mobilized by humanitarian governance, which tends to “neutralize political choices by reducing them to simple operational measures.”³⁹ In order to

36 Paul Virilio, *Speed and Politics*, trans. Mark Polizzotti (Los Angeles, CA: Semiotext, 2006), 98.

37 UN OCHA OPT, “53 per Cent of Palestinians in Gaza Live in Poverty, despite Humanitarian Assistance,” United Nations Office for the Coordination of Humanitarian Affairs - occupied Palestinian territory, accessed September 17, 2019, <https://www.ochaopt.org/content/53-cent-palestinians-gaza-live-poverty-despite-humanitarian-assistance>.

38 Agamben, *State of Exception*.

39 Fassin and Pandolfi, *Contemporary States of Emergency*, 21.

maintain the regime of suspended immobility that it is designed to establish, the camp relies on logistics. One of the defining aspects of the camp is therefore its dynamic relation to an outside, by which the mobility that it prevents is coextensive of the one that it demands. In this perspective, the camp constitutes a paradigmatic logistical site as much as the zone does.

A diagram emerges: the zone carves out a territory from the normal sovereign rules with the primary aim of releasing worthy and valuable flows across its borders—those borders being controlled from within and tasked with preventing any infiltration; while the camp, also resulting from a local withdrawal of the normal order of sovereignty, has the function of containing the circulation of entities considered unworthy or dangerous—its borders, this time, being controlled from without and tasked with impeding any exfiltration. Thinking through the symmetry of the zone and the camp, positing them as the products of the same logistical rationality, opens up a specific understanding of logistics. At a macro level, the logistical mandate of optimising the mobility of people and things is achieved as much through the fostering of valued flows as through the hindering of unworthy ones. All the while at a micro level, the operations producing an overall hindrance of mobility for primary logistical targets requires that a whole set of secondary circulations be activated; and conversely, the smooth flow of “globally bound stuff” is always a function of strict measures of restraint and containment.⁴⁰

Of course, the model conditions of a diagram never match the complexity of its particular actualisations. By positing the zone and the camp as two abstract spatial conditions that jointly manifest the implementation of a single mode of power, the abovementioned diagram underlines the essentially differential order of mobility that logistics orchestrates. Yet, in practice, the zone and the camp are neither opposite nor mutually exclusive conditions. Many special economic zones also function as actual labour camps for their migrant workforce;⁴¹ and conversely, the advanced logistics that Gaza and other humanitarian sites depend upon reproduce a number of the characteristic functionalities of the zone.⁴² In fact, once approached through the perspective of logistics, the zone and the camp reveal their essentially reversible character—as the

40 Cowen, *The Deadly Life of Logistics*, 2014, 171.

41 Ghaith Abdul-Ahad, “Inside Dubai’s Labour Camps,” *The Guardian*, October 8, 2008, sec. World news, <https://www.theguardian.com/global/gallery/2008/oct/08/1>.

42 Gyöngyi Kovács and Karen M. Spens, “Humanitarian Logistics and Supply Chain Management: The Start of a New Journal,” *Journal of Humanitarian Logistics and Supply Chain Management* 1, no. 1 (May 20, 2011): 5–14, <https://doi.org/10.1108/20426741111123041>.

design theorist Benjamin Bratton as argued: “gathering an interior at one moment and guarding against an exteriority in the next.”⁴³

There are a number of cases of former military bases and detention camps around the world that have been turned into key logistical hubs—the security architecture of the former lending itself quite naturally to safeguarding the operations of the latter.⁴⁴ A vivid examples of this process of reversion is Basra Logistics city—as already mentioned in Chapter 3. Among other similar examples, one project in particular, sited in Gaza specifically, does far more than illustrating the reversible character of the zone and the camp; it actually leverages this reversibility as its core strategy of growth. Started in the aftermath of the 2014 war, “Global Palestine, Connected Gaza” is a “Palestinian private sector initiative that envisages Gaza as a globally relevant, knowledge-based and resource-efficient economy pursuing opportunities in high value-added services and niche manufacturing, trade and transportation.”⁴⁶ In other words, it is a project to turn Gaza into a zone. In contrast with the demands formulated by much of the political mobilisation around the current situation in Gaza, the project doesn’t simply call for the lifting of the blockade, the re-opening of the Strip, and its territorial reconnection to the West Bank; rather, it sets out to repurpose the infrastructure of enclosure originally built to isolate Gaza, so as to create a region-sized, ultra-compact, “smart” gateway to the Mediterranean that would serve both Palestine and Israel. Instead of flattening the territorial differential that the blockade has generated, the project is about exploiting it by reversing it, thereby turning it into an asset for Gaza and for the wider region.

Needless to say, ‘Global Palestine, Connected Gaza’ is a highly speculative project. Considering the level of precariousness and instability in which Gaza finds itself today, with 53% of its population living in poverty, an average of four hours of electricity per day, a rate of environmental degradation that led the UN to declare it unliveable by 2020,⁴⁷ and the permanent threat

43 Bratton, *The Stack*, 21.

44 Cowen, *The Deadly Life of Logistics*, 2014, 165.

46 “Our Mission,” Connected Gaza, accessed September 17, 2019, <https://www.connect-edgaza.com/test>.

47 United Nations Country Team in the Occupied Palestinian Territory, “Gaza in 2020: A Liveable Place?,” August 2012, <https://www.unrwa.org/userfiles/file/publications/gaza/Gaza%20in%202020.pdf>.

of another attack by the Israeli military, the very act of designing a detailed vision for a connected Gaza reaching as far as the year 2050 may, at first sight, seem rather foolish. Yet after taking a closer look, one might read this approach as an attempt to reckon with the particular conditions of a rule of logistics that have come to define the reality of the Gaza Strip for many years already.

The initiative starts, it seems, from the acknowledgement of an impasse: that of leaving the resolution of Gaza's permanent crisis to the formally recognised political authorities in charge of it. Funded by a consortium of Palestinian enterprises in the fields of construction, telecommunication, finance, or real estate, the project negotiates its way forward by establishing links and gaining supporters across a wide range of agencies, think tanks, and NGOs, both locally and internationally. The vision itself was developed in partnership with AECOM, one of the biggest engineering firms in the world, which specialises in the development of large infrastructure projects. And it is only retroactively that the project sought, and obtained, an endorsement by a governmental institution—in this case, by the Palestinian Ministry of Local Government, based in Ramallah.⁴⁸ As such, not only does the project articulate, through the vision it proposes, a specifically logistical model of empowerment for Gaza; but also, the strategy that it deploys to reach this objective already seems to follow, in many ways, the very channels by which logistics turns into power. At times leveraging, at others by-passing established governmental authorities, the power of logistics is fundamentally distributed, hinging on the disposition of its heterogeneous components. Besides, as a mode of power, it is often more effective when it is not immediately recognised as such—a point that seems to underpin the relatively inconspicuous project of flipping the Gaza blockade on its head and turning it into a thriving zone.

⁴⁸ Ministry of Local Government, State of Palestine, “Endorsement Letter – Global Palestine Connected Gaza,” July 21, 2016, https://dvqlxo2m2q99q.cloudfront.net/000_clients/561979/file/endorsement-letter.pdf.

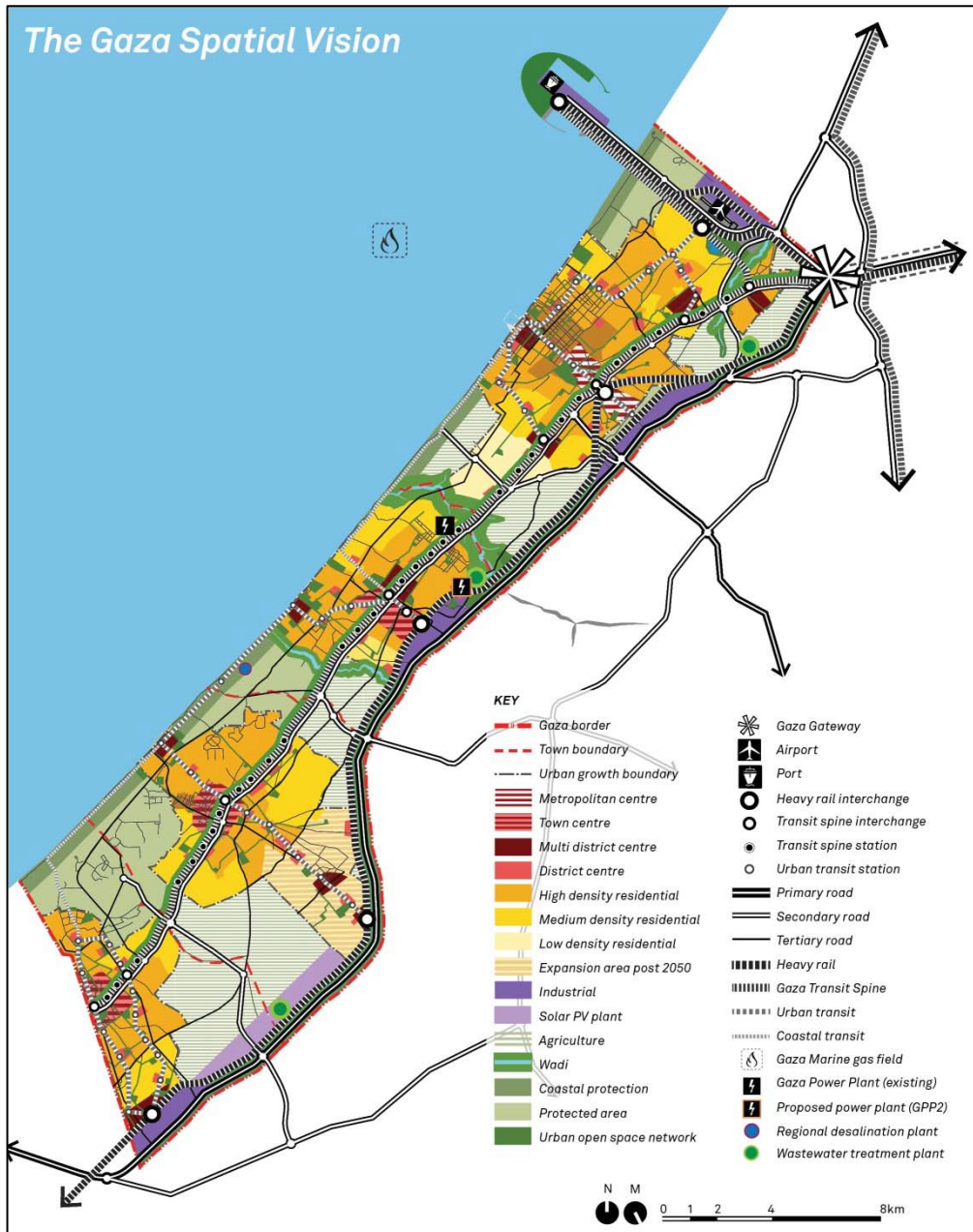


Fig. 23—“The Gaza Spatial Vision (2016—2050)”. From “Global Palestine, Connected Gaza” (2016).

As a territorial interface designed to channel valuable flows in an efficient and controlled manner, the zone works by offering a single, compact spatial solution to an array of logistical demands. The camp works in the same way, but with the reverse objective: an equally efficient spatial solution to manage undesirable flows and enforce a particular regime of (im)mobility. Products of the same logistical rationality, both the zone and the camp form a node within a

wider network of circulation. Among the principles driving the secure and efficient management of such a network is a logic of centralisation of operational functions: as a result, circulatory flows that are omnidirectional and global in scope tend to be routed through ever-more centralised nodes. Counterintuitively perhaps, the expansion of the reach of logistics as a mode of power is a function of the contraction of its nodes. In a fractal manner, that same process of contraction is central to the border architecture of both zones and camps, as well as, more broadly, to the architecture of logistics around the world.

Terminal Architecture

There are only two crossings that remain partially open along Gaza's border with Israel: at its northern tip, the Erez terminal—for pedestrians; at its southern end, the Kerem Shalom one—for all kinds of goods. With the establishment of the blockade, every cross-border circulation has been re-routed to Gaza's territorial extremities—located 45km from each other—according to a binary human/non-human division. In total, two crossings to handle the needs of a population of two million: the Gaza terminals can only be described as engineered choke points.

Permanently closed in 2007, the Karni crossing is nearly five times the size of the Kerem Shalom one. It used to operate at an average capacity of 700 trucks daily.⁴⁹ Its location in close proximity to Gaza city, the urban core of the Strip, would make it an obvious choice to minimise the cost of goods transportation into and out of Gaza. Just as obviously, in a logic of economic warfare where such costs are primarily borne by the enemy, Karni was among the first casualties of the blockade. With all truck traffic forcibly re-routed through the much narrower Kerem Shalom terminal, between 2007 and 2010 the average number of truckloads entering Gaza daily fell to 80.⁵⁰ For the Israeli authorities on the other end, it is easy to imagine how the cost of thoroughly controlling every truck delivering goods to Gaza plummeted, once they could

49 "Gaza Food Situation Tight as Karni Crossing Closed," *The New Humanitarian*, March 7, 2011, <https://www.thenewhumanitarian.org/feature/2011/03/07/gaza-food-situation-tight-karni-crossing-closed>.

50 Gisha, "Graphing 10 Years of Closure," 2017, <https://gisha.org/UserFiles/File/publications/Graphs/Graphing-10-years-of-closure.EN.pdf>.

manage it all from a single and compact terminal. Importantly though, the estimated capacity of the Kerem Shalom terminal before 2010 was around 150 truckloads daily—which indicates that it was operated at just above half of its actual capacity.

Due to mounting local and international pressure, in particular after the Mavi Marmara flotilla incident in May 2010, the Israeli authorities announced an ‘easing’ of the blockade in June of the same year.⁵¹ As part of it, the logistical capacity of Kerem Shalom was upgraded to 350 truckloads per day. Nevertheless, between June 2010 and December 2014, the actual average number of truckloads that entered Gaza daily was under 150.⁵² After the thorough destruction of Gaza’s built environment during the 2014 Operation Protective Edge, and the entry into force of the GRM, the number of truckloads admitted into Gaza—a large proportion of them carrying only construction materials to rebuild it—increased sharply to new average of 300 daily over the past three years; while again, a new upgrade of the Kerem Shalom terminal—funded by the European Union—has brought its actual capacity to 500 truckloads per day. Drawing upon its well-known technical expertise in the field of logistics, the Netherlands donated two high-tech container scanners to be installed at Kerem Shalom, so as to expedite security checks and facilitate cross-border trade flows at large.⁵³ Following much negotiation about how Israel would use them, the scanners entered into operation in 2015, yet again not at full capacity. While the scanners could technically handle truckloads up to two metres high, COGAT imposes that the total height of goods stacked on trucks for commercial shipments out of Gaza does not exceed 1.2 metres—increased to 1.5 metres in February 2016, for agricultural products only.⁵⁴

From this brief dip into the mind-bending calculations by which the blockade is permanently recalibrated, the key figure to retain is the ratio between logistical capacity and effective throughput. Although highly specific to the context of the Gaza blockade, the way in which the

51 The Mavi Marmara incident refers to an Israeli military operation against six civilian ships of the "Gaza Freedom Flotilla", on 31 May 2010 in the Mediterranean Sea. The ships were carrying humanitarian aid to Gaza, with the intention of breaking the blockade. During the raid, ten activists were killed on the Mavi Marmara ship, and ten Israeli soldiers were wounded, one seriously.

52 Gisha, “Graphing 10 Years of Closure.”

53 Netherlands Representative Office in Ramallah, Facebook post, 1 June 2016, <https://www.facebook.com/NLRepOfficeRamallah/posts/602262163276743:0>.

54 Gisha, “An Inch at a Time,” November 2, 2016, <https://gisha.org/updates/4943>.

Israeli authorities run the Kerem Shalom terminal can be read as a by-the-book implementation of the latest operational principle in global logistical management—namely, elasticity. Put simply, “elastic logistics refers to the flexibility to expand and shrink capabilities to align with the demands within the supply chain during a given timeframe.”⁵⁵ In order to be able to quickly adapt to fluctuations in operational conditions—be they of economic or political order—elastic logistics recommends that every node of the logistical network be run at a throughput rate that leaves a substantial margin on both sides of the capacity spectrum. The optimised terminal, therefore, is not the terminal where the gap between capacity and throughput is closed, but rather, one in which any minor operational adjustment can quickly scale up and see its effects propagated on both sides of the circuits that it governs.

The Erez terminal, on the other end, pushes the elasticity principle to an extreme. In the summer of 2000, more than 26,000 Palestinian workers entered Israel every day through the Erez crossing which, in architectural terms, was a simple checkpoint. With the outbreak of the second Intifada in September 2000, the number of exits plummeted as the crossing was frequently closed.⁵⁶ As part of the 2005 disengagement plan, Erez was declared an international border terminal requiring, as such, a considerable upgrade of its security architecture. Completed in February 2007 at a cost of about \$35 million, the new Erez terminal is a vast, partly glass-walled complex that wouldn’t look odd in an international airport. While its technical specifications make it capable of managing the crossing of 45,000 people daily, the entry into force of the blockade just four months after its completion meant that it never operated at more than one percent of its total capacity.⁵⁷ While substantial fluctuations have occurred from one month to another, the average number of daily exits of Palestinians through Erez between 2007 and 2017 was just 190.⁵⁸

55 Nahata Kushal, “Trends That Will Revolutionize Logistics in 2018,” *Material Handling and Logistics (MHL News)*, December 26, 2017, <https://www.mhlnews.com/global-supply-chain/trends-will-revolutionize-logistics-2018>.

56 Gisha, “Erez Crossing,” accessed September 17, 2019, <https://gisha.org/gazzamap/403>.

57 Jodi Rudoren, “Between Gaza and Israel, a Border Crossing in Need of Travelers,” *The New York Times*, September 4, 2014, sec. World, <https://www.nytimes.com/2014/09/05/world/middleeast/at-the-border-between-gaza-and-israel-a-crossing-in-need-of-travelers.html>.

58 Gisha, “Graphing 10 Years of Closure.”

With such a wide margin of manoeuvre between capacity and actual throughput, the Israeli authorities are able to make full use of Erez' cutting-edge security technology. The terminal is equipped with a state-of-the-art 'millimetre wave' body scanner, developed by the California-based firm L-3 Communications Inc., which appears to be "so sensitive that it creates a complete holographic image of the traveller and allows the screener to see even a tissue or penny stuck in a pocket."⁵⁹ The very high resolution of this screening technology is what enables Israel to actually enforce the far-reaching restrictions intermittently imposed on Palestinians crossing through Erez who, as part of a new directive announced by COGAT in August 2017, are not permitted to carry a USB drive as they exit Gaza.⁶⁰ Before reaching the scanner though, any candidate to exiting Gaza must walk through a nine hundred metre long, four metre wide caged passageway spanning the entire no-go zone imposed by Israel around Erez. In dazzling contrast with the width of the complex, this narrow and elongated excrescence is the clearest architectural manifestation of the revision of the terminal's programme: from maximising the secure flow of people, to securing their minimal flow.

As the respective cases of Kerem Shalom and Erez illustrate, the routing of all circulations through a single terminal and the concentration of all transit procedures within the same architectural complex gives extraordinary leverage to the agency operating it. Due to its spatial and functional compactness, the terminal works as a key multiplier of logistical power. The tiniest tweak to the protocols of circulation across the terminal—of a few centimetres here, a few pixels there—immediately has exponential repercussions throughout the circuits that it connects. The architecture of logistics tends towards the terminal as both its formal paradigm and its political ideal: the optimal point of centralised control over the exchange between two or more circuits.

59 Dion Nissenbaum, "High-Tech Border Crossing Serves as Monument to Mideast Gridlock," *McClatchy DC*, May 17, 2007, <https://www.mcclatchydc.com/latest-news/article24463477.html>.

60 Orly Nov, "IDF Bans Laptops, Food, Toiletries for Palestinians Leaving Gaza," *+972 Magazine* (blog), August 16, 2017, <https://972mag.com/idf-bans-laptops-food-toiletries-for-palestinians-leaving-gaza/129292/>.



Fig. 24—View of a 3D reconstruction of the Erez Terminal, based on clandestine photographs by Active Stills. Part of the “Borderground” workshop convened by the author (6—19 October 2016). Full documentation available at: <http://borderground.info>

Modulation and Enclosure

To this day, one of the key references to grasp the particular modality of power deployed by the distributed technology of smartness remains Gilles Deleuze’s “Postscript on Societies of Control.” In this famous piece, the philosopher sketches out how, around the end of the twentieth century and as an effect of the wide penetration of computation in the domain of everyday life, the defining modality by which power is exercised across western societies undergoes a mutation: from the moulding of individual bodies operated by the disciplinary societies, as theorised by Foucault; to the permanent *modulation* of “dividuals” that distinguishes the new societies of control.⁶¹

Deleuze’s explicitly frames the space of control as characterised by its openness and sets it in contrast with the disciplinary enclosures that it would come to replace. The question that Gaza urges us to address is: how is it possible that the implementation of real-time, targeted systems of control—the characteristic instruments of optimisation by which smartness is meant to be achieved—can end up actually reproducing urban enclosures? To what degree is this modulatory

61 Gilles Deleuze, “Postscript on the Societies of Control,” *October* 59 (1992): 3–7.

form of power compatible with, or even perhaps conditional to, the ongoing proliferation of enclosures that characterises the urban present? Once approached in relation to the occupied West Bank, the Gaza Strip under blockade may point us to some elements of response.

In the literature around the Israeli occupation of Palestine, the blockaded Gaza Strip and the West Bank are often framed as two opposite models of occupation.⁶² In the West Bank, the occupation is diffused—with settlements distributed throughout the territory and an infrastructure of segregated circulation further breaking up the integrity of the Palestinian space. Through the network of checkpoints operated by its security forces, Israel achieves a distributed and dynamic control of the entire West Bank. Its physical presence at every strategic crossroad enables it to sift and filter all traffic across the territory that it occupies: hindering the movement of Palestinians *and* fast-tracking that of settlers.⁶³ In Gaza, on the other hand, the exercise of logistical power follows a different model. The combined effects of the disengagement and the blockade established a clear-cut separation between the occupying force and the occupied territory. As we have seen, rather than being distributed across a physically occupied territory in the form of a multitude of checkpoints, the nodes of traffic control are concentrated in just a couple of strategic points along the Gaza barrier. Regardless of how material flows are routed and distributed inside Gaza—a task that Israel has gladly delegated to the international humanitarian complex on site—the control of a few centralised gateways is enough to guarantee its capacity to monitor the full spectrum of Gaza's logistics.

At first sight, the Israeli occupation of Palestine may indeed seem to be split into two distinct models: a fully distributed model in the West Bank, and a fully concentrated one in Gaza. Yet a closer look at the reality on the ground points to the emergence of a third model that combines and integrates the two. In the West Bank, the tortuous path of the separation wall that was built over the past decade has considerably hardened the isolation of Palestinian villages, creating a multitude of micro-enclaves in the *seam zone* between the Green Line and the effective route of the wall—what Darryl Li had described as “an archipelago of isolated Gaza

⁶² This approach is recurrent, for example, in the essays collected in an influential volume on the topic. See Adi Ophir, Michal Givoni, and Sari Hanafi, eds., *The Power of Inclusive Exclusion: Anatomy of Israeli Rule in the Occupied Palestinian Territories* (New York: Cambridge, Mass: Zone Books, 2009).

⁶³ Weizman, *Hollow Land*.

Strips.”⁶⁴ In addition to such permanent enclosures, the Israeli security forces maintain a widespread policy of imposing curfews to neighbourhoods, villages, or entire towns across the West Bank—both as a punitive measure and, increasingly, as a pre-emptive one.⁶⁵ Implemented through the use of lethal force, those temporary closures effectively consist in a small-scale, mobile version of a blockade.

Conversely, the establishment of the GRM discussed in the previous chapter can be seen as re-introduction of the West Bank's extensive model of occupation in Gaza. The management of circulatory flows remain the crux of the exercise of power here: in Gaza, it is no longer achieved through the physical presence of Israeli security forces at strategic points along a road network; rather, it is mediated by a new digital infrastructure of data collection and processing. The GRM is, in fact, a highly ramified network of checkpoints passing through every plot of land, whereby every Palestinian in Gaza has to interface with the State of Israel to access the cement they need to build their home. It doesn't take much to imagine a near-future situation in which such digital access portal could mediate the Gaza resident's access to all other resources, from electricity, to water, or food.

Rather than a hybridisation, what we are witnessing between Gaza and the West Bank is an *integration* of the two models into a third one, which is *both* intensive *and* extensive. This third model combines what I have so far distinctly referred to as *apparatuses of targeting and bordering*—namely, a distributed infrastructure of permanent modulation with a system of enclosure that strictly delimits the territory where it is applied. How to reconcile this reading of the present situation in occupied Palestine with the theoretical outline proposed by Deleuze thirty years ago? I suggest the following minor update to the late philosopher's account:

Enclosures are not what modulation and control would replace, as Deleuze imagined. Rather, their pervasive re-emergence today and the key role that they play in the ordering of contemporary space can be understood as the very product of the rise of optimisation as a dominant political paradigm. Once it is unleashed as a general principle for the reorganisation of any processes towards greater efficiency, optimisation tends to voraciously absorb each and every parameter of a system's environment into its constantly updating dynamic equations. The process

64 Li, “The Gaza Strip as Laboratory.”

65 B'Tselem, “Restrictions on Movement,” B'Tselem, November 11, 2017, https://www.btselem.org/freedom_of_movement.

of channelling of all circulations through a minimal number of terminals, as witnessed in Gaza, mirrors a general tendency that is observable all over the world: from ships to seaports to cargo hubs, warehouses or (e-)distribution centres, the architecture of logistics is getting not only bigger, but also more polarised. Contrary to much of the theoretical discourse from the early years of globalisation, which prophesied a demise of both location and distance as relevant variables in the “space of flows” that was allegedly emerging, the logistical rationality made them ever more relevant.⁶⁶ With the rise of *total cost analysis*—a principle at the heart of contemporary logistics—every mile of transport, every square inch of warehousing, every minute of delay along an ever more tensed supply chain have been captured into a complex matrix of permanent calculation.⁶⁷ The joint optimisation of the profitability and security of supply chains tends to translate itself, in spatial terms, into a process of aggregation of logistical operations: in the same area, under the same roof, behind the same fence.

It is this general logic of optimisation that gives rise to the zone—or, for that matter, the camp—which, in order to generate an exceptional regime of mobility, needs to be clearly delimited. According to the same logic, its entire perimeter needs to be fenced off, so as to reroute everything through as few gateways as possible. These gateways are to be understood as singular points where the modulation of a flow or signal is effected at minimum cost. It is useful to remember that, in order to illustrate the mode of operation of control, Deleuze himself uses the example of a diffused system of barriers that would open or close pending on a number of factors:

“Felix Guattari has imagined a city where one would be able to leave one's apartment, one's street, one's neighbourhood, thanks to one's (dividual) electronic card that raises a given barrier; but the card could just as easily be rejected on a given day or between certain hours; what counts is not the barrier but the computer that tracks each person's position—licit or illicit—and effects a universal modulation.”⁶⁸

In that sense, enclosures, or more precisely, the couple enclosure-gateway, are not only compatible, but really are the *product* of the logistical rationality—and, as argued in chapter one,

66 Castells, *The Informational City*, 1989.

67 Cowen, *The Deadly Life of Logistics*, 2014, 23.

68 Deleuze, “Postscript on the Societies of Control,” 7.

of its becoming-environmental in the form of smartness. Generalising a logic of dynamic optimisation first introduced by apparatuses of security, the logistical reason frames urban and territorial problems in such a way that fences and walls, far from becoming obsolete, become an obvious technical solution. In fact, Deleuze points to this very phenomenon when suggesting that “control will not only have to deal with erosions of frontiers but with the explosions of shanty towns or ghettos.”⁶⁹

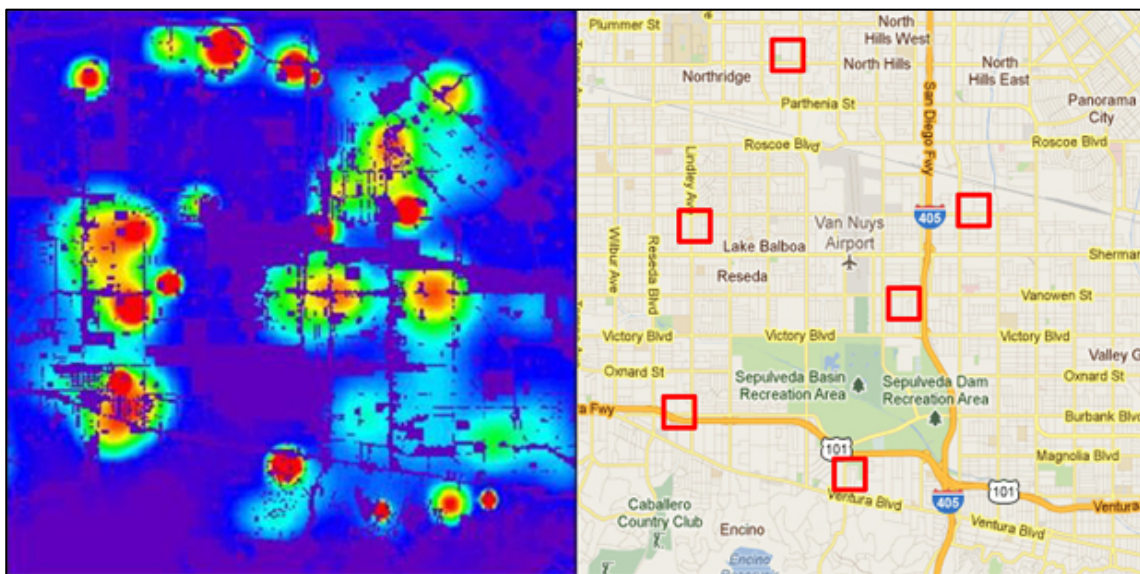


Fig. 25—View of predictive policing software in use by the LAPD, 2012. A computer-generated “heat map,” left, shows predicted crime activity. This is translated into patrol instructions in the form of the red boxes on the map, right. (Source: MIT Technology Review)

The Gaza blockade is a special kind of logistical operation, whereby the main target of the total cost calculus to be optimised is the minimisation of undesired mobility. At its core remains a principle of optimisation, with comparable spatial consequences to more common supply chain problems. Gaza, in that sense, forms a *zone in reverse*. With this term, I want to argue that the exercise of logistical power doesn’t only result in the accelerated capitalist mobilities that it is primarily known and critiqued for; rather, it can also be leveraged to produce conditions of confinement, isolation, and restriction of mobility. Through an examination of the logic of

69 Deleuze, 7.

territorial delimitation that is central to the operations of logistics, I argued that the zone and the camp were both spatial products of the same logistical rationality. Zooming into the border architecture of such logistical enclosures, the figure of the terminal was retained as the major architectural manifestation of logistical power, in as much as it forms the most compact spatial solution to the demand of centralised control over distributed circulations. The links that were traced between the architecture of the Gaza blockade and that of more common logistical sites enabled us to posit that logistics, as a single spatial and technical apparatus, has in fact two modes of functioning with regard to the circulations that it governs: release and contain. The defining character of logistical power may be located in this ambivalence, in its capacity to do both, alternately as well as simultaneously, and above all, differentially. What this chapter attempted to outline is a notion of logistical power as a mode of power exerted through the production of a differential regime of mobility.

Intercalation 4: Resistance

September 2018. During my last fieldtrip to Israel/Palestine, I hear of an opportunity to take part in a protest of solidarity with the Great March of Return protesters in Gaza. A friend of mine adds me to a private Whatsapp group where the details of the action are to be announced. It's Friday morning, I meet a group of about 30 people in a park. That's the contingent from Tel Aviv; I am told a few more people will join from Haifa and Jerusalem. After a short briefing by the organisers—we are warned of the risk of arrest—we hop onto a few cars and drive south.

The site chosen for the protest is only announced after we pass Ashkelon. It will be close to Sa'ad, in front of Gaza City's protest camp. As we drive across the checkboard of Israeli crop fields, a fire is burning, probably caused by an incendiary kite sent from Gaza. In front of us, a thick cloud of black smoke is covering the horizon. They are burning tyres, my neighbour confirms, to blur the snipers' vision. To the surprise of the organisers, our entire convoy reaches the end of the road without trouble; in other occasions, they got stopped much farther away.

The protest site is about 300m from the fence—closer than I was ever able to get. Two military police mark the limit behind which we won't be allowed. A jeep goes back and forth between the unit in front of us and the second line of ground defense, where several armoured vehicles equipped with machine guns and teargas launchers are patrolling. A tank is positioned in a field nearby, its cannon aimed at Gaza, still. Two surveillance balloons are visible in our back and a distant buzzing sound is filling the sky—probably drone(s). Right in front of the fence, the army has erected a series of earth mounds where the snipers are lined up—dozens of them. With its few lines of barbed wire held by thin metal posts, the fence seems so fragile in these surroundings.

We take position on our own mound. A few photographers set up their equipment under the disapproving eye of the soldiers. Banners are unrolled. They are written big enough to be read, in principle, from the other side of the fence. But from where we stand, the crowd is barely visible behind the smoke. A photographer from Active Stills lets me shoot with his teleobjective on my memory card. Compact groups of figures appear behind the dark grey blur. If we can't see much, we can hear everything: the chants, the drums, the shots of tear gas, those of live ammunition. People on this side are chanting too, in Hebrew, in Arabic. Every now and then, a sudden roar from the crowd we're facing: someone just got shot.

The organisers manage to set up a short call to a spokesperson of the protest camp located less than a kilometre from where we are standing. In spite of the terrible connection, we receive confirmation that they can see us. They thank us and we thank them in return. About an hour after we reached the site, a group of Israeli men from a nearby bordering community arrive from the same road we took. They are shouting, some are carrying sticks. An altercation follows, the situation gets tense, the soldiers don't seem keen to intervene. The organisers recommend we leave now.

We all get back into our cars. The sun is setting behind the fence, piercing right through the cloud of smoke. We drive away in silence with a taste of tear gas down our throats.

Following pages

Solidarity protest on the Israeli side of the Gaza fence, near Sa'ad, 21 September 2018. Author's photographs,







Future Lives of Return

Project type	Exhibition
Context	Shajah Architecture Triennial, inaugural edition
Theme	Rights of Future Generations
Date	09/11/2019—08/02/2020
Co-author	Jasbir K. Puar
Collaborators	Active Stills (Oren Ziv), MSF - Doctors Without Borders (Jacob Burns), Jamon Van den Hoek (remote sensing), Dirar Kalash (sound artist), Bernardo Loureiro (data visualisation), Mohammed Abusal, Hadeel Assali, Salman Nawati, Basma Alsharif, Mohammed Harb, Sharif Waked, Taysir Batnaji (artists), Sharjah Architecture Triennial curatorial team (Adrian Lahoud, Moad Musbahi, Katarzyna Wlaszczyk, Kamil Darkir, Andrea Bagnato)
Role	Initiator, co-author

On return from my last fieldtrip to Israel/Palestine, and after witnessing first hand the brutal repression organized by the Israeli security forces to contain the Great Return March protests in Gaza, I approached the recently-appointed curator of the first Sharjah Architecture Triennial, Adrian Lahoud, with a proposal for an exhibition project centered around these protests. My aim was to use the SAT01 platform to shed light on the unique spatial and biopolitical conditions of the Gaza Strip under blockade, with a view to affirm its centrality to any discussion about the future of the urban condition. The curatorial team responded positively to the proposal. Noticing that my research around technologies of containment resonated with the work of queer theorist Jasbir K. Puar on the politics of maiming, the team organized an ecounter between Puar and myself, in London, in March 2019. The convergence between our respective arguments led us to embark on a collaborative exhibition project for the Sharjah Architecture Triennial.

Starting with the case of occupied Palestine, but expanding to the United States and other sites around the world, Puar's book "The Right to Maim" traces how contemporary settler colonial states manifest an implicit claim to a right to debilitate colonised bodies and environments as a form of biopolitical control.¹ "Alongside the 'right to kill,'" Puar

¹ Jasbir K. Puar, *The Right to Maim: Debility, Capacity, Disability* (Duke University Press, 2017).

notes “a complementary logic long present in Israeli tactical calculations of settler colonial rule—that of creating injury and maintaining Palestinian populations as perpetually debilitated, and yet alive, in order to control them.”

Building up a theoretical framework from this observation, Puar writes: “The purportedly humanitarian practice of sparing death by shooting to maim has its biopolitical stakes not through the right to life, or even letting live, but rather through the logic of ‘will not let die.’” In that sense, the notion of maiming that she proposes complicates Michel Foucault’s foundational mapping of biopower, steering it away from the poles of life and death, introducing a third term—maiming—as a form of modulated administration of vulnerability and debility. A process which I would interpret, through the conceptual lens I have proposed in this thesis, as a mode of *containment* of vitality itself.

Puar further signals that “not only bodies are being maimed in Gaza, but also territories. ... [Gaza’s] terrain is dependent on the withdrawn colonizer’s infrastructural support, which modulates calories, megawatts, water, telecommunication networks, and spectrum and bandwidth allocation to provide the bare minimum for survival but minimal enough to attempt to deplete or strip resistance.” In a similar way as I read the notion of maiming that she proposes as a form of containment of the vital forces of the colonised population, Puar describes the containment logic that I have outlined in terms of territorial maiming.

As it emerged from the dialogue we developed through our collaboration on this project, maiming and containment appear to converge in creating a condition of suspension, a permanent deferral of any *solution* and an indefinite extension of interim measures of marginalisation. Together, they form a dynamic spatio- and bio-political regime which modulates its forms of response in order to maintain a population in a repressed condition of vulnerability. As Puar advances: “the ‘solution’ to the ‘Israeli/Arab conflict’ may well, for Israel, be neither one-state nor two-state, rather the present status quo. In other words, a terrifying implication is that Israel already has its solution: settler colonialism.”

When approaching this joint exhibition project, our main concern was to avoid the trap of reducing the discussion on the Great March of Return protests to a further elaboration on Israeli state power, which would have conveyed a false idea of unchallenged colonial domination of the Palestinian population. Instead, we have conceived the exhibition around the opposite idea, choosing to focus on what escapes, and keeps escaping, the seemingly unbreakable structure of the blockade.

Hence, the central piece of the installation is a model of the Great March of Return protests. Based on an extensive photographic archive produced and shared with us by Gaza-based reporters from the ActiveStills collective, we produced a large physical model

imagined as a long-exposure, multiperspectival shot of the ongoing protests along the militarized fence of the Palestinian enclave. Each of the nearly 3,000 characters populating this miniature scenography of the Great March of Return was modeled and 3D printed based on actual shots of protesters and soldiers taken during one of the episodes of this recurrent confrontation. Variations in the scale at which the different human and architectural components of the scene are represented emphasise the refusal of the model to operate in the realm of scientific objectivity. On this point, our collaborative piece represents a departure from the forensic paradigm which previously underpinned my work with models. The point of this particular model is not to provide an accurate, measurable reconstruction of a spatially and temporally localized event. In depicting the terrain of the confrontation between the two forces at play, the accent was put on the very *disproportion* of their clash, on the incommensurability of their respective motives. This ambition—which soon appeared to us as a necessity—led us to move away from the strictly material register of analysis; instead, the model tries to render the field of collective affects at stake in this deterritorializing event, which stretches in time and in space, and whose meaning lies beyond any legal rationality. Every Friday for nearly two years, thousands of Palestinian civilians are literally putting their bodies on the frontline in order to abolish the status quo: namely, the ever-normalised denial of their existence as political subjects. It occurred to us that any attempt to *measure* the violence unleashed over them in return would be vain; or worst, that it may further deafen such a measureless cry of collective self-determination.²

The challenge we tried to raise to with this exhibition was to present Gaza under a different light than the one which tends to frame its appearance in the sphere of international discourse. From the central model of the Great March of Return to the various pieces displayed all around it—a number of which were commissioned to, or sourced from, Palestinian artists—the discourse articulated by the exhibition moves away from the humanitarian frame that all too often ends up reducing Palestinians to passive victims in need of external help. Whether we were successful or not, our aim was to portray Gaza as a much-needed source of political imagination. Beyond the technologies of containment and the politics of maiming to which it is subjected, Gaza tells its own story: that of a people's steadfast determination to affirm its intrinsic freedom.

² Audre Lorde, *The Master's Tools Will Never Dismantle the Master's House* (New York: Penguin Classics, 2018).

Following pages

- Wall text accompanying the exhibition
- Views of the exhibition, as installed for the inaugural edition of the Sharjah Architecture Triennial (9 Nov 2019–8 Feb 2020)
- Extract from Ghassan Kanafani, “Letter from Gaza” (1956)
- Selection of X-rays of MSF patients in Gaza
- Remote sensing: maiming and containment at territorial scale
- 21 Plates from the data visualisation project “Gaza Modulated: Maiming, Containment, Control” produced by the author
- Stills from selected films by contemporary Gazan artists
- Selection of photographs of the Great March of Return protests from Active Stills
- Conceptual diagram of maiming and containment practices in occupied Palestine



View of the entrance label to the exhibition (Arabic/English), November 2019.

Future Lives of Return

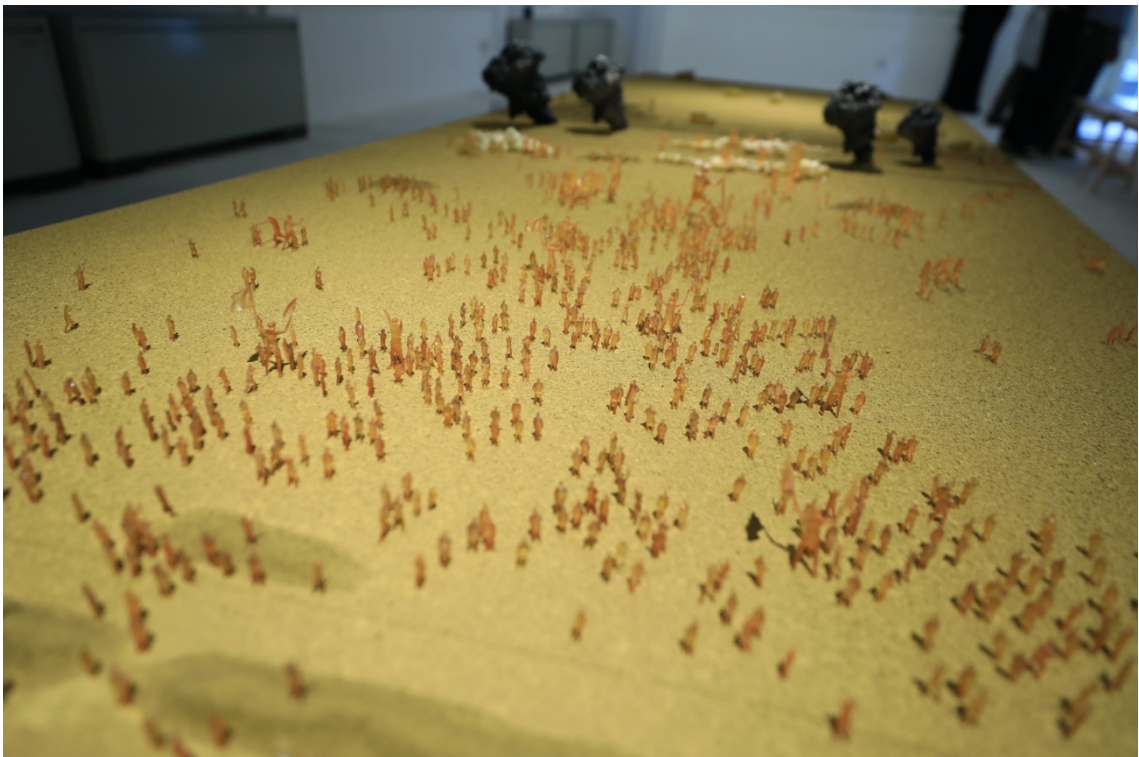
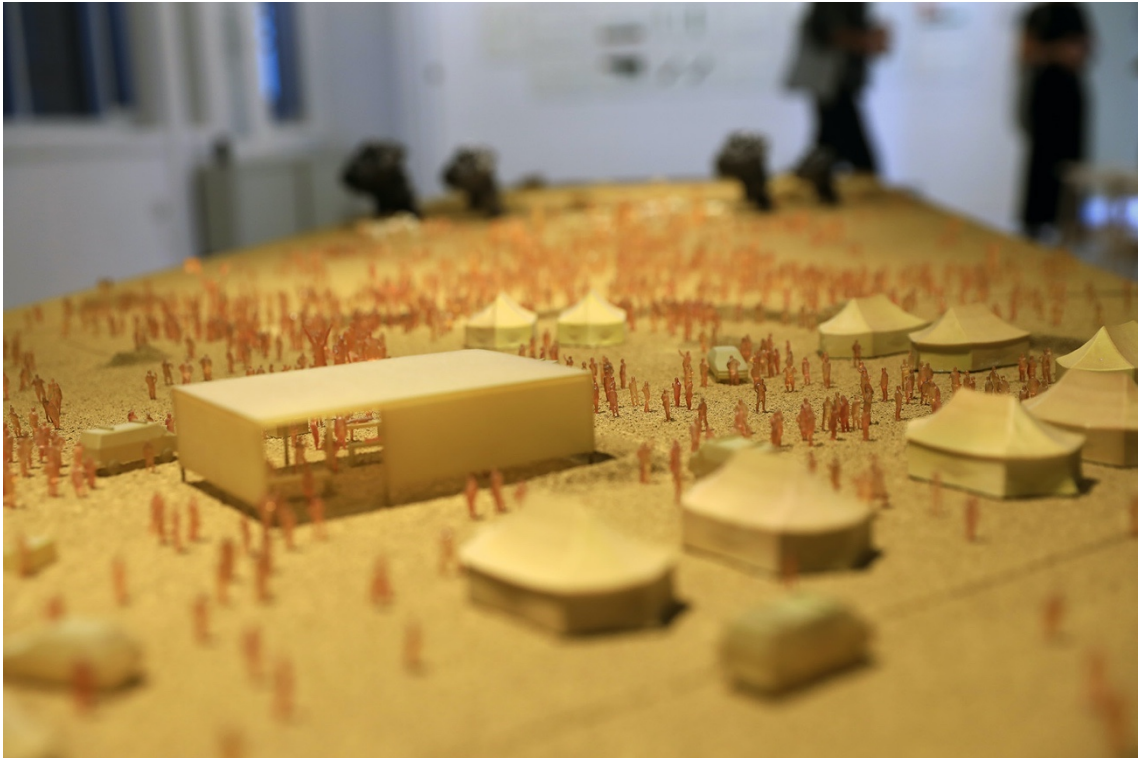
Francesco Sebregondi and Jasbir K. Puar

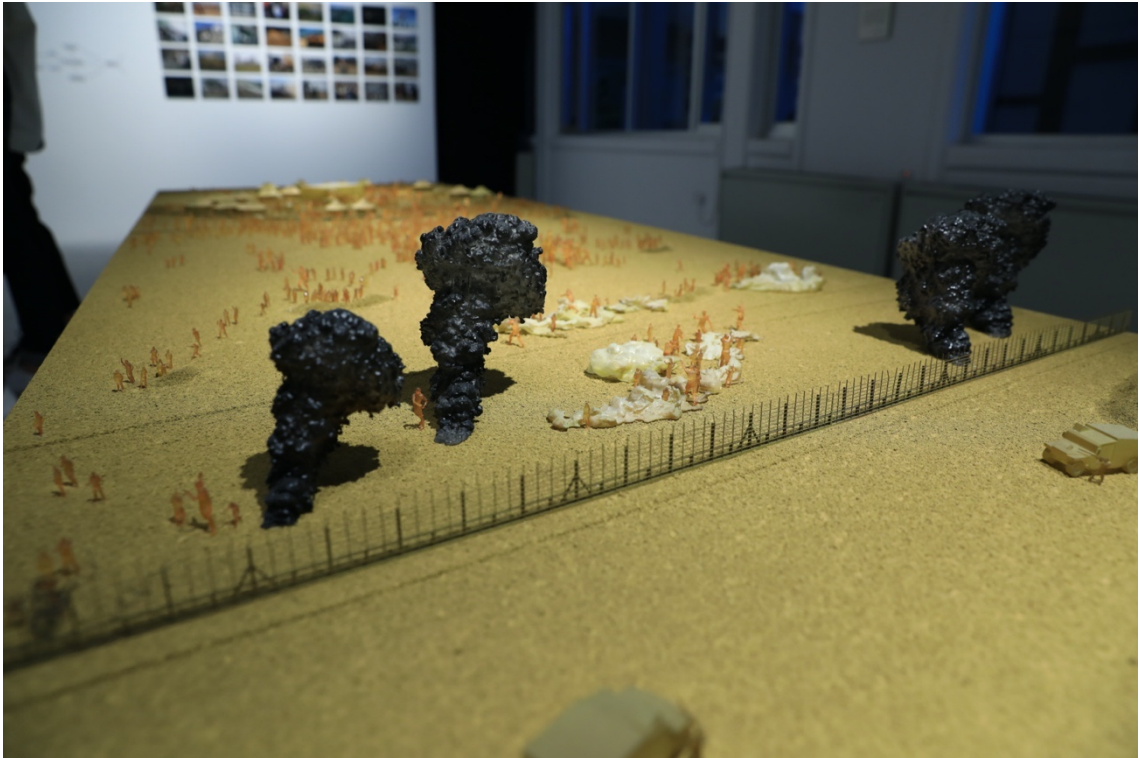
The United Nations has projected that Gaza will be uninhabitable by the year 2020; this year is upon us, so what does this calculation mean exactly?

Since the Great March of Return began on March 30, 2018, more than 7000 protestors have been shot by IDF snipers and sustained lower limb injuries, usually requiring multiple surgeries and in many cases, amputation. Using visual materials, experimental video art, modeling, and sound, architect Francesco Sebregondi and queer theorist Jasbir K. Puar project Gaza beyond the spectacular of humanitarian visual economies to show biopolitical practices of maiming and containment in banal, quotidian life. Their joint exhibition situates maiming in its multi-scalar temporal, generational, and spatial forms, complicating the exceptionalism of Gaza, and illuminating the elasticity and porosity of the blockade, its uneven and ever-changing titration of flows, designed not only to restrict goods and people but also to control the act and idea of movement itself. What escapes the blockade, however, is no less than multiple horizons of unyielding resistance and the future lives of return.







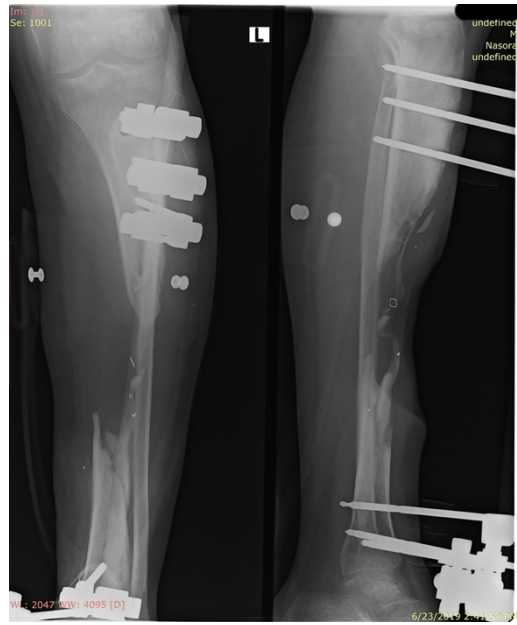




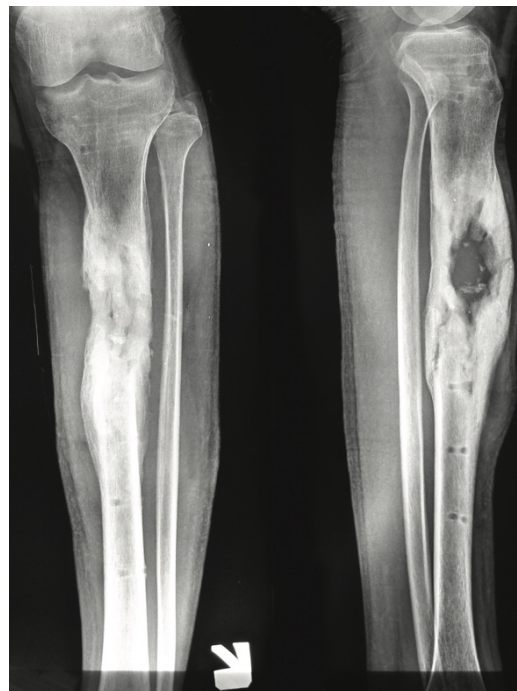


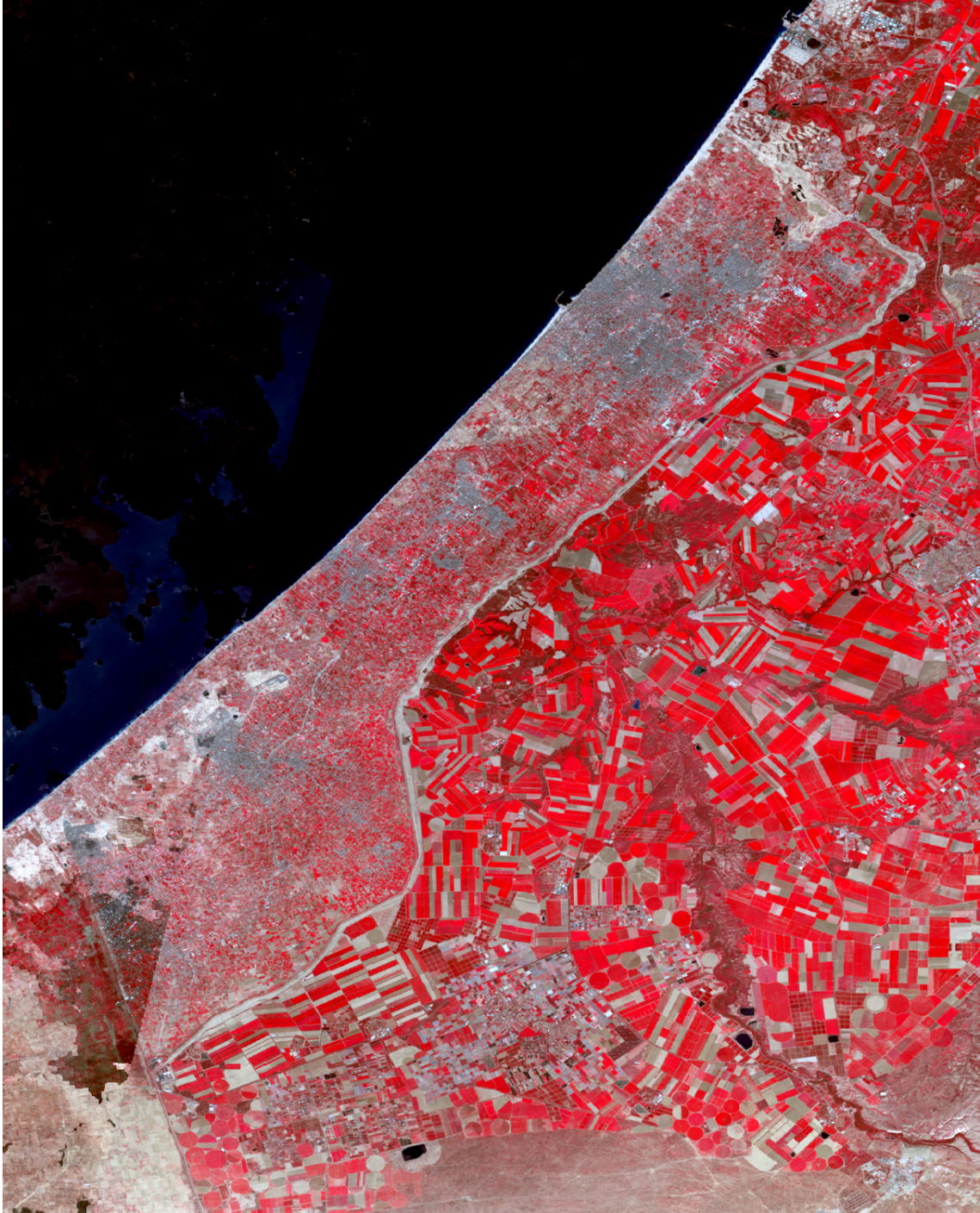
My friend ... Never shall I forget Nadia's leg, amputated from the top of the thigh. No! Nor shall I forget the grief which had moulded her face and merged into its traits for ever. I went out of the hospital in Gaza that day, my hand clutched in silent derision on the two pounds I had brought with me to give Nadia. The blazing sun filled the streets with the colour of blood. And Gaza was brand new, Mustafa! You and I never saw it like this. The stone piled up at the beginning of the Shajiya quarter where we lived had a meaning, and they seemed to have been put there for no other reason but to explain it. This Gaza in which we had lived and with whose good people we had spent seven years of defeat was something new. It seemed to me just a beginning. I don't know why I thought it was just a beginning. I imagined that the main street that I walked along on the way back home was only the beginning of a long, long road leading to Safad. Everything in this Gaza throbbed with sadness which was not confined to weeping. It was a challenge: more than that it was something like reclamation of the amputated leg!

Ghassan Kanafani, Extract from "Letter from Gaza" (1956)

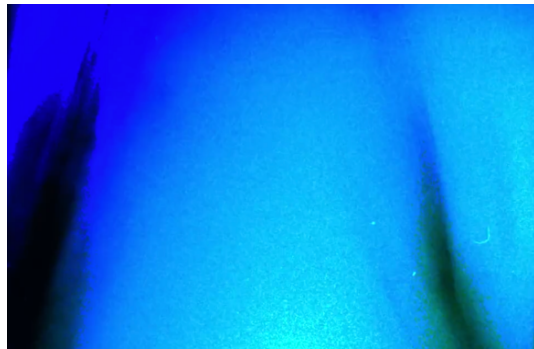


X-rays of patients treated by MSF in the Gaza Strip, following an injury by live ammunition received while participating in the Great March of Return protests, 2018-19. As shared with the author by MSF.



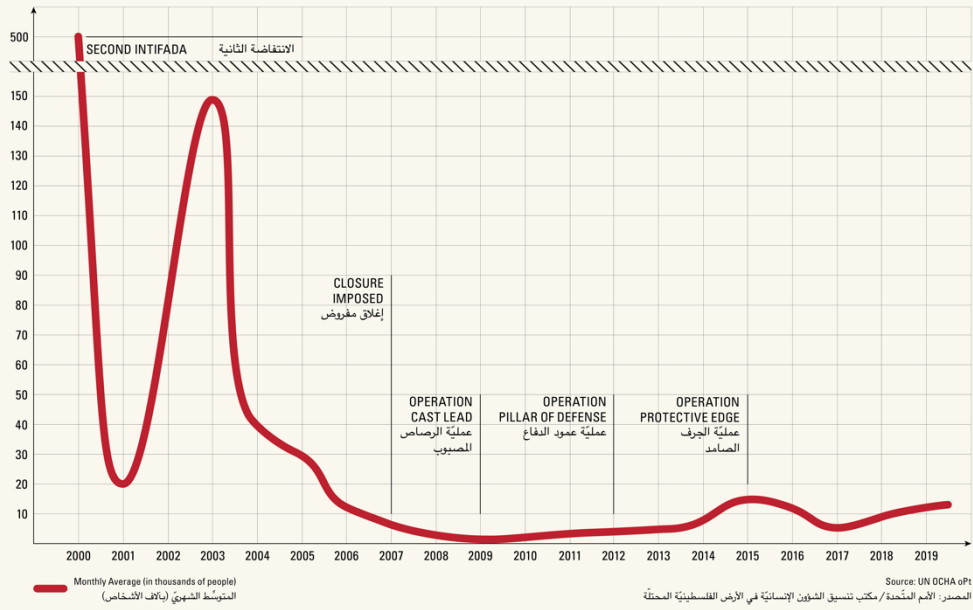


Gaza Strip, 2017. False-colour composite satellite imagery.
(Image: Jamon Van Den Hoek and Francesco Sebregondi)

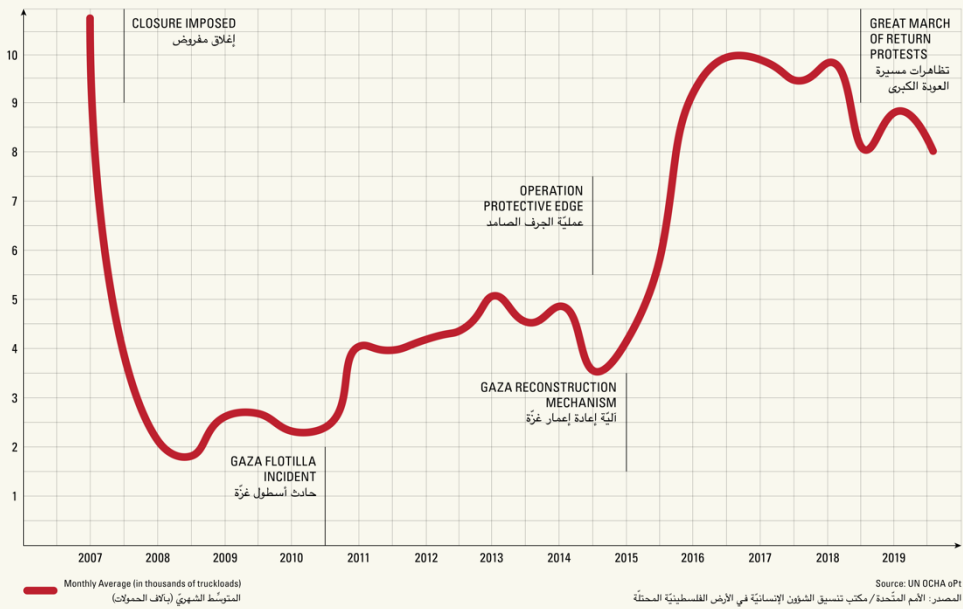


Stills from selected films by contemporary Gazan artists. From left to right: "Transit" (Taysir Batnaji, 2004); "Deep Sleep" (Basma Alsharif, 2014); "Bath Time" (Sharif Waked, 2012); "Governor's Game" (Mohamed Abusal, 2017)

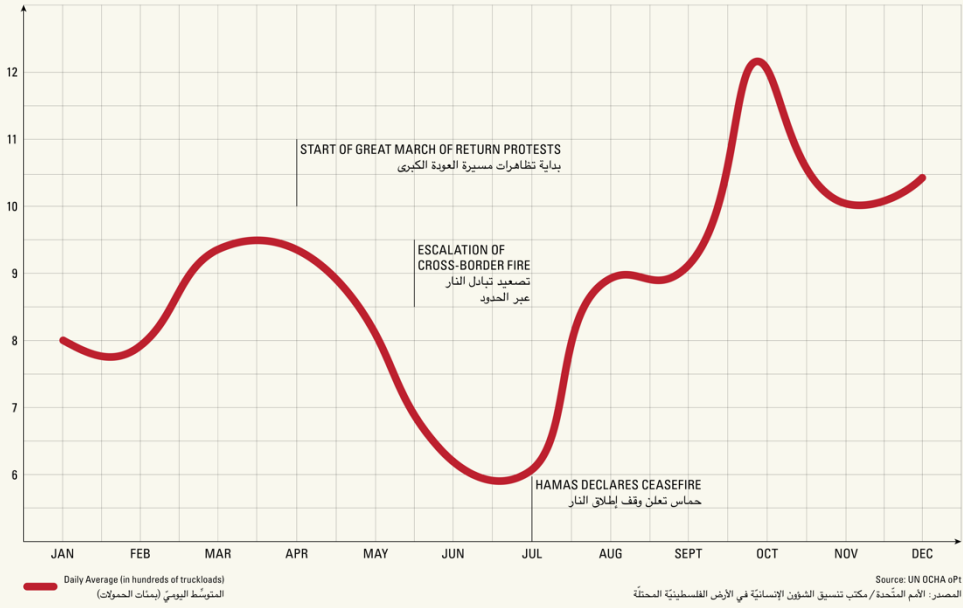
Exits of Palestinians via the Erez Crossing مخارج الفلسطينيين عبر معبر إيرز



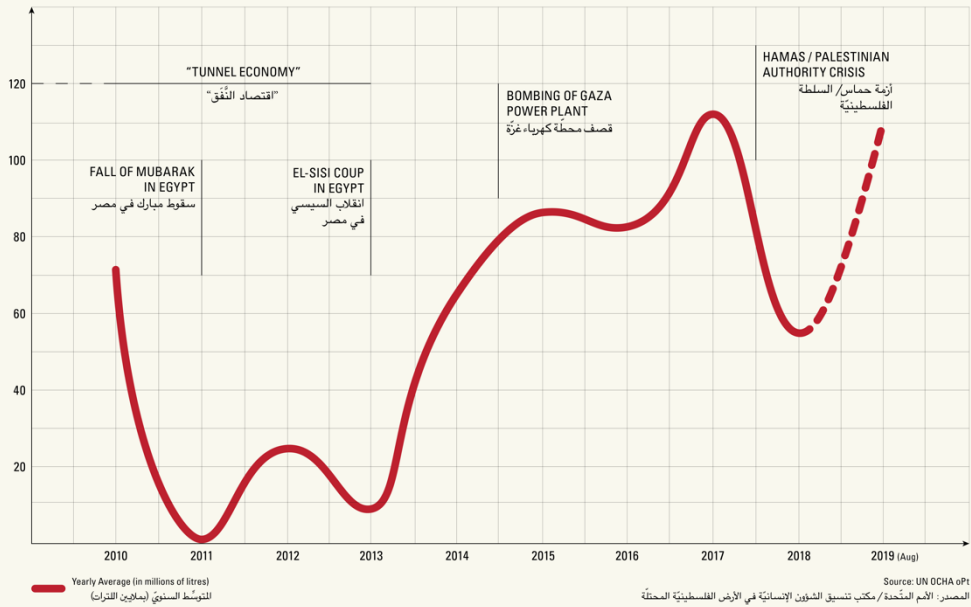
Entry of Goods via the Kerem Shalom Crossing دخول البضائع عبر معبر كيريم شالوم



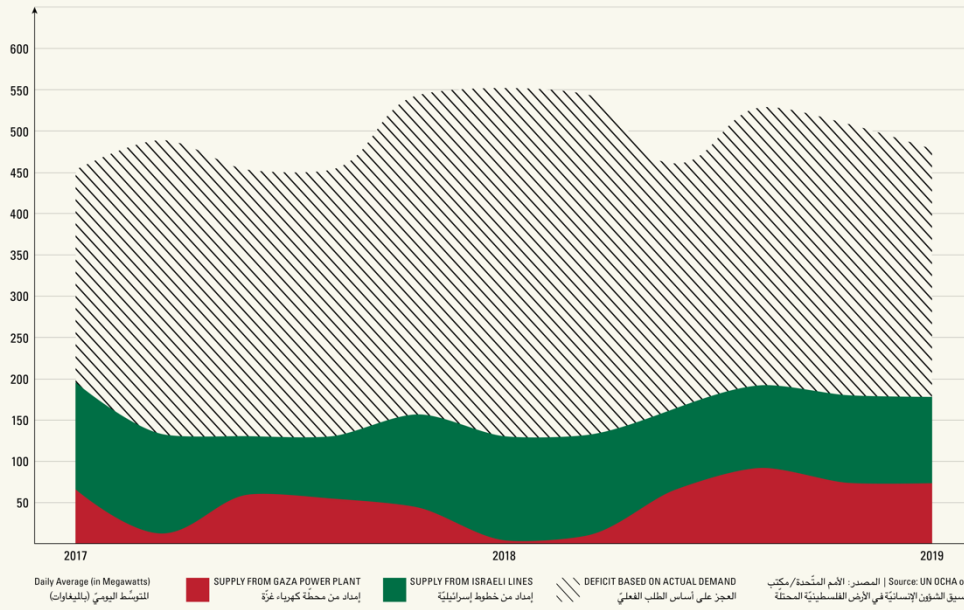
Entry of Goods in 2018
دخول البضائع في العام ٢٠١٨



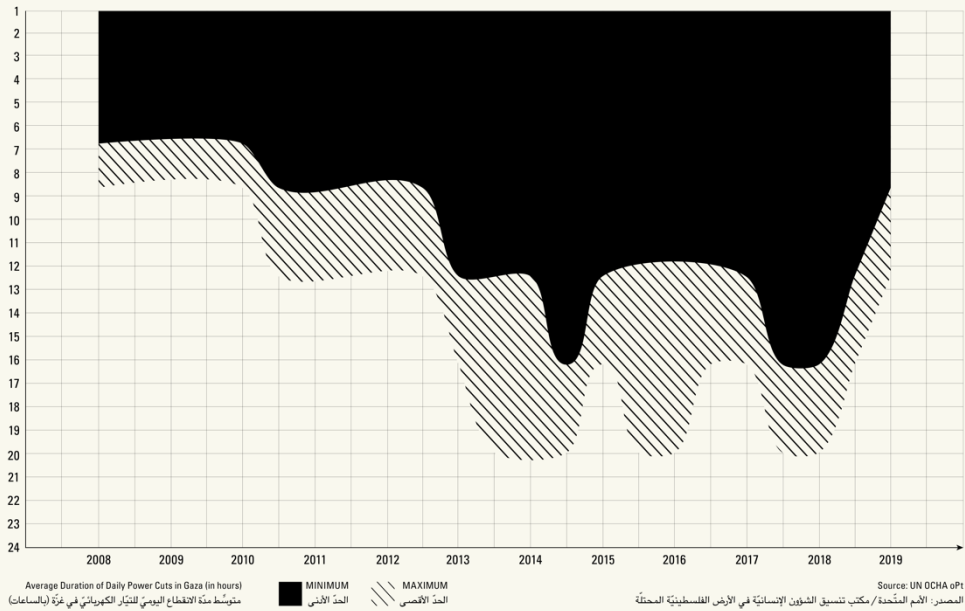
Entry of Industrial Diesel (Gaza Power Plant)
دخول الديزل الصناعي (محطة كهرباء غزة)



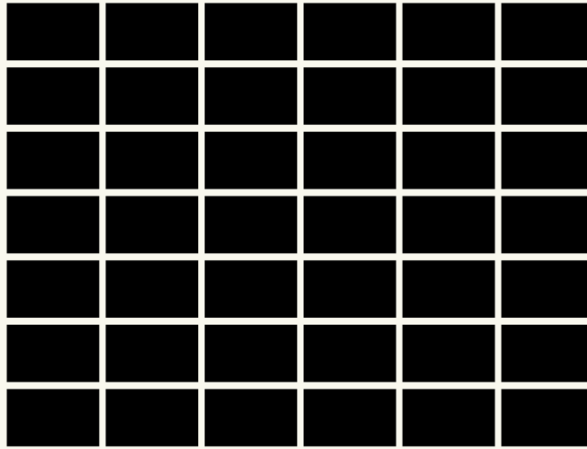
Electricity Supply and Demand إمدادات الكهرباء والطلب



Daily Power Cuts قطع الكهرباء اليومي

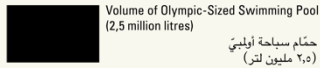


Sea Water Pollution تلوث مياه البحر



Average Daily Volume of Untreated Waste Water from Gaza Flowing into the Sea (108 million litres)

متوسط الحجم اليومي للمياه العادمة غير المعالجة المتدفقة إلى البحر من غزة (١٠٨ مليون لتر)



Volume of Olympic-Sized Swimming Pool (2,5 million litres)

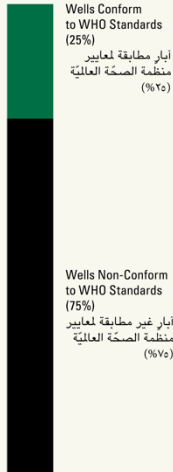
حمام سباحة أولمبي (٢,٥ مليون لتر)



Average Level of Pollution of Sea Water in Gaza, 2017-2019 (in mg/L of Biological Oxygen Demand) متوسط مستوى تلوث مياه البحر في غزة، ٢٠١٧-٢٠١٩ (ملغ/لتر من الطلب الأحيائي على الأكسجين)

Source: UN OCHA oPt
المصدر: الأمم المتحدة/مكتب تنسيق الشؤون الإنسانية في الأرض الفلسطينية المحتلة

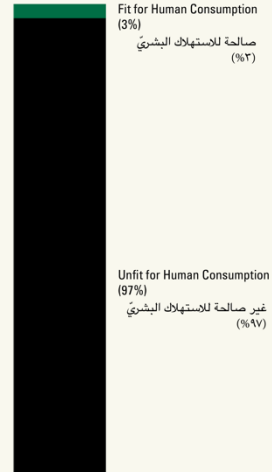
Ground Water Pollution تلوث المياه الجوفية



Salinity of Water from Municipal Wells in Gaza ملوحة مياه آبار البلديات في غزة



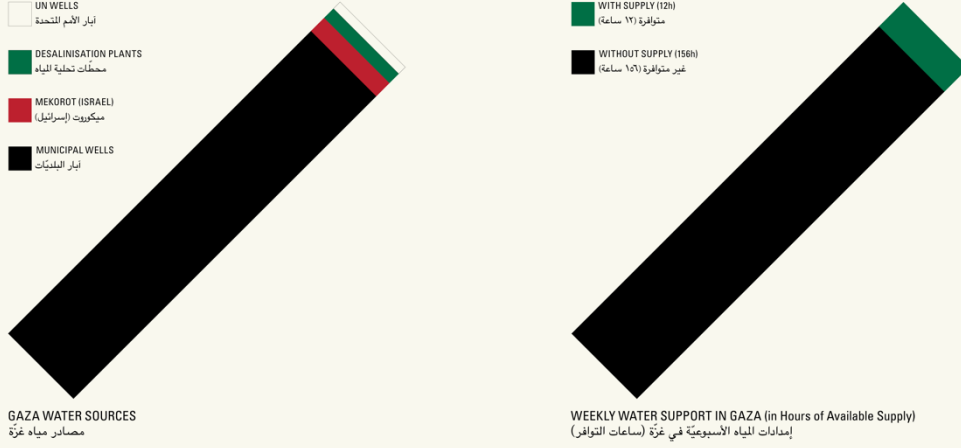
Nitrate Concentration in Water from Municipal Wells in Gaza تركيز النترات في مياه آبار البلديات في غزة



Quality of Water from Municipal Wells in Gaza Based on World Health Organisation (WHO) Standards نوعية مياه آبار البلديات في غزة بناءً على معايير منظمة الصحة العالمية

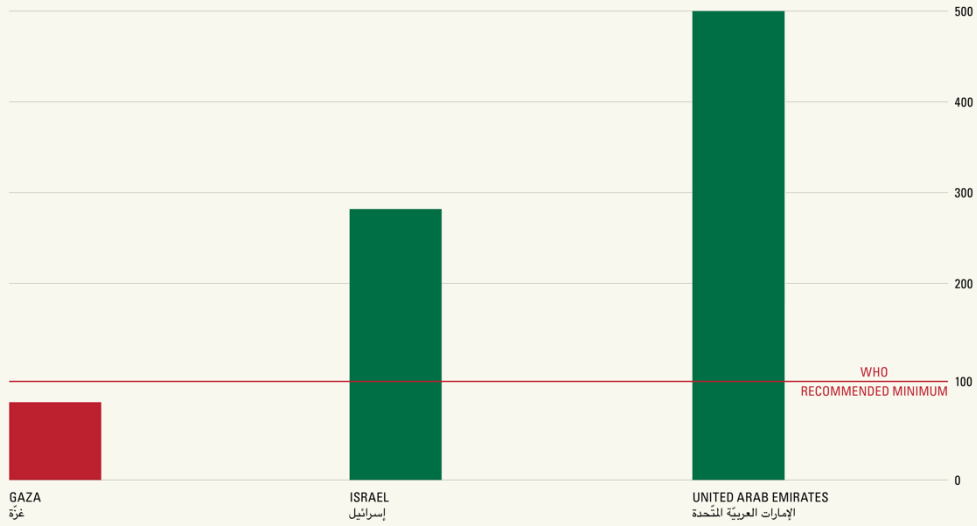
Source: Palestinian Water Authority
المصدر: سلطة المياه الفلسطينية

Domestic Water Supply إمدادات المياه المنزلية



Source: UN OCHA oPt
المصدر: الأمم المتحدة/ مكتب تنسيق الشؤون الإنسانية في الأرض الفلسطينية المحتلة

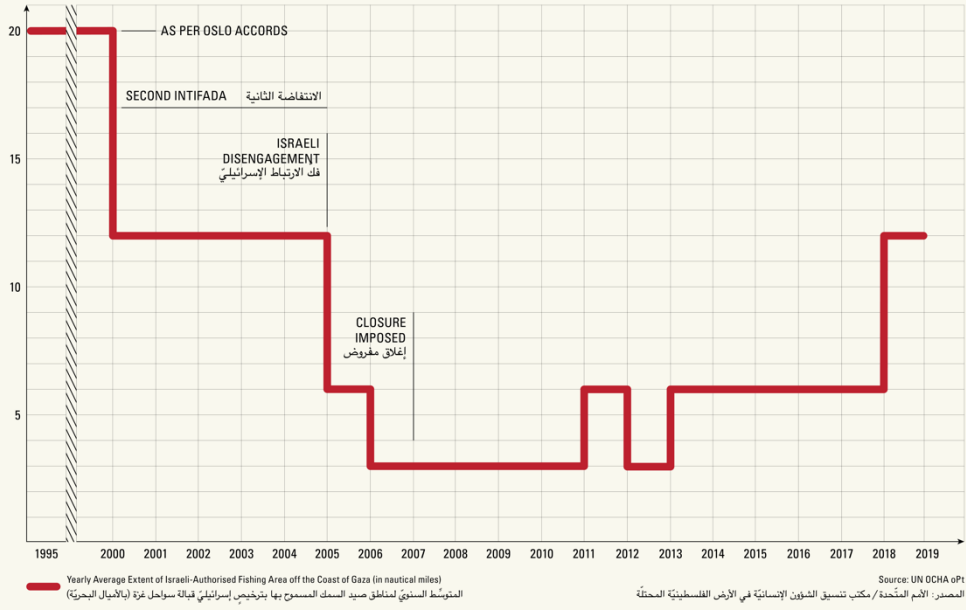
Domestic Water Consumption استهلاك المياه المنزلية



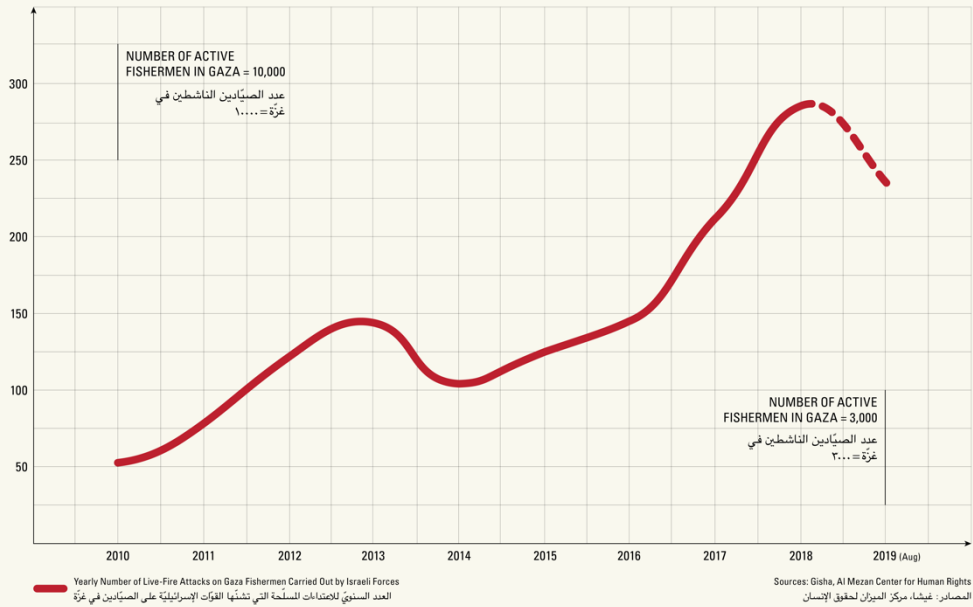
Domestic Water Consumption per Country (in daily litres per capita)
استهلاك المياه المنزلية لكل بلد (باللترات اليومية للفرد)

Sources: Palestinian Water Authority, World Health Organisation
المصادر: سلطة المياه الفلسطينية، منظمة الصحة العالمية

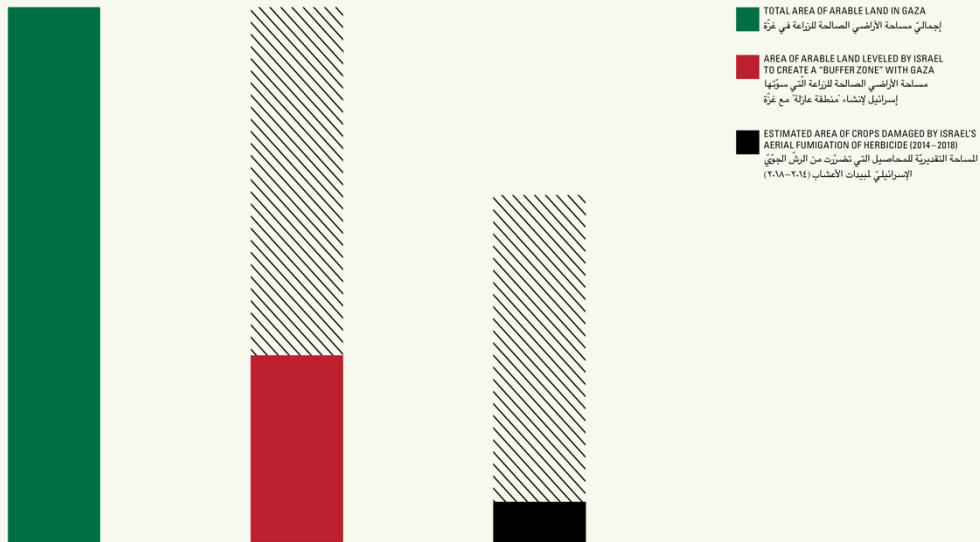
Limits of Authorised Fishing Area حدود منطقة الصيد المسموح بها



Attacks on Fishermen at Sea الاعتداءات على الصيادين في البحر

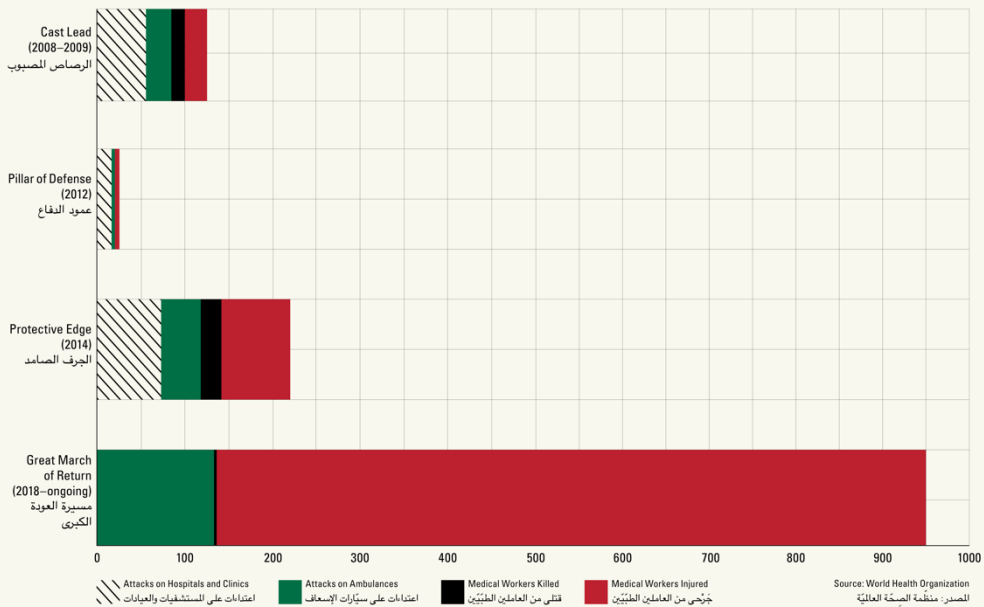


Damage to Agriculture الأضرار اللاحقة بالزراعة

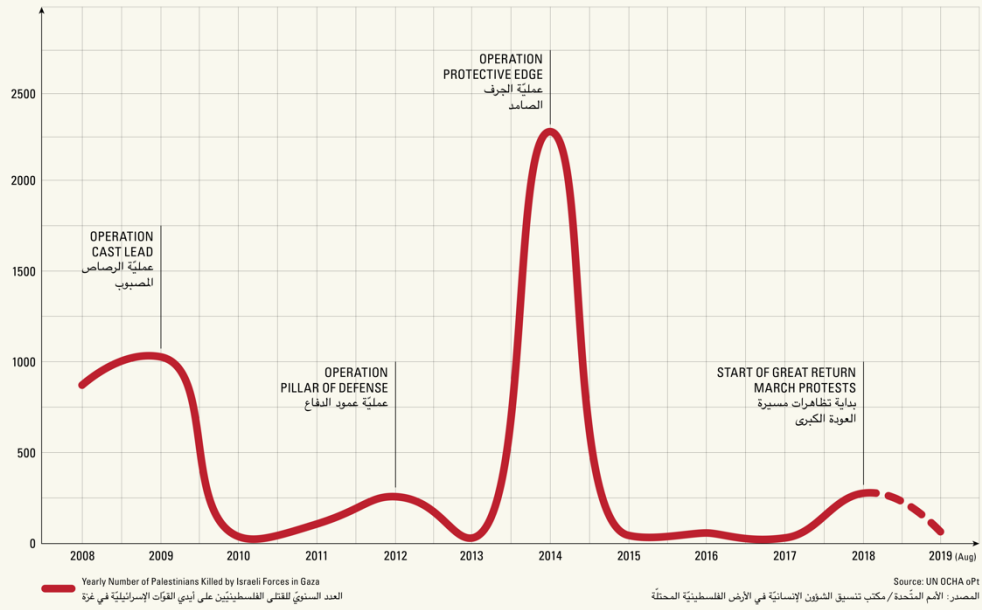


Sources: Palestinian Ministry of Agriculture, Al-Mezan Center for Human Rights
المصادر: وزارة الزراعة الفلسطينية / مركز الميزان لحقوق الإنسان

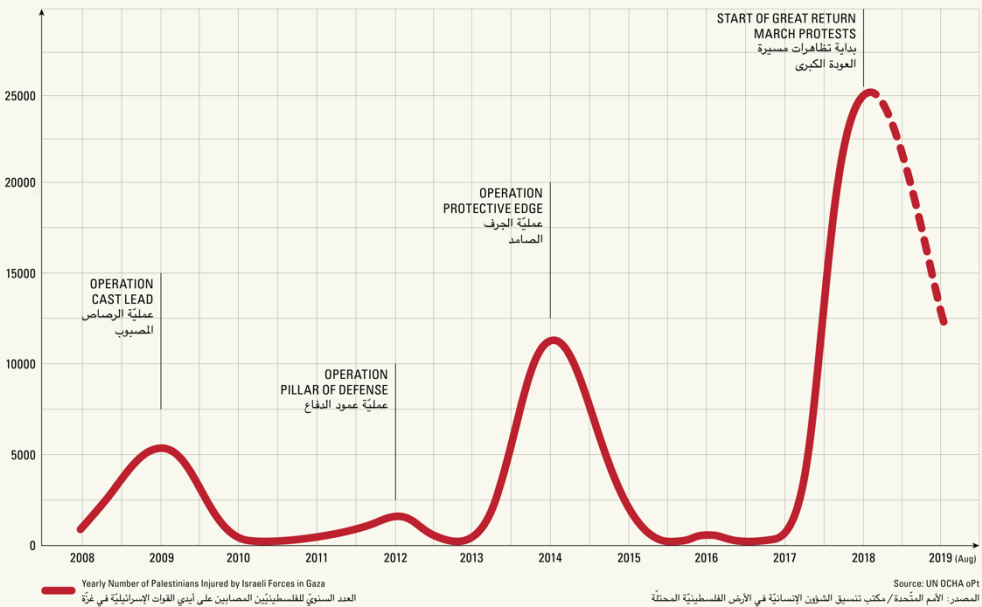
Attacks on Health Care اعتداءات على الرعاية الصحية



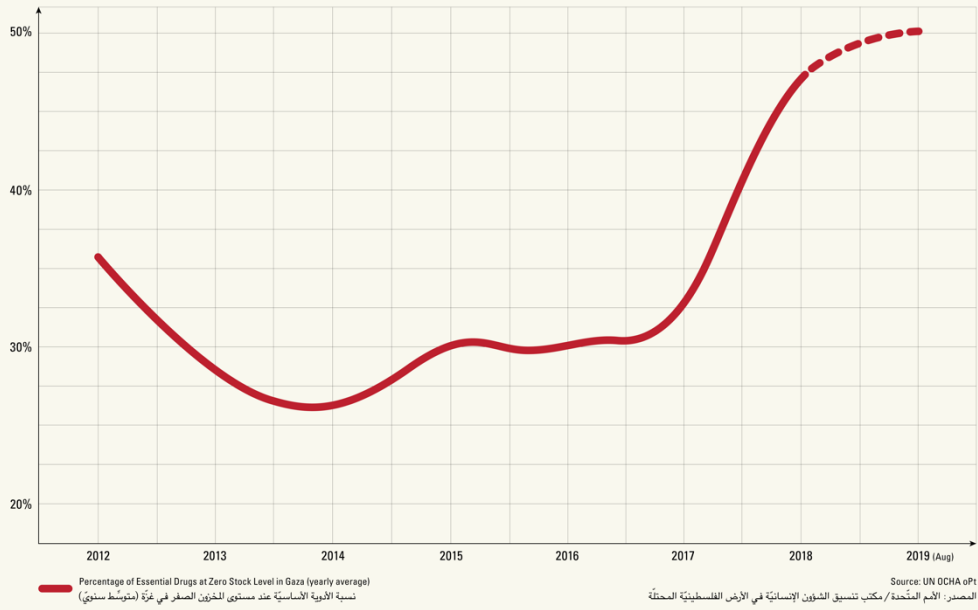
Palestinians Killed by Israeli Forces فلسطينيون قتلوا على أيدي القوات الإسرائيلية



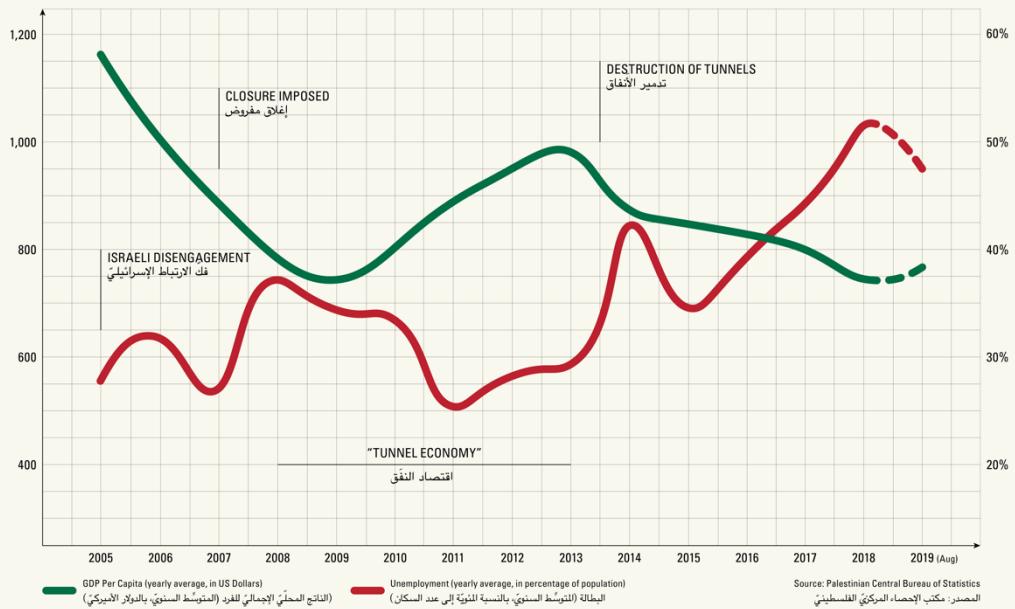
Palestinians Injured by Israeli Forces الجرحي الفلسطينيون على أيدي القوات الإسرائيلية



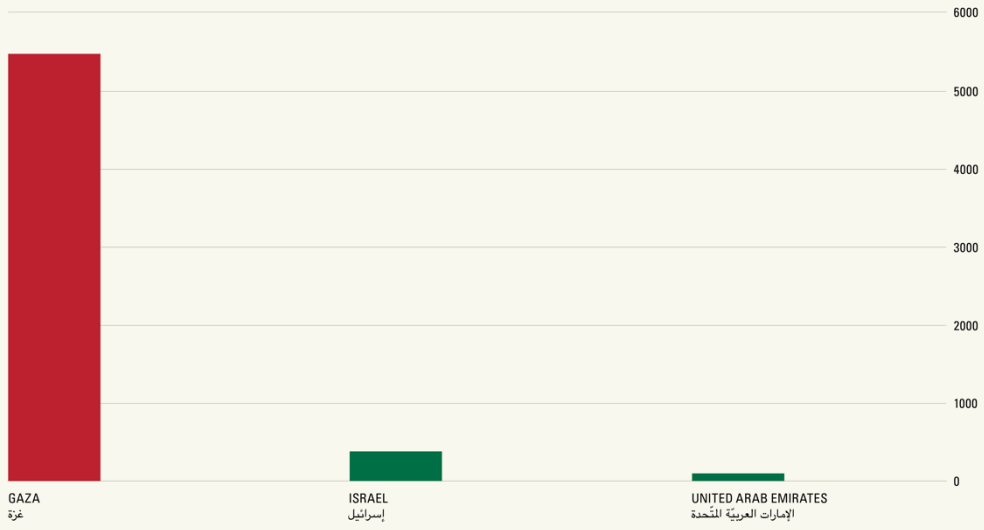
Shortage of Essential Drugs نقص الأدوية الأساسية



Economic Prospects الأفاق الاقتصادية



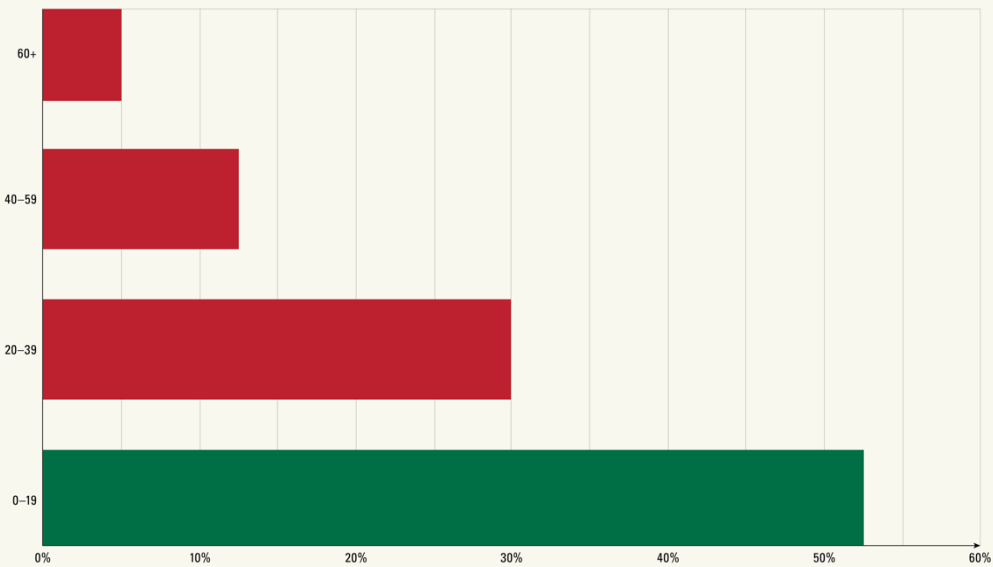
Population Density كثافة السكّان



Average Population Density per Polity (in number of inhabitants per square kilometer)
متوسط الكثافة السكّانية لكل وحدة (polity) (عدد السكّان لكل كيلومتر مربع)

Sources: UN OCHA oPt, World Bank
المصدر: الأمم المتّحدة/ مكتب تنسيق الشؤون الإنسانية في الأرض الفلسطينيّة المحتلّة البنك الدولي

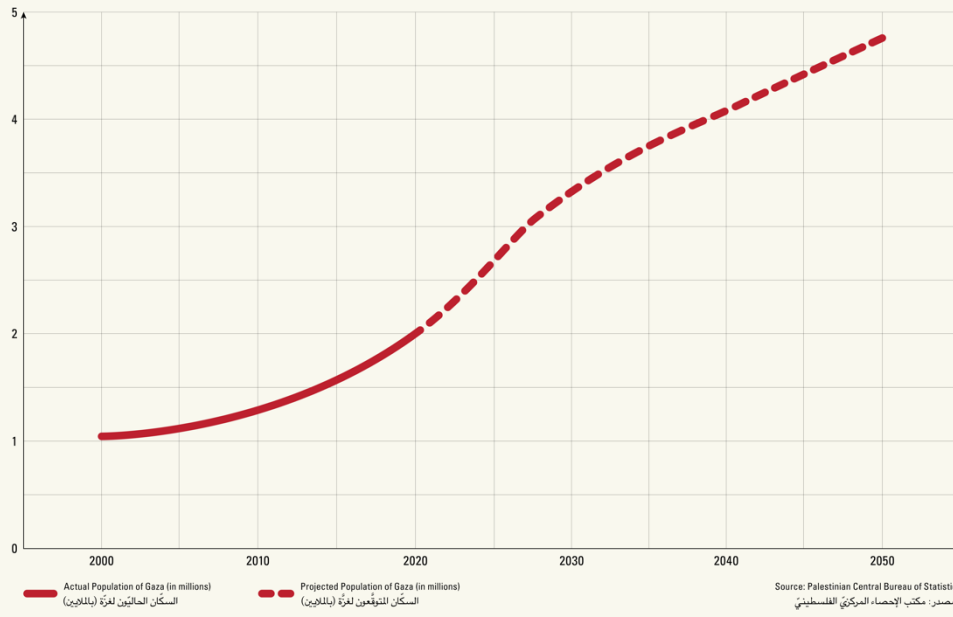
Age Demographics التركيبة العمريّة للسكّان



Age Classes in Gaza (in percentage of total population)
الفئات العمريّة في غزة (نسبة مئوية من مجموع السكّان)

Source: UN OCHA oPt
المصدر: الأمم المتّحدة/ مكتب تنسيق الشؤون الإنسانية في الأرض الفلسطينيّة المحتلّة

Population Growth النمو السكاني





Palestinian protesters take cover during the 39th Great March of Return weekly Friday protest near the Israeli-built barrier that surrounds Gaza, east of Gaza City, Gaza Strip, December 21, 2018. (Photo: Active Stills)



A Palestinian paramedic helps protesters engulfed in tear gas during the 35th Great March of Return weekly Friday protest near the Gaza fence, east of Gaza City, Gaza Strip, November 23, 2018. (Photo: Active Stills)



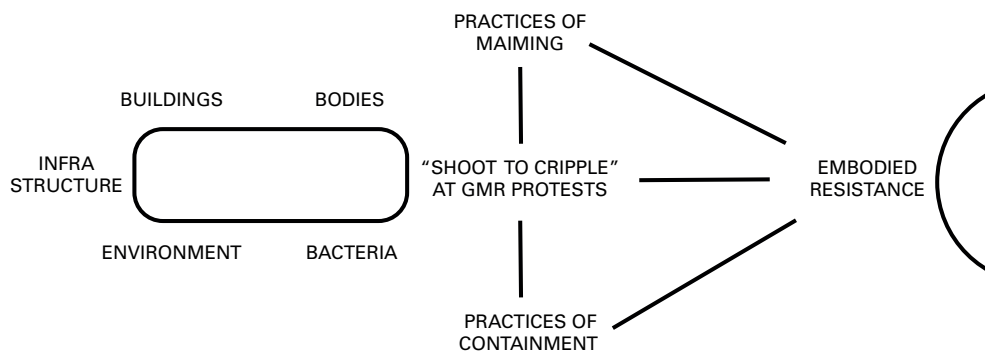
Palestinian protest in front of the Erez Crossing, against the ongoing siege over Gaza, September 4, 2018.
(Photo: Active Stills)



Palestinian protesters climb the Gaza fence during the 27th Great March of Return Friday protest near the Gaza-Israel fence, Gaza Strip, September 28, 2018. (Photo: Active Stills)



A Palestinian amputee throws stones during the 39th Great March of Return weekly Friday protest near the Israeli-built barrier that surrounds Gaza, east of Gaza City, Gaza Strip, December 21, 2018. (Photo: Active Stills)



A Resilient Occupation

Resilience politically emerges as part of a containment strategy for dealing with the globally impoverished in the environment, it was declared, of their natural belonging.

—Brad Evans and Julian Reid

The target here is not life itself, but resistance itself.

—Jasbir K. Puar

Disastrous Environment

On 29 July 2017, 5-year-old Mohammed Salim Al-Sayis, from the Az-Zaytoun neighbourhood in eastern Gaza City, died from a toxic encephalopathy. Ten days before, in order to escape the electricity blackouts and intense heat of the Gaza summer, Mohammed's father took the Al-Sayis family to the Gaza City beach; young Mohammed and his siblings swam in the sea. That same evening, several members of the family started feeling sick, including Mohammed, who showed severe symptoms of poisoning. In the morning of Friday 21 July, he fell into a coma. At the Al Rantisi hospital in Gaza City, doctors confirmed he was suffering from Ekiri syndrome, a rare complication of an infection with the Shigella bacteria—commonly transmitted through the fecal-oral route. Given the life-threatening diagnostic, the doctors issued a request for urgent transfer of Mohammed to a hospital outside of Gaza. Despite his family's week-long efforts to secure the transfer's approval from the relevant authorities, no approval was granted. Mohammed's condition kept deteriorating until he was pronounced dead in the night of the 29th of July.³

³ "First Reported Death from Swimming in Gaza's Polluted Seas Is a 5-Year-Old Boy," Mondoweiss, August 22, 2017, <https://mondoweiss.net/2017/08/reported-swimming-polluted/>.

The medical community in Gaza considers the case of Mohammed Al-Sayis as the first death directly caused by sea pollution, marking a new threshold in Gaza's catastrophic environmental crisis. The Mediterranean shoreline of Gaza is forty kilometres long—the three quarters of which have been designated as highly-polluted waters. Through a total of seventeen pipelines scattered along the coast, the equivalent of forty-three Olympic-sized swimming pools of untreated sewage flows into the sea every single day.⁴ Such a volume of discharge far exceeds what the coastal ecosystem of the Gaza Strip could possibly absorb.

It is estimated that the pollution extends outwards over the first six nautical miles from the coast. That extent corresponds to the average limit imposed by the Israeli navy to the Gaza fishermen since the start of the blockade. According to the Gaza Ministry of Agriculture, most of the fish sold on Gaza's market is still safe for consumption, because the catches are of deep-water fish living below the surface of the water where pollutants are concentrated. Nonetheless, a 2016 study from the Palestinian Environment Quality Authority found traces of heavy metals in the fish caught near Gaza's coast, and warned that, with the rising levels of pollution, its consumption could soon become dangerous.⁵ Be it because they're already worried about its quality, or because they cannot afford it anymore, over the past few years the people of Gaza have deserted the fish markets. As a result, the fishing sector—a traditionally important source of employment in the Gaza economy—is in significant decline today.⁶

The much bigger problem posed by the alarming level of sea pollution, however, has to do with Gaza's freshwater resource. The main source of freshwater in Gaza is the coastal aquifer, which extends for about 120km along the Mediterranean coast of Israel and Gaza. It flows north to south, which makes Israel the upstream user of this shared water resource, and Gaza the downstream user. For decades, water resources have been a major stake in the Israeli-Palestinian conflict, and Israel's water policies an important tool of colonial domination of

4 "Gaza Strip Access and Movement," United Nations Office for the Coordination of Humanitarian Affairs - occupied Palestinian territory, April 2019, <https://www.ochaopt.org/content/gaza-strip-access-and-movement-april-2019>.

5 Kaamil Ahmed, "Gaza's Growing Water Pollution Crisis," Pacific Standard, accessed September 19, 2019, <https://psmag.com/environment/the-growing-pollution-problem-in-gaza>.

6 "Israel Destroying Gaza's Fishing Sector," B'Tselem, accessed September 19, 2019, https://www.btselem.org/gaza_strip/20170129_killing_the_fishing_sector.

Palestinians in the occupied territory.⁷ The example of the coastal aquifer is a case in point: due to the large number of deep wells that it has dug all around the northern perimeter of the Gaza Strip, Israel is responsible for two thirds of the total abstraction from the aquifer, with about 450 Million Cubic Meters (MCM) abstracted annually; while about 180 MCM are abstracted in Gaza; and about 80 MCM in Egypt.⁸ Moreover, the many Israeli wells positioned along the path of the groundwater flowing west and downhill from the West Bank mountains impede this water to recharge the coastal aquifer. As a result, the aquifer is massively overexploited. The current rate of exploitation in Gaza is estimated to be more than three times as high as the sustainable yield (about 55 MCM). Over the past 40 years, the groundwater levels have dropped by 10-20m already. Cones of depression have formed around depleted areas; in turn, these localised depressions facilitate the intrusion of seawater from the Mediterranean, which thereby mixes with the freshwater.⁹

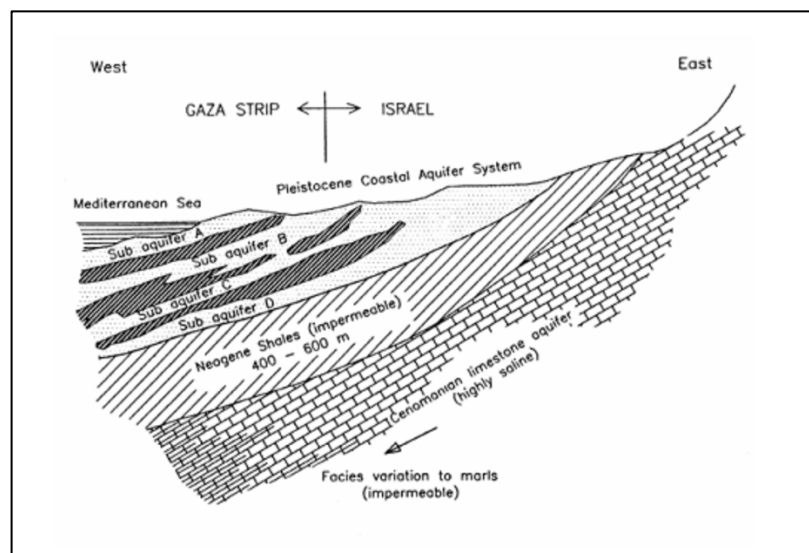


Fig. 26—Simplified hydrological section across the Gaza Strip (EU, 1993)

7 Jan Selby, “Dressing up Domination as ‘Cooperation’: The Case of Israeli-Palestinian Water Relations,” *Review of International Studies* 29, no. 1 (2003): 121–38.

8 “Coastal Aquifer Basin | Inventory of Shared Water Resources in Western Asia,” accessed September 19, 2019, <https://waterinventory.org/groundwater/coastal-aquifer-basin>.

9 Khalid Qahman and Abdelkader Larabi, “Evaluation and Numerical Modeling of Seawater Intrusion in the Gaza Aquifer (Palestine),” *Hydrogeology Journal* 14 (June 1, 2006): 713–28, <https://doi.org/10.1007/s10040-005-003-2>.

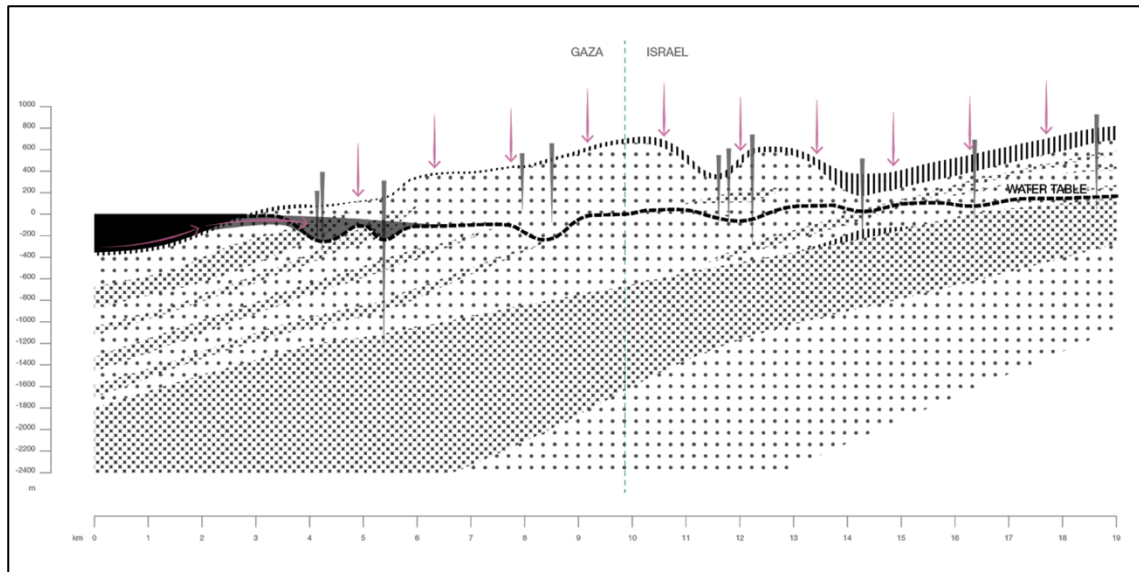


Fig. 27—Diagram of the process of seawater infiltration into Gaza's water table. Realised by participants to the "Borderground" workshop (6—19 october 2016, Goldsmiths / Royal College of Art) organised by the author.

According to the World Health Organization (WHO) guidelines, the salinity of water should remain below the level of 250mg of chlorides per litre to be considered suitable for human consumption. Less than a quarter of the wells in Gaza meet this standard. Along the coast, current levels exceed 2,000mg/L and can reach 10,000 mg/L in certain areas. With the infiltration of seawater, it isn't only the chlorides, but also all the pollutants contained in the raw sewage dumped into the sea that end up contaminating Gaza's meagre reserves of freshwater. With regards to nitrate levels, the WHO sets the limit at 50mg/L; 9 out of 10 wells in Gaza exceed this limit, with levels reaching over 200mg/L for some of them.¹⁰ The concentration of nitrates can trigger water-borne diseases such as methemoglobinemia, or "blue baby syndrome," a severe blood disease which has begun to occur more frequently amongst Gaza's population.¹¹

The combination of these different factors and processes—the spilling of sewage into the sea, the overexploitation of the coastal aquifer, the infiltration of seawater into the water table,

¹⁰ "Why Is There a Water Crisis in Gaza?" Fanack Water, accessed September 19, 2019, <https://water.fanack.com/specials/gaza-water-crisis/why-water-crisis-in-gaza/>.

¹¹ Sandy Tolan, "Gaza's Drinking Water Spurs Blue Baby Syndrome, Serious Illnesses," accessed September 19, 2019, <https://www.aljazeera.com/indepth/features/gaza-drinking-water-spurs-blue-baby-syndrome-illnesses-181029110434881.html>.

among others—result in the following, alarming figure: today, 97% of the municipal water supply in Gaza is unfit for human consumption.¹² Put differently, the enduring blockade of Gaza means that a fast-growing population of two million individuals is locked into a territory that has no reserves of drinking water.

Through the lens of Gaza’s water emergency, the geopolitical crisis between Israel and Gaza appears to have already extended to the geological scale. Every ecological indicator clearly points to the same observation: the current situation in Gaza is utterly unsustainable. In fact, back in August 2012, the UN Country Team in the occupied Palestinian territories already published a widely circulated report titled “Gaza 2020: A Liveable Place?” Based on a thorough scientific assessment of the available data at the time of the report, the report developed projections that extrapolated on current trends. It unequivocally concluded that the situation was “fundamentally unviable,” highlighting the collapse of the coastal aquifer as the biggest threat to the “liveability” of Gaza and warning that it would be “unusable” by 2016.¹³ It is worth noting that the report was prepared two years before operation Protective Edge, which ended up causing about \$33 million of damages to the water infrastructure of Gaza, thereby adding considerable stress to the overall water situation.¹⁴ Whether or not that crisis has already reached the point of “irreversible damage” to the aquifer and to the wider ecosystem of Gaza, which the UN report situated in 2020, is perhaps irrelevant: since its publication, none of the “herculean efforts” that the report deemed necessary to avoid a slow-motion socio-ecological crash have been implemented; instead, the drift of Gaza in that direction was even accelerated by a devastating war ; and the blockade, namely the overarching factor straining Gaza’s environment, remains in force.

12 “Study Warns Water Sanitation Crisis in Gaza May Cause Disease Outbreak and Possible Epidemic,” United Nations Office for the Coordination of Humanitarian Affairs - occupied Palestinian territory, accessed September 19, 2019, <https://www.ochaopt.org/content/study-warns-water-sanitation-crisis-gaza-may-cause-disease-outbreak-and-possible-epidemic>.

13 United Nations Country Team in the Occupied Palestinian Territory, “Gaza in 2020: A Liveable Place?”

14 State of Palestine - Ministerial Committee for the Reconstruction of Gaza, “Detailed Needs Assessment (DNA) and Recover Framework for Gaza Reconstruction,” August 2015, 129, http://www.lacs.ps/documentsShow.aspx?ATT_ID=21974.

This chapter examines the way in which an environmental crisis of the magnitude of Gaza's is addressed and managed by a plurality of agencies. It tries to describe and to make sense of what comes after the discourse of *sustainability*, when sustainability is no longer an organizing concept of either governmental or non-governmental policies; when the problem is no longer to make a system sustainable, but to make it capable of enduring the shocks caused by its own, structural, fundamental unsustainability; when the discourses and techniques of power leaves the domain of sustainability behind—to enter the realm of *resilience*.

Over the past decade, resilience has turned into a particularly widespread concept in a range of policy-related fields, from local government to international development, through security, economic, social, urban, and environmental planning. As such, it is also the object of lively scholarly inquiry and critique. A first section of the chapter retraces the main lines of the concept of resilience—from its emergence as a property of ecological systems to its subsequent application to a range of other systems. A second section describes and analyses the different measures that are implemented in Gaza as a means to both monitor and contain a sprawling environmental crisis. I argue that Gaza is a site where the global doctrine of resilience is put into action in one of its most drastic forms and, as such, reveals its most radical character. In turn, the case of Gaza enables to shed light on the link between smartness and resilience, as well as to push forward the current critique of this most influential doctrine of the present.

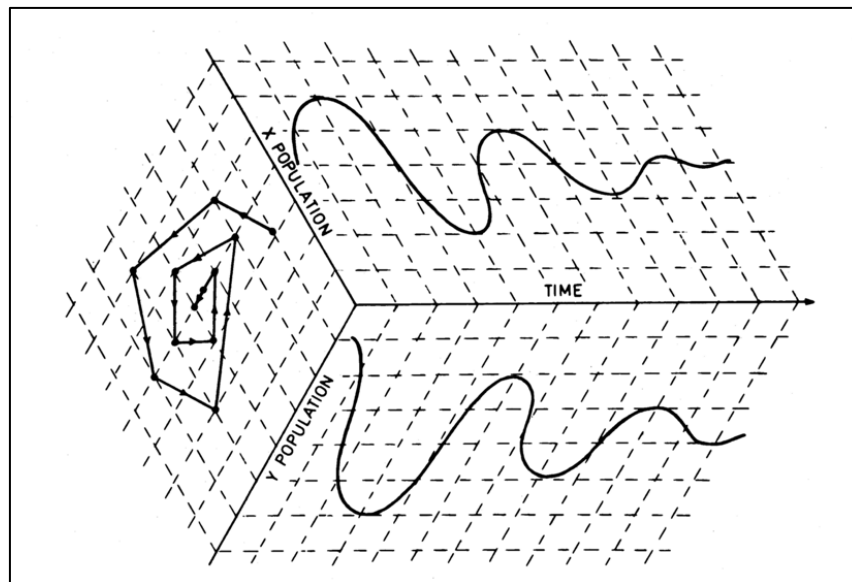


Fig. 28—“Derivation of a phase plane showing the changes in numbers of two populations over time”
From C.S. Holling, “Resilience and Stability of Ecological Systems” (1973).

Beyond Stability

The 1973 paper “Resilience and Stability of Ecological Systems,” by the Canadian ecologist C.S. Holling, is widely recognised as the foundational document of the contemporary notion of resilience.¹⁵ Having largely contributed to the theoretical and practical articulations of ecological sciences and systems theory, the impact of Holling’s body of work over the past five decades can hardly be overstated; yet this particular paper, in which he forges the concept of resilience as a property of ecological systems, stands out in terms of the influence it had much beyond the boundaries of the author’s own disciplinary field. The main theoretical contribution of the paper is to have established a clear distinction between the notions of stability and resilience. According to the author, the former “represents the ability of a system to return to an equilibrium state after a temporary disturbance; the more rapidly it returns and the less it fluctuates, the more stable it would be.” On the other hand, resilience is proposed as “a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables.”¹⁶

Using a number of predator-prey population systems as examples, Holling further explains the implication of that distinction: unlike a stable one, a resilient ecological system may have its population(s) vary dramatically over time; yet this capacity to change and evolve, all the while maintaining its basic function and defining relations, makes it more likely to survive the shock of a sudden external change and avoid, in this case, extinction. The author calls for a move from the traditionally static quantitative models by which systems were considered, to a dynamic and relational modelling approach that focuses on avoiding the critical event of the system’s definitive collapse. Indeed, he argues, “if we are dealing with a system profoundly affected by changes external to it, and continually confronted by the unexpected, the constancy of its behaviour becomes less important than the persistence of the relationships.”¹⁷

Holling is explicit about the applicability of his concept of resilience to the human management of ecological systems, from forests to fisheries. In the conclusion of the paper, he argues:

15 C S Holling, “Resilience and Stability of Ecological Systems,” *Annual Review of Ecology and Systematics* 4, no. 1 (November 1973): 1–23, <https://doi.org/10.1146/annurev.es.04.110173.000245>.

16 Holling, 14.

17 Holling, 1.

“A management approach based on resilience (...) would emphasize the need to keep options open, the need to view events in a regional rather than a local context, and the need to emphasize heterogeneity.”¹⁸ Encapsulating what later made the resilience-based approach seem so pertinent to the management of a wide range of other systems, the author adds: “Flowing from this would be not the presumption of sufficient knowledge, but the recognition of our ignorance; not the assumption that future events are expected, but that they will be unexpected.”¹⁹

It is useful to resituate the publication of Holling’s paper within its historical context. The year before, in 1972, the Club of Rome’s “Limits to Growth” report was published, inaugurating a period of growing understanding of the impact of human activity on the planet; of progressive acknowledgement of the environment as an entity that required a much greater level of attention than what the industrialised societies had so far been paying to it; and of recognition of the limits of the linear and reductionist models at the core of much of the knowledge systems that underpinned the global management of resources.²⁰ Over the following decades, the cultural belief in the irresistible march of progress gave way, in Western societies, to a more concerned approach to the future, which began to be increasingly conceived in terms of the risks and threats that it posed.²¹ The transfer of the concept of resilience from the domain of ecological systems under human management, to that of systems that included human communities and their own capacity to cope with shocks began at the end of the 1990s, with the progressive theorisation of “socio-ecological systems.” The term was coined to describe the complex interactions between human and non-human systems which tended, until then, to be approached separately.²² Further signalled by what was termed a “complexity turn” in social sciences, a new dominant view of the world as

18 Holling, 21.

19 Holling, 21.

20 Donella H. Meadows, Club of Rome, and Potomac Associates, *The Limits to Growth: A Report for the Club of Rome’s Project on the Predicament of Mankind* (Universe Books, 1972).

21 Mark Fisher, *Capitalist Realism: Is There No Alternative?* (John Hunt Publishing, 2009).

22 Fikret Berkes, Carl Folke, and Johan Colding, *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience* (Cambridge University Press, 2000).

marked by “complexity and contingency, risk, relationality, flows and mutability” was consolidating itself at the turn of the millennium.²³ With its predisposition to accept the impossibility of complete knowledge and to operate under conditions of uncertainty, the resilience approach was particularly fitting to respond to a range of management problems in this new *complex* world; yet it is when *crisis* began to form the defining and permanent condition of the present that resilience turned into “the pervasive idiom of global governance.”²⁴

In their article on the “genealogies of resilience”, the sociologists Jeremy Walker and Melinda Cooper critically examine the term’s “recent proliferation across disciplines and policy arenas loosely concerned with the logistics of crisis management.”²⁵ The authors argue that the success of resilience in colonizing fields of practice and thought beyond ecology is due to its “intuitive ideological fit with the neoliberal philosophy of complex adaptive systems.”²⁶ They note the synchronicity of the publication of Holling’s “Resilience and Stability” paper with the delivery of the Nobel Prize of economics to Friedrich von Hayek, in 1974. The Prize signalled an international recognition of Hayek’s theory of the market as a “complex ecological system”—made all the more relevant by the concurrent spasms of the world’s economy under the 1973 oil crisis.²⁷ It also marked the beginning of the widespread adoption of Hayek’s theory as the theoretical foundation of the soon-to-be global economic doctrine of neoliberalism. Around the same time in mid-1970s, then, the equilibrium model will be abandoned both in ecology and economics, to be replaced by an operational theory of complex systems based on the acknowledgement of their structural instability and unpredictability. Both fields will begin to “espouse an epistemology of limited knowledge and uncertain futures.”²⁸ In turn, this shift will recast the

23 Marc Welsh, “Resilience and Responsibility: Governing Uncertainty in a Complex World,” *The Geographical Journal* 180, no. 1 (March 1, 2014): 15–26, <https://doi.org/10.1111/geoj.12012>.

24 Jeremy Walker and Melinda Cooper, “Genealogies of Resilience: From Systems Ecology to the Political Economy of Crisis Adaptation,” *Security Dialogue* 42, no. 2 (April 1, 2011): 145, <https://doi.org/10.1177/0967010611399616>.

25 Walker and Cooper, 144.

26 Walker and Cooper, 144.

27 Walker and Cooper, 148.

28 Walker and Cooper, 149.

understanding of states of crisis in the disciplinary and policy fields tasked with the management of complex systems: from a condition to be avoided by maintaining the system's equilibrium, to a normalised and potentially permanent operational condition.

Just like it set the ground for the widespread application of smartness to a range of technical and infrastructural systems, the permanent condition of crisis which progressively became synonymous of the globalised condition since the late 1990s justified the adoption of resilience as the new horizon of global governance structures. Each of the different instances by which the general crisis of globalisation has manifested itself over the past two decades—the main figures of which are the ecological, financial, security crises—has constituted a trigger for a range of organisations and institutions to embrace resilience as a common strategy of risk-management.

Since the 2000s, as the massive socio-economic impact of climate change became impossible to ignore, each of the pillar organisations of the globalised order started incorporating resilience as a keyword of its policy discourse—from the World Bank, to the IMF, through the many programmes of the United Nations. Signalling a move away from traditional development goals, the United Nations Development Program (UNDP) neatly outlined its reduced ambitions for the areas of the world targeted by its new resilience programmes:

“Resilience is the capacity to adapt and to thrive in the face of challenge. This report contends that when the poor successfully (and sustainably) scale-up ecosystem-based enterprises, their resilience can increase in three dimensions. They can become more economically resilient—better able to face economic risks. They—and their communities—can become more socially resilient—better able to work together for mutual benefit. And the ecosystems they live in can become more biologically resilient—more productive and stable.”²⁹

As noted by Walker and Cooper, behind these declarations is the tacit confession that the objective pursued through resilience programmes is not to enable poor communities to reach, in the long run, the standards of living conditions to be found in the developed parts of the world; but merely to deploy the indispensable measures necessary for such communities to survive the violence of their structural and indefinite marginalisation within the globalised order.³⁰

29 United Nations Development Programme and World Resources Institute, eds., *World Resources 2008: Roots of Resilience: Growing the Wealth of the Poor: Ownership-- Capacity--Connection*, World Resources Series (Washington: World Resources Institute, 2008):ix.

30 Walker and Cooper, “Genealogies of Resilience,” 155.

Similarly, the converging response from financial institutions to the global financial crisis of 2007-2008 has not been to change a financial system which had been made so unstable that it *almost* collapsed—were it not for the colossal bailouts and vast palliative measures that it demanded from the world’s productive economies; rather, the response has been to “improve the resilience of financial markets” by adopting “new models of adaptive risk management sensitive enough to cope with the highly integrated risks of structured finance.”³¹ In other words, instead of putting into question the level of instability that had progressively been built into the financial system through the introduction of an increasingly complex architecture of derivatives, the crisis ended up normalising it by setting up a new standard of risk—to be matched by evermore advanced strategies of resilience required from any entity willing to operate in a ruthlessly volatile financial environment.

Finally, the global security crisis declared in the wake of the 9/11 attacks also gave the resilience doctrine a significant boost. Virtually every strategic document concerning national security, emergency response, or disaster recovery issued by Western states or international organisations since the 2000s refers to the concept of resilience as key to the strategy of response it envisions. Created in the immediate aftermath of 9/11, the US Department of Homeland Security has been a major advocate of resilience: in the “National Strategy” documents it has been issued since its creation, the Department explicitly recognises that “achieving a complete state of protection [...] is not possible in the face of the numerous and varied catastrophic possibilities that could challenge the security of America today.”³² In light of this state of affairs, it recommends that the US citizens “understand and accept a certain level of risk as a permanent condition.” The core of its resilience strategy for the country therefore lies in the securitization of its “critical infrastructure”, coupled with the development of a “culture of preparedness” that mobilises every citizen’s attention to anticipate and report potential threats, as well as their capacity to respond efficiently, at local level, should the need suddenly arise.³³

If the US national security strategy is particularly explicit about its integration of the notion of resilience, it by no means constitutes an exception; European countries have followed closely. For example, in France’s “White Paper on National Defence and Security” from 2008—the first

31 Walker and Cooper, 151.

32 “2007 National Strategy For Homeland Security” (Department of Homeland Security, 2007), 27, <https://www.dhs.gov/national-strategy-homeland-security-october-2007>.

33 “2007 National Strategy For Homeland Security,” 27.

it issued since 1996—improving the resilience of society is referred to as “a fundamental objective of the national security strategy.”³⁴ Similarly, the United Kingdom’s 2010 “National Security Strategy” mentions the term resilience 18 times, while in the latest version published, in 2015, the term can be found 61 times in an 88-page document.³⁵ Ubiquitous when it comes to the organisation of a security strategy in the face of threats and events that are considered as an unpredictable fatality, the resilience doctrine calls for “permanent adaptability in and through crisis.”³⁶ Importantly, resilience implies the replacement of a logic of focused response to a localised emergency with one of diffuse preparedness to crisis as part of the everyday life. As a consequence of that shift, urban environments are increasingly tasked with embodying this form of diffuse preparedness, to produce resilience as part of their design.



Fig. 29—The skyline of lower Manhattan in darkness, except for the Goldman Sachs building, after a power outage caused by Superstorm Sandy, in New York, Oct. 30, 2012. (Photo: Reuters)

34 Ministère de la Défense, *The French White Paper on Defence and National Security*, ed. France, 1st ed (New York: Odile Jacob, 2008), 60.

35 Great Britain et al., *National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom.*, 2015.

36 Walker and Cooper, “Genealogies of Resilience,” 154.

More with Less

As part of its progressive colonisation of the discourse of contemporary governance, the notion of resilience has also firmly established itself in the fields of urban policy and urban design today. Due to an unrelenting process of planetary urbanisation, cities and their region-sized outgrowths are increasingly perceived as the defining environment of today's and tomorrow's human societies. Because resilience is essentially defined as a property of a system—of the relationships between populations and their milieu—urban environments have emerged as the primary targets of resilience policies. In the process, such policies tend to blur the practical and conceptual distinction between some of the key binaries around which the Modernist urban discourse was articulated.

In his effort to debunk some of the hopeful myths of “resilient urbanism,” urban historian Ross Exo Adams identifies two levels where such blurring manifests itself. The first one is between the notions of infrastructure and nature. Drawing from the example of the Rebuild by Design (RBD) initiative for the greater New York City coastal region, launched in the aftermath of hurricane Sandy, Adams write: “there is a clear agenda to rewrite the human relation to nature as one of entanglement. Infrastructure, in this new conception of design—such as systems of flood mitigation and storm surge abatement—is to be designed with and inclusive of natural processes: no longer drawing a boundary separating society from nature, infrastructure now appears as the thing that brings the two together. In its most pronounced examples, infrastructure and nature become indistinguishable from one another in so-called ‘nature-based solutions.’”³⁷

In this perspective, the key object of resilient urban design is not so much the city as an environment than it is the *relation* between urban populations and their environment—through the design of a new kind of environmental infrastructure. Corollary to this entanglement of infrastructure and nature is the blurring of the line between environment and technology, Adams further argues. “Indeed, resilient urbanism may be understood as the smart city retooled to mitigate the effects of climate crisis. In this sense, it expands the application of ubiquitous sensing to include the monitoring of and communication between natural ecologies of the NYC region. Nature-based infrastructures, much like their traditional urban counterparts, are now to be laced

37 Ross Exo Adams, “Becoming-Infrastructural,” e-flux Architecture, October 2, 2017, <http://www.e-flux.com/architecture/positions/149606/becoming-infrastructural/>.

with networks of sensors and ubiquitous computing.”³⁸ Resonating with the becoming-environmental of cybernetic systems at work in the contemporary military and logistical fields—as discussed in the previous chapters—the urban technology of resilience wants to permeate its environment of operation. Here again, the objective is less that of supporting processes that would generate a harmonious and non-invasive relationship with an environment, than it is to infiltrate it in order to control it, or to keep it under a *good-enough* level of control, so as to maintain a set of power relations across that environment. In other words, resilience’s relationship to the environment is one of operationalisation.

Resilient urbanism can thus be read as the graver inflexion of the discourse of smart urbanism. Resilience takes over when, in order to address the most severe challenges to the maintenance of an established urban order, smartness must lose some of its typical techno-optimism and adopt a more austere posture. Importantly though, the practical implementations of both of these discourses are essentially supported by the same logic, infrastructure, and technology. As Adams suggests: “If the smart city’s techniques aimed to optimize the city, resilient urbanism would adopt these techniques to manage crisis, conceiving the city and its surrounding environment as a single expansive space of data to be monitored and intervened upon in real time.”³⁹ Through this convergence, the discourse of resilience also exposes a darker shade of smartness. In their discussion of the same Rebuild By Design projects and of their inescapable display in multiple cultural institutions around in New York area, the urban geographers Stephanie Wakefield and Bruce Braun argue that, ultimately, what the era of resilience calls us to reckon with is: “the fact that the catastrophe has already happened, that what we inhabit is not an imperilled civilization—as the post-political language of resilience presumes—but a civilization that is already in ruins.”⁴⁰ In that perspective, the process of smartening environments in the pursuit of urban resilience can also be read as an effort to cover up the evidence of an actual and effective urban breakdown. In this way, the established power structures operating in such ruined cityscapes can keep drawing profits and privileges, for a little longer, from an artificially maintained status quo.

38 Adams.

39 Adams.

40 Wakefield and Braun, “Governing the Resilient City.”

One photograph in particular captures the spirit of the resilience doctrine applied to urban environments. Shot during the general blackout in which New York City was plunged after the passage of hurricane Sandy on 29 October 2012, it shows a panoramic view of Lower Manhattan. Everything is dark, except for one building that shines brightly through the night: the Goldman Sachs headquarters. While the nearby NYU hospital had to be evacuated after the failure of its back-up generator, the world-renowned financial firm, having diligently carried out its resilience planning, could remain in operation throughout the blackout.⁴¹ The image speaks to another key process by which the resilience of urban, socio-economic, and political systems is pursued today. In complement to the meticulous real-time monitoring of environments considered permanently at risk, the enhancement of a system's capacity to endure shocks is actually achieved by breaking it up and establishing clear hierarchies within that system. Immediately related to the doctrine of resilience is the definition of "critical infrastructure"—which is to be maintained at all costs. Yet when critical infrastructure is defined as such, a number of processes, areas, conditions, or people are also indirectly marked as *uncritical*—therefore expendable—in the event of a major crisis. While resilience tends to present itself as the concern that binds societies together, as a neutral objective that everyone is expected to contribute to, the definition of *what is critical* is rarely addressed at societal level. More often than not, the policies that result from such a critical decision end up being imposed on the population and environments to be made resilient.

So far, we've mentioned two ways by which resilient urbanism manifests itself: the deployment of a distributed infrastructure of networked sensors, enabling a real-time monitoring operation as well as smart, self-synchronisation processes; and the demarcation of critical infrastructure, to be reinforced and secured against potential failures, often at the detriment of other infrastructure considered uncritical. In the frame of these two processes, resilience is pursued by acting upon the material configuration of urban environments. Yet, as outlined above, resilience is a property of the system of relationships between a population and its milieu. Therefore, the transformation of the milieu itself is just one side of the coin, the other being the transformation

⁴¹ I am borrowing an example provided by Orit Halpern during a workshop hosted by the University of Basel, on 20 January 2018, to which we both participated.

of the behaviour of the population to be rendered resilient. In that sense, resilience turns into a governmental mechanism, consisting in a “conduct of conducts.”⁴²

It is not surprising that, in the western context, the rise of resilience in urban policy has been parallel to the rise of austerity politics. The two processes can be understood as interdependent manifestations of the neoliberal governance doctrine and of its global hegemony. In a context of drastic cuts to public services of state-provided infrastructure, the capacity for self-organisation, self-management, and self-help of urban communities has been greatly valorised by in governmental discourse; with resilience forming the keystone of a number of neoliberal political leaders’ programme.⁴³ In actual fact, austerity and resilience go hand in hand: not only does the latter serve to mitigate the destructive effects of the former; but also, the bundling of austerity measures with a resilience agenda makes it possible—as a political magic trick—to present the withdrawal of publicly funded provisions and services as an *empowering* measure: one that will benefit communities who will now be able—and in fact, will have no choice but—to take care of themselves alone.

When approached under this light, the austerity-resilience couple does not seem so new, and certainly was not invented in the western cities where it has now taken a crucial role. In a short piece that ponders the catastrophic effect of the “resilience strategy”—written in the aftermath of the Grenfell tower fire—architect and researcher Dele Adeyemo traces the origin of the urban resilience discourse back to the 1980s in sub-Saharan African cities.⁴⁴ Disastrously impacted by the Structural Adjustments Programmes (SAPs) of the International Monetary Fund and the World Bank, many African countries which had accepted loans on the condition of the liberalisation of their economies saw the level of poverty of their population soar in just a decade, together with widescale deterioration of their public infrastructure and services. Over the same period, urban slums expanded greatly; within these vast urban areas, informal economies, community-led mutual support systems, and self-organisation strategies also developed as necessary defence mechanisms for residents of such distressed environments. Those same

42 Michel Foucault, *Dits et écrits: 1954-1988* (Editions Gallimard, 1994), 237.

43 Dan Bulley and Bal Sokhi-Bulley, “Big Society as Big Government: Cameron’s Governmentality Agenda,” *British Journal of Politics and International Relations* 16 (August 1, 2014), <https://doi.org/10.1111/j.1467-856X.2012.00547.x>.

44 Dele Adeyemo, “The Rise of the Resilience Strategy,” *Real Review*, no. 5 (2017).

mechanisms would end up analysed and praised in a growing body of western literature on slums, in a process that Adeyemo calls a “fetishisation of the entrepreneurialism of the urban poor.”⁴⁵ An archetypical example of such process is the 2001 study of Lagos conducted by architect Rem Koolhaas and the Harvard School of Design’s Project on the City.⁴⁶ “This expansive body of work”, Adeyemo writes, “declared Lagos a self-regulating system, yet the research failed to engage with the structural factors generating urban poverty. In so doing, it helped fuel the familiar neoliberal emphasis on the entrepreneurialism and resilience of the urban poor as a root to transcending their circumstances.”⁴⁷

In his critique of Koolhaas’s approach, the urban geographer Matthew Gandy argues that the dramatic rise of extreme poverty in Nigeria—from 28% in 1980 to 66% in 1996—was a direct result of SAPs.⁴⁸ In light of such facts, the framing of Lagos as an exemplary city “at the forefront of a globalizing modernity” is not only blind to the whole set of underlying geopolitical and macro-economic dynamics which produce, *accidentally*, the particularly colourful character of the city; it also neutralizes and depoliticizes the strategies developed by such urban communities as a response to their structural marginalization, reframing it as a disposition to absorb what can then reappear as natural and unpredictable shocks.

As argued by Adeyemo and others, the strategies developed by African urban dwellers to cope with the economic war waged upon them became the model for the urban resilience policies later promoted as part of a globalising neoliberal urban agenda. Once again, the urban frontiers of a diffuse yet aggressive international campaign have served as radical testing grounds, the concluding results of which have been reimported within the urban heartlands of the world’s most powerful nations. Following the same approach, the next section returns to Gaza to examine a drastic implementation of the resilience paradigm—in comparison to which the urban schemes and policies devised for the post-Sandy New York area may appear as a mere foretaste of the violence of urban resilience.

45 Adeyemo.

46 Rem Koolhaas et al., *Mutations* (ACTAR, 2000).

47 Adeyemo, “The Rise of the Resilience Strategy.”

48 Matthew Gandy, “Learning from Lagos,” *New Left Review*, no. 33 (June 2005), <https://new-leftreview.org/issues/II33/articles/matthew-gandy-learning-from-lagos>.

Critical Infrastructure

“Water: When there is not enough water in Gaza, and Gaza is in the process of gradually drying up, the aquifers become polluted and when the aquifers become polluted, this is not limited to the Gaza side of the aquifer but also passes over to the aquifer on our side. Therefore, it is in Israel's clear interest to deal with the water problem in the Gaza Strip. Electricity: When there is not enough electricity, various problems arise, including those having to do with sanitation, and when there are outbreaks, the outbreaks do not stop at the fences. This is both a humanitarian interest and an outstanding Israeli interest. Therefore, we are allowing these infrastructures to be dealt with.”⁴⁹

The statement is from the Israeli Prime Minister Benjamin Netanyahu, speaking in 2016. It forms a clear introduction to the kind of resilience policy deployed in Gaza—which must be understood as a radically asymmetrical relation of power.

As discussed in the introduction to this chapter, the environment in Gaza has already turned poisonous as a result of the blockade, to the point of being lethal. In relation to this total crisis—political, economic, military, humanitarian, environmental—Israel's openly declared objective is not that of resolving it, but merely to contain it: to keep it within acceptable limits, be these of ethical or territorial nature. Far from manifesting a form of abandonment, or even of disengagement, Gaza's permanent crisis management operation demands the full attention of the Israeli colonial apparatus and, in many cases, its direct intervention: either to actively debilitate the hostile entity of Gaza, the fragility of which is a condition of its enduring occupation and domination; or to mitigate the effects of such debilitation, so as to prevent the situation from spiralling out of (the occupier's) control. Across this dialectic of targeted debilitation and targeted capacitation, what is produced is the resilience of the occupation itself.

The story behind the North Gaza Emergency Sewage Treatment (NGEST) plant is exemplary of this dialectical process. Funded by the World Bank and developed in collaboration with the Palestinian Water Authority and the French Agency for Development (AFD), the project was initiated in 2004 to address the chronic sanitary problems in Gaza pertaining to the lack of adequate treatment of wastewater. Serving the northern municipalities of Jabalia, Beit Lahiya,

⁴⁹ “PM Netanyahu Statement in Rome 27 June 2016,” accessed September 19, 2019, <https://embassies.gov.il/UnGeneva/NewsAndEvents/Pages/PM-Netanyahu-statement-in-Rome-27-June-2016.aspx>.

Beit Hanoun and Um Al Nasser, it is designed to provide sanitation for 360,000 people.⁵⁰

While the project benefitted from Israel's approval in principle, the completion of this relatively modest piece of collective infrastructure—total project cost USD 75 million—took thirteen years in total. The project's site finding itself in close proximity to the border, the construction works were regularly hindered by Israel's military operations in Gaza. Furthermore, the entry of the materials and special equipment required was considerably delayed by the erratic restrictions imposed by COGAT. Nonetheless, the construction of the NGEST plant has been completed at 95% since 2013; yet the lack of available electricity to operate it meant that it remained still for another five years, until a solution to the power problem could be found that was amenable to Israel's interests.

The vast majority of Gaza's electricity provision comes from Israel, which keeps the total available power in Gaza at about one third of the actual needs of the population.⁵¹ The only internal source of electricity—Gaza's power plant, located in proximity of Gaza city—was bombed twice by the Israeli army: first in 2006, in relation to the Gilad Shalit crisis. Then in 2014, during operation Protective Edge. Following lengthy and costly repairs, it was brought back into operation each time, yet it only yields a fraction of the theoretical power it is designed for: on average 30 MW instead of 140 MW. This is due to shortage of fuel required to run it which, once again, must transit through Israeli-controlled gateways. Israel's reluctance to increase the provision of power to Gaza—so as to enable processes that are in its own interest such as the operation of the NGEST plant—is related to the nature of Gaza's electrical grid. Like all traditional power grids, it has a fundamentally egalitarian disposition, meaning that a power increase cannot be targeted to a specific node in the grid but rather becomes available to all nodes in Gaza—which is precisely what Israel is keen to prevent. Following years of negotiation, a solution was implemented in the second half of 2018 that epitomises the logic of the current urban resilience paradigm: the construction of a direct electricity line from Israel to the NGEST plant,

50 World Bank, "Northern Gaza Emergency Sewage Treatment (NGEST) Project," accessed September 19, 2019, <http://projects.worldbank.org/P074595/northern-gaza-emergency-sewage-treatment-ngest-project?lang=en&tab=details>.

51 United Nations Office for the Coordination of Humanitarian Affairs - occupied Palestinian territory, "Gaza Strip Electricity Supply," accessed September 19, 2019, <https://www.ochaopt.org/page/gaza-strip-electricity-supply>.

which bypasses the collective power grid.⁵² Now managed as a critical infrastructure, Gaza's largest waste water treatment plant can be maintained in operation by Israeli authorities at the same time as they can continue to impose drastic power cuts to all the rest of Gaza's infrastructure and population.

The case of the NGEST plant summarises the politics of infrastructure which, by involving a plurality of local and international agencies, give shape to the material conditions of the enduring regime of the Gaza blockade. The logic at its core—namely, the splintering of collective infrastructure into critical and non-critical categories, the former falling under complete control by the occupying power—can be tracked across every infrastructural aspect of Gaza's crisis management operation. Following the irreversible damage to the Coastal Aquifer brought about by the blockade, the current response to the depletion of drinkable water reserves in Gaza is the construction of four new pipelines flowing into Gaza from Israel. Through these, the Israeli water company Mekorot will be able to *sell* Gazans an extra 33 Million Cubic Meters of potable water yearly.⁵³ Another example is the new EU funded desalination plant in Deir El Balah, the total cost of which reached €580 million. While the largest water project in Gaza was triumphantly inaugurated in January 2017, it currently only operates at a fraction of its potential throughput, due to lack of available power.⁵⁴ With negotiations are still underway, the Office of the Quartet (consisting of the United Nations, the European Union, the United States and Russia) recommends, in its reports, a solution inspired by the NGEST plant, namely a dedicated, off-grid energization mechanism.

With regards to Gaza's overall energy crisis, an agreement in principle had been reached in September 2016 in for the construction of a new 161kV power line from Israel to Gaza, but its implementation appears to be frozen for now. Similarly, a vast project sponsored by the international community and titled "Gas for Gaza" (G4G) proposes to convert the Gaza Power Plant

52 "North Gaza Communities Will Finally Benefit from Sewage Treatment Services," World Bank, accessed September 19, 2019, <https://www.worldbank.org/en/news/feature/2018/03/12/north-gaza-communities-will-finally-benefit-from-sewage-treatment-services>.

53 "New Israeli Pipeline Makes Its Way to Gaza," Al-Monitor, July 12, 2019, <https://www.al-monitor.com/pulse/originals/2019/07/water-pipeline-israel-gaza-pollution-palestinian-authority.html>.

54 "Largest Seawater Desalination Plant Opened in Gaza," United Nations Office for the Coordination of Humanitarian Affairs - occupied Palestinian territory, accessed September 19, 2019, <https://www.ochaopt.org/content/largest-seawater-desalination-plant-opened-gaza>.

from a diesel- to a gas-powered one, as well as to construct a direct pipeline to aliment it from Israel—which would enable to divide by three the cost of production per MW.⁵⁵ The implementation of the project has been assigned to UNOPS—the same UN service responsible for the implementation of the Gaza Reconstruction Mechanism. Yet on this front too, progress appears to be very slow. A possible explanation for Israel’s unwillingness to allow for the actual development of such energy projects may be that it is waiting for another, fundamental infrastructural transformation to be achieved before giving the green light to an important power increase to Gaza: namely, the upgrade of Gaza’s power grid into a *smart grid*—across which the distribution of power can be prioritised, targeted, controlled. The project—still at an early stage of discussion among the numerous parties involved—already benefits nonetheless from the explicit support of the Quartet. In its report from April 2019, it states:

“To increase cost recovery, enhance grid control, and deliver reliable electricity to consumers, it is vital to upgrade the Gaza electricity grid. Initially, converting the current grid to a smart grid will enhance the resilience of Gaza’s electric power system, allowing it to deal more effectively with outages and emergencies. In addition, this will provide extra security against illegal electricity connections (reducing electricity theft and the risk of potential overloads) and allow for better overall system monitoring.”⁵⁶

The envisioned smart grid for Gaza would be equivalent to the logistical framework established by the Gaza Reconstruction Mechanism, extending the logic already in place for the distribution of cement to that of electricity: a high-resolution monitoring and targeting system which ultimately falls under total control of Israeli authorities. The more basic infrastructure falls apart in Gaza, the more its substitute and upgrade solutions are seized as opportunities to durably inscribe mechanisms of colonial domination into the very configuration of the Israeli-Palestinian environment.

And yet, given the level of environmental degradation in Gaza, the kind of piecemeal and localised infrastructural interventions jointly undertaken by Israel and the international community are also clearly insufficient to respond to the level of risk to which a population of two million

55 Office of the Quartet, “Energy,” accessed September 19, 2019, <http://www.quartetoffice.org/page.php?id=5e1e7ay6168186Y5e1e7a>.

56 Office of the Quartet, “Report of Office of the Quartet to Ad Hoc Liaison Committee,” April 30, 2019, 10, <https://www.un.org/unispal/document/report-of-office-of-the-quartet-to-ad-hoc-liaison-committee-brussels-30-march-2019/>.

people is permanently exposed—in particular, the risk of an outbreak of pandemic disease. In fact, institutions such as the RAND Corporation, the Israeli Institute for National Security Studies (INSS), and even the leadership of the Israeli military have issued a number of reports and statements alerting the Israeli government about the major threat posed by the deteriorating conditions in Gaza. To such security experts, the environmental crisis in Gaza is a “ticking time bomb”, while the political hard line maintained by Netanyahu’s government towards Gaza is likely to lead to a catastrophic event that Israel would not be spared from.⁵⁷

This point may serve as a valuable counterweight to the widespread narrative of a perfectly-calibrated and optimally performing Israeli state apparatus—the power of which may then wrongly appear as completely overwhelming. The structural violence of the Gaza blockade is perhaps less the expression of a technologically perfected colonial rule than it is of the political mishandling of a long-overdue conflict resolution. One should not minimise the impact, on the current structure of the occupation of Palestine, of short-sighted political manoeuvring at the level of Israel’s national political system. While much of the scholarship on the occupation tends to limit itself to an elaboration on the unlimited power of the Israeli state, one might ask to what degree the repetition of this particular narrative, however critical it intends to be, may also consolidate the cultural conditions of the colonial structure it denounces.⁵⁸ In this perspective, it is important to resist the near-automatic interpretation of any new policy, declaration, or action by Israel as a component of a coherent colonial masterplan. In spite of its clearly-demonstrated systematic aspect, the apparatus of the occupation is everything but a homogeneous structure: it is traversed, as numerous authors have argued, by as many tensions and internal contradictions as the resistance that opposes it.⁵⁹ There are reasons to view Israel’s low level of action towards Gaza’s

57 Anat Kurz, Udi Dekel, and Benedetta Berti, eds., *The Crisis of the Gaza Strip: A Way Out* (Institute for National Security Studies, 2018); Shira Efron et al., *The Public Health Impacts of Gaza’s Water Crisis: Analysis and Policy Options* (Santa Monica, Calif: Rand Corporation, 2018).

58 Omar Jabary Salamanca, “Review of Eyal Weizman, *The Least of All Possible Evils: Humanitarian Violence from Arendt to Gaza*,” *Antipode*, March 2013.

59 Nur Masalha, *The Politics of Denial: Israel and the Palestinian Refugee Problem*, 1st ed (London ; Sterling, Va: Pluto Press, 2003); Raef Zreik, “Why the Jewish State Now?,” *Journal of Palestine Studies* 40, no. 3 (April 1, 2011): 23–37, <https://doi.org/10.1525/jps.2011.XL.3.23>; Andrew Ross, *Stone Men: The Palestinians Who Built Israel* (London ; Brooklyn, NY: Verso, 2019).

environmental crisis so far—in spite of the many alarm bells that have been rung—as a sign of a political miscalculation of the risks involved.

Another factor should also be taken into account, which connects the situation in Gaza to the generic features of resilient urbanism discussed in the previous section. In addition to the differential management of critical/uncritical infrastructure, resilient urbanism's complementary policy at infrastructure level is the deployment of a vast network of sensors across a boundless risk environment. In turn, this augmented sensing capacity gives the ruling authorities a pre-emptive advantage on its response to any threat, by which it should always remain able to secure its most critical interests. In this perspective, Israel can rely on the military-grade sensing technology it has deployed as part of its permanent military operation over Gaza. The level of risk it is ready to take—or more precisely, to let Gaza take—being essentially proportional to the depth, speed, and resolution of its monitoring capacity. Rather than functioning as a collective safety measure, the augmentation of urban sensing capabilities can also serve, as the case of Gaza reveals, to increase the exposure of an urban population to dangers and threats.

A clear example is Israel's current mode of management of the waste and pollution crisis along Gaza's Mediterranean coast. It should be noted that Israel's largest desalination plant, which produces 15% of the clear water consumed in Israel, is located in Ashkelon—a mere 7km from the northern border of Gaza. As a study produced by the NGO EcoPeace Middle East has revealed, the level of pollution in the shared coastal waters has forced the Israeli authorities to shut down the Ashkelon plant several times since 2016.⁶⁰ As part of the response they obtained to a Freedom of Information request regarding the operations of the Ashkelon plant, EcoPeace staff were sent a downgraded image of pollution level maps along the coastline produced through satellite observation, respectively for the 5 and 6 June 2017, which the Israeli authorities confirmed were used to decide on the temporary closure of the plant.⁶¹ Rather than addressing the root problem—the massive discharge of sewage into the Mediterranean as a direct consequence of the blockade regime—Israel is using advanced remote sensing technology to monitor, in real-time, the actual level of threat that this pollution poses to its own water circuits, and to take measures in

60 Gidon Bromberg, Giulia Giordano, and Eran Oded, "Gaza on the Edge: The Water & Energy Crisis in Gaza" (Tel Aviv: EcoPeace Middle East, May 2018), <http://ecopeaceme.org/wp-content/uploads/2018/05/Gaza-on-the-Edge.-May-2018.pdf>.

61 Interview conducted with Giulia Giordano at the EcoPeace Middle East office, Tel Aviv, 15 September 2018.

consequence on a day-to-day basis. This process brings to light a tension at the heart of the temporality of resilience, whereby ultra-responsive, real-time monitoring and synchronisation systems are primarily geared towards the permanent conservation of unsustainable structures of (power) relations.

Finally, as a governmental paradigm, resilience tends towards a recasting of the governed population itself as a kind of distributed, critical infrastructure. In the process, resilience functions as a means of shifting the blame: it passes on to local populations the responsibility for their structural condition of vulnerability, at the same time as it shields the root causes of crises.⁶² This aspect becomes particularly manifest when considering the emphasis on resilience in UNDP programmes currently in place in Gaza. In 2016, The United Nations Development Programme (UNDP) hosted two conferences on the theme, which were promoted online through the hashtag #ResilientPalestine. In a report on the proceedings of these, one can read: "While systems are a critical component of building resilience in crisis situations, a well-rounded analysis must also consider the ability of individuals, households, and communities to become resilient, how this resilience is built and later manifests, the interactions between these groups, and how they impact one another."⁶³ Making Palestinians more resilient appears to be a major strategic objective of the organisation today. Accordingly, since 2016, it set out to support and implement actions such as "facilitating investment in areas like e-commerce, real estate, social-entrepreneurship and construction", considered as "key to creating more jobs and boosting household incomes."⁶⁴ Were it not for its tragic (in)consequence, there would be reasons to smile at the irony of launching a multi-million dollar programme to develop individual entrepreneurship in a territory where the local economy and its infrastructure are regularly bombed to the ground. Be it that the design of such policies is fundamentally flawed or that they are actually designed to fail, resilience programmes such as the one currently pursued by UNDP in Gaza lay the ground for a condition

62 Brendan Ciarán Browne, "Stop Telling Palestinians to Be 'resilient' – the Rest of the World Has Failed Them," *The Conversation*, accessed September 19, 2019, <http://theconversation.com/stop-telling-palestinians-to-be-resilient-the-rest-of-the-world-has-failed-them-96587>.

63 UNDP Palestine, "Sumud, Transformative Resilience, and the Changing Face of Aid in the State of Palestine," 2016, https://www.undp.org/content/dam/papp/docs/Publications/UNDP-papp-research-PRC_Introduction%20to%20Resilience.pdf.

64 UNDP Palestine.

where Gazans themselves may be held responsible for the Strip's exceptionally low GDP—given that the latter keeps on falling in spite of the ‘best efforts’ of the international community.

It is worth noting the synchronicity between the stepping up of the resilience industry in Gaza and the series of draconian aid cuts that its population must now learn to cope with. In August 2018, the Trump administration announced a cut of over \$200 million in US aid originally set aside for Palestinians in the West Bank and Gaza.⁶⁵ That same month, it also announced that it would entirely end its funding to the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), of which it was the largest donor with over \$350 million of funding per year.⁶⁶ As the institution administering the refugee camps in Gaza, UNRWA provides basic education, health, relief and social services to over 1.3 million refugees, corresponding to two thirds of the population of Gaza. So far, UNRWA appears to have managed to avoid any drastic reduction of the critical services it provides in Gaza, thanks to a successful emergency appeal which compensated for the US cuts. Nevertheless, those cuts have undeniably made much more vulnerable an organisation which is widely considered as the lifeline of Gaza. Its capacity to maintain itself in the future is far from guaranteed.

What is playing out in Gaza can thus be read as an extreme version of the austerity/resilience policy couple, which came to be known across the Global North as the default response to the 2008 financial crisis. Rather than constituting a forward-looking strategy of preparedness towards unpredictable accidents, ‘building resilience’ emerges as an imperative to counterbalance a set of shocks imposed by policy: to mitigate their effects and to contain their fallout. In the context of an ever-worsening global crisis, the violent structural adjustments required by established systems of power to maintain their dominion are thereby achieved by offsetting risks to non-critical, therefore expendable territories and populations. It is perhaps in Gaza that resilience can be most clearly understood as an "operational strategy of risk management."⁶⁷

65 Gardiner Harris, “Trump Administration Cuts More Than \$200 Million in Aid for Palestinians,” *The New York Times*, August 24, 2018, sec. U.S., <https://www.nytimes.com/2018/08/24/us/politics/trump-palestinians-aid-cut.html>.

66 Peter Beaumont and Oliver Holmes, “US Confirms End to Funding for UN Palestinian Refugees,” *The Guardian*, August 31, 2018, sec. World news, <https://www.theguardian.com/world/2018/aug/31/trump-to-cut-all-us-funding-for-uns-main-palestinian-refugee-programme>.

67 Walker and Cooper, “Genealogies of Resilience,” 144.

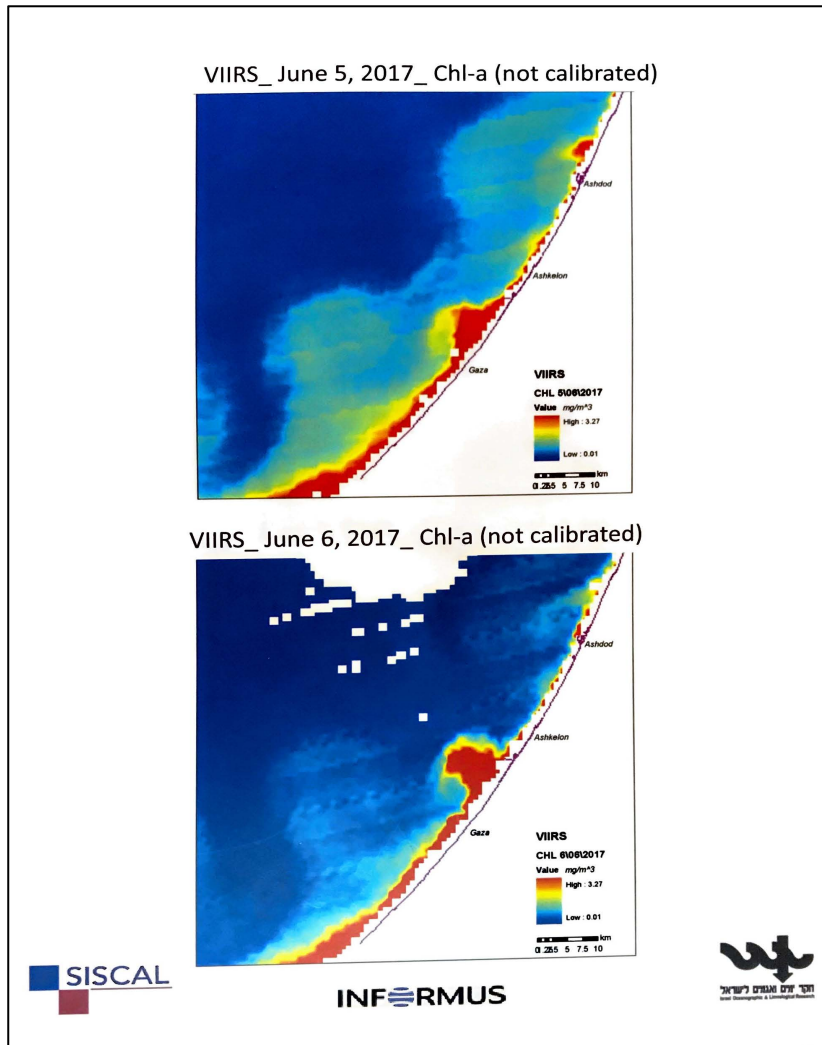


Fig. 30—Pollution level maps along Gaza's coastline produced through satellite observation, respectively for the 5 and 6 June 2017, which the Israeli authorities confirmed were used to decide on the temporary closure of the Ashkelon desalination plant. (Source: EcoPeace Middle East)

Mowing the Grass

Approached as a component of an overall strategy of containment, the operational dimension of resilience can only be understood in relation to the programmes of targeted debilitation that it is meant to counterbalance. If the pursuit of resilience has become so central to the programmes delivered by the international humanitarian complex in Gaza, it is because it has a lot to compensate for: from the slow violence of environmental degradation, through the infrastructural violence of the blockade, to the explosive violence of warfare.

A much-quoted paper by Israeli military strategists Efraim Inbar and Eitan Shamir, published in 2014, explicitly refers to Israel's regular attacks on Gaza as a process of "mowing the grass."⁶⁸ "The use of force in such a conflict", the authors write, "is not intended to attain impossible political goals, but a strategy of attrition designed primarily to debilitate the enemy capabilities."⁶⁹ Two consequences can be inferred from this formulation, both of them having important bearing on the temporal dimension of the conflict. The first one is that there is no long-term, decisive objective pursued by the Israeli military when it sets out to bomb Gaza every few years: the only objective pursued is admittedly a short-term one, namely, to keep the Palestinian armed resistance groups in check by regularly decimating their ranks and arsenal. Given the asymmetrical nature of the conflict, with the 'enemy' consisting in a diffuse multiplicity embedded with a civilian urban and social fabric, achieving the declared objective means striking at the heart of that very fabric and unavoidably destroying countless civilian persons and objects *en passant*. Yet, however massive the collateral damage inflicted in the process, it can be justified by referring to the same strategy: the imperative "to debilitate the enemy capabilities." On the analytical grid of the Israeli military, the resulting damage should in fact be positioned in an undecidable zone between collateral and strategic. Indeed, as it is made explicit in the conclusion of Inbar and Shamir's paper, the strategy of "mowing the grass" is predicated upon the "hop[e] that occasional large-scale operations also have a temporary deterrent effect in order to create periods of quiet along [Israel's] borders."⁷⁰ Corollary to the first one, the second temporal consequence of the adoption of such a strategy is to normalise the perspective of a never-ending conflict. Indeed, the scope of Israel's military action remains admittedly limited to imposing some form of "temporary quiet", while maintaining the structural conditions for its occupation of Gaza and of the Palestinian territories as a whole.

Resilience thus functions as a targeted capacitation mechanism which goes hand in hand with an enduring programme of targeted debilitation—the former turning into a condition of

68 Efraim Inbar and Eitan Shamir, "Mowing the Grass: Israel's Strategy for Protracted Intractable Conflict," *Journal of Strategic Studies* 37, no. 1 (January 2, 2014): 65–90, <https://doi.org/10.1080/01402390.2013.830972>.

69 Inbar and Shamir, 65.

70 Inbar and Shamir, 88.

possibility of the latter. In a recently published opinion piece on the rise of the resilience discourse in Palestine, the international legal scholar Brendan Ciaràn Browne argues: "By promoting Palestinian resilience instead of holding Israel accountable for its multiple breaches of international law, and its involvement in the destruction of Palestinian society, the international community is masking its own failures—and shamefully abdicating its responsibility to the people it claims to be helping."⁷¹ It could be argued that the critique doesn't go far enough. By embracing the resilience doctrine, the international community doesn't only abdicate its own moral responsibility; it also actively enables Israel to further denigrate its legal obligations, as an occupying power, towards the Palestinian population. The kind of capacitation it provides—enhancing the ability of Palestinians to absorb and endure shocks—enables Israel to push even further its long-standing programme of oppression and debilitation. The humanitarian complicity in the violence inflicted to the Palestinian people has been denounced for decades, as has the numbing effect of what the gender and development scholar Islah Jad has called "the NGO-ization of Palestine."⁷² Raising such issues to an even more alarming level, the current international push to build resilience in Gaza could be compared to an effort of fitting a life-support system into a torture chamber.

“From this perspective, the anxious race to reconnect NYC’s natural surrounds, technical systems and human communities into a resilient system appears not only as a new mode of government or regime of accumulation, but as a desperate attempt to keep the present system on life-support.”⁷³ These are the terms used by Braun and Wakefield to describe the pursuit of resilience in New York, which they offer—whether rhetorically or presciently—as an example of the "post-apocalyptic city." Their work of critique offers two important insights on the temporality proper to the politics of resilience, which are vividly confirmed by the case of the Gaza Strip. The first one, carried by the metaphor of the life-support system, underlines the fact that resilience, in its current deployments, is generally tasked with maintaining in operation systems that would otherwise be broken—structurally, socially, or environmentally. As such, resilience

71 Browne, "Stop Telling Palestinians to Be 'resilient' – the Rest of the World Has Failed Them."

72 Islah Jad, "NGOs: Between Buzzwords and Social Movements," *Development in Practice* 17, no. 4/5 (2007): 622–29.

73 Bruce Braun and Stephanie Wakefield, "Inhabiting the Post-Apocalyptic City," *Society & Space* (blog), February 11, 2014, <http://societyandspace.org/2014/02/11/inhabiting-the-postapocalyptic-city-bruce-braun-and-stephanie-wakefield/>.

impedes the emergence of a new set of relations within that system, guaranteeing instead the persistence of any given relations, "wherein being is reduced to the indefinite extension of the present."⁷⁴ The second insight they offer is about the significance of the process of permanent deferral of an allegedly catastrophic event, which is at the heart of the resilience dispositif. To the authors, looking behind the veil of resilience forces us "to confront the fact that the catastrophe has already happened, that what we inhabit is not an imperilled civilization—as the post-political language of resilience presumes—but a civilization that is already in ruins."⁷⁵ While their argument may seem rather hyperbolic when considered in relation to the city of New York, it certainly sounds more concrete once we turn our attention to Gaza.

The current situation in the Strip manifests a condition where environment and security are deeply intertwined. As a result, the main expression of the practice of security in this context turns into the permanent management of a critically endangered environment. Yet the very metaphor of the "ticking time bomb", used by a number of commentators, is deceptive: it implies that a bomb could explode in the future, thereby negating the fact that it already did. The blockade is itself a form of slow deflagration: its destructive effects progressing incrementally while being concealed by the myth of an apocalypse to come. The violence to which the population of Gaza is subjected seems to follow an asymptotic curve; if it appears to always get worse, to always get closer to the red line of total catastrophe without ever crossing it, it is because there is no red line. There is nothing acceptable, nothing tolerable, nothing *within limits* in the present-day situation in Gaza: the very limits of acceptability of the conditions on the ground have long become as elastic as the power apparatus that shapes them.

For the media theorist Orit Halpern, the production of resilience is the defining objective of smartness, understood as a diffuse and elastic apparatus of power. "The logic of resilience is peculiar," the author writes, "in that it aims not precisely at a future that is 'better' in any absolute sense but at a smart infrastructure that can absorb constant shocks while maintaining functionality and organisation."⁷⁶ Echoing the work of Braun and Wakefield, Halpern underlines the specific temporality of resilience as one tending to replace any notion of progress with "schemas

74 Wakefield and Braun, "Governing the Resilient City," 5.

75 Braun and Wakefield, "Inhabiting the Post-Apocalyptic City."

76 Halpern, "Hopeful Resilience."

of repetition and recursion."⁷⁷ Once more, the argument resonates with the situation in Gaza, where the recurrent military operations are described by their very architects as a process of mowing the grass. As the technical rationality supporting targeted operations of both debilitation (diffuse warfare) and capacitation (resilience), smartness reveals its essentially conservative disposition: to maintain, and reinforce, an established set of power relations. Pushed to its extreme form, this conservatism borders on nihilism, as argued by the philosophers Julian Reid and Brad Evans: "Our journey across the resilience terrain forced us to appreciate the hidden depth of its nihilism, the pernicious forms of subjugation it burdens people with, its deceitful emancipatory claims that force people to embrace their servitude as though it were their liberation, and the lack of imagination the resiliently minded possess in terms of transforming the world for the better."⁷⁸

In an unsigned introductory paper to the 2016 Palestine Resilience conference it organised, UNDP proposes an understanding of resilience as equivalent to the Palestinian concept of *sumud*.⁷⁹ Roughly translatable as "steadfastness", *sumud* is the key concept supporting the indigenous Palestinian narrative of perseverance in the face of the ever-growing adversity of the occupation. Fundamentally, *sumud* combines an ideology and a strategy of resistance.⁸⁰ In no way can it be captured, therefore, by the depoliticising doctrine of resilience. Over the past decade, resilience has emerged as a critical capacitation mechanism deeply concomitant with the expansion and reinforcement of a politics of targeted debilitation towards dispensable populations. From Gaza to the rest of the world, resistance is precisely what the doctrine of resilience seeks to erase—but always fails.

77 Halpern, Mitchell, and Geoghegan, "The Smartness Mandate," 123.

78 Brad Evans and Julian Reid, "Exhausted by Resilience: Response to the Commentaries," *Resilience* 3, no. 2 (May 4, 2015): 154, <https://doi.org/10.1080/21693293.2015.1022991>.

79 UNDP Palestine, "Sumud, Transformative Resilience, and the Changing Face of Aid in the State of Palestine."

⁸⁰ Ali Nijmeh, "Lifestyle of Resistance: Palestinian Sumud in Israel as a Form of Transformative Resistance," *Journal of Conflict Transformation and Security* 6, no. 2 (2018): 143–65.

Postscript

Life Contained

This short piece was originally written as a commission for the catalogue of the inaugural edition of the Sharjah Architecture Triennial, titled “Rights of Future Generations”. I wrote this text in an attempt to distil the key arguments of my study of the Gaza Strip under blockade, which I began eight years ago. While the piece borrows a number of passages from the thesis, it is conceived as a stand-alone summary of what makes Gaza, in my view, a fundamental site from which to question the contemporary urban condition.

Manufactured by the Chinese company Nuctech, the MB1215DE is a state-of-the-art, mobile container scanner. It uses high-energy imaging technology to detect any contraband goods potentially concealed within containers. Due to its rapid throughput—up to twenty-five containers per hour—it is now part of the standard equipment of the world’s busiest ports, including Dubai, Taipei, Tangiers, and Rotterdam. It is also in operation at a lesser-known logistical hub: the Kerem Shalom terminal, along the border between Israel and the blockaded Gaza Strip.

Through this particular piece of infrastructure, an uncanny symmetry appears between zones of maximum circulation that support global trade, and zones of maximum confinement, of which Gaza might be the world’s most infamous example. In the first case, the container scanner functions within a security apparatus that is tasked with maximising flows while making sure not to endanger the order of trade itself. In the second case, it is employed to minimise such flows while avoiding a complete collapse of the so-called ‘hostile territory’ that it surrounds. High-resolution, real-time monitoring and control are essential to both operations.

The land, sea, and air blockade of the Gaza Strip has been in force since 2007 and is unlikely to be lifted anytime soon. Unlike a medieval siege, the blockade does not aim to bring about the final capitulation the warring citadel of Gaza by completely cutting off its supply lines. Almost every day, some goods, some supplies, and to a lesser extent, some people do cross the border of Gaza in both directions. These cross-border flows are maintained at the bare minimum level necessary to avoid mass starvation, and all-out unrest, among the two million

Palestinians crammed into Gaza's three hundred and sixty-five square kilometres. For this reason, the blockade could, at least in principle, last indefinitely.

With the blockade's establishment, the Israeli authorities have acquired the ability to channel, monitor, and modulate the circulation of everything going in and out of the Palestinian enclave. Rather than simply obstructing passage, the closure of Gaza has enabled a form of centralised command over Gaza's vital circulatory system. While the political, juridical, and diplomatic processes remain indefinitely suspended, logistics has effectively turned into a mode of government.

In 2013, the Dutch government donated a MB1215DE scanner to Israel so that it could be installed at Kerem Shalom—the only crossing that remains partially open for the transit of goods to and from Gaza. As stated in the joint declaration prepared for the occasion, one of the key objectives of the donation was to ease “the transport of goods ... between the West Bank and the Gaza Strip”, while “safeguarding the security of Israel.” At the time, not a single export product had left Gaza since the blockade came into force six years earlier.

The scanner soon found itself at the centre of a diplomatic row between Israel and the Netherlands. Shortly before its inauguration ceremony at the Kerem Shalom crossing, which was meant to be attended by the Dutch Prime Minister himself, Israel announced that it would not allow exports from Gaza to the West Bank to resume, due to high-level security concerns. In response, the Dutch government abruptly cancelled the ceremony. The scanner then remained idle at the terminal for months, ready to inspect a non-existent flow of goods.

In 2014, Israel launched the largest and deadliest of its three military operations in Gaza since 2007. Never before had the built environment of the Palestinian enclave been so extensively destroyed. In spite of the critical need for reconstruction in the aftermath of the war, the blockade remained in force. As a consequence, life after the ceasefire threatened to turn into an uncontrollable humanitarian crisis. As part of the exceptional measures that were taken to avoid this outcome, the container scanner was finally put to work at Kerem Shalom. A second scanner was also installed—this one funded by the European Union. As part of the Gaza Reconstruction Mechanism established shortly after the war, the number of trucks allowed into Gaza began to increase, and a few were even permitted to exit the enclave. Nonetheless, such flows still represent a small fraction of the pre-2007 volume of trade; what is more, they are persistently kept far below the logistical capacity of the crossing.

The degree of tightening of the blockade is constantly modulated as a function of the level of tension between Israel and the various armed resistance groups in Gaza. Be it in response to Palestinian actions or as a pre-emptive measure, Israel always has the option to suddenly cut down all circulation in and out of Gaza. The policy extends beyond the flow of goods: the delivery of individual permits to exit Gaza through the Erez crossing reflects the same logic, while the limits of the authorised fishing zone off the coast of Gaza ebbs and flows according to Israel's own assessment of the security situation. With its erratic oscillations, the curve describing the volume of cross-border circulations over time can be read as a political seismograph of the enduring conflict.

Israel's administering of the blockade forms a rigorous implementation of the latest principles of global logistical management. Elastic logistics, as it is called, consists in maintaining the flexibility to expand or shrink delivery capabilities so as to quickly align with the ever-shifting demands and operational conditions of a supply chain. This principle is primarily intended to optimise commercial profits, by reducing an operator's exposure to friction. In Gaza, it is applied as a means to minimise the enemy's supply while avoiding to fuel its determination to resist.

The standardised, modular steel shipping container—developed from US military technology—is widely considered to have inaugurated the development of modern logistics in the second half of the twentieth century. In Gaza, the technical and economic rationality of the container seems to have expanded into a containment strategy applied to an entire polity. To handle the inconvenient burden of Gaza, Israel has chosen to confine its population into the tightest possible space for the smallest economic, political, or moral cost. Suspended to a calculation machine that reduces all human needs to minimum quantities, it is the lives of two million people that are thereby contained.

A syllogism: if war is the extension of politics by other means; and if politics has been reduced to logistics; war, in Gaza, has turned into an extension of logistics. Aptly code-named “Protective Edge”, the 2014 Israeli military operation in Gaza had as its declared objective the destruction of the network of tunnels which had been dug in response to the blockade. By opening up channels of unmonitored communication across the border, those tunnels posed indeed a fundamental threat to the exercise of a mode of power based on the meticulous control of all forms of circulation. The army was thus called on to remodel a contested terrain: to fill in the dangerous cavities through which Gaza was quite literally undercutting Israel's authority.

The essential instrumentality of war to maintain, and naturalise, the Gaza blockade as a durable regime of power is further confirmed by the current framing of Israel's strategic policy. The country's top-ranking military staff officially refer to their recurrent operations in Gaza as a process of "mowing the grass." In this chilling metaphor, the capacity for resistance of Gaza's population is perceived as naturally and perpetually growing; avoiding wild overgrowth hence requires, from the coloniser's perspective, regular interventions to contain it.

While the MB1215DE scanner is but one component of a far-reaching, distributed architecture, it encapsulates the key operational logic of the blockade as a project of urban containment. From logistics to surveillance, administration, energy supply, and environmental management, all operations that sustain the blockade of Gaza ought to be *optimised*—constantly readjusted to a set of varying parameters so as to maximise the blockade's effects while minimising its costs. In Gaza, the rising governmental paradigm of optimisation patently reveals its fundamentally oppositional disposition. To the main operator of the blockade, optimising this territorial-scale cybernetic system chiefly means achieving maximum debilitation of the enemy while minimising its own incapacitation in the process. In terms of its management as an urban territory, Gaza is undeniably smart—as smart as the bombs that keep raining down on it.

While it is the product of a unique history of struggle, the blockaded Gaza Strip also forms a radical diagram of a global phenomenon. In contrast with the cheerful discourse of their corporate providers, a key application of smart urban technologies today is the reinforcement, and cost-reduction, of existing mechanisms of urban exclusion. Digital redlining, data-driven access portals, predictive policing, or facial recognition systems that are biased by design are all cases in point. As an urban technology of containment designed for a multimillion population of outcasts, the blockade of Gaza has already begun to export itself across the world: from the UN-sanctioned blockade of Yemen to the complete shutdown of Kashmir, the network of internment camps in Xinjiang, or the vast programme of detection and detention of illegalised migrants ran by the US Immigration and Customs Enforcement. While smart urbanism promises to optimise the urban milieu, the targeted incapacitation of already-privileged urban users is only one of the modes by which the envisioned programme optimisation is currently pursued. The other, still largely overlooked, consists in the targeted debilitation of all of those who don't belong. Processes of release and enhancement on the one hand, practices of maiming and containment on the other: at stake in this dialectic may be nothing less than the urban question of the twenty-first century.

Every Friday since March 30, 2018, mass demonstrations are taking place in Gaza along Israel's separation fence. As a means of protesting against their indefinite restraint under the ongoing blockade, the people of Gaza are not gathering in public squares or in front of ministries, but along a thick militarised border and its logistical nodes. Since the start of the Great March of Return protests, the Kerem Shalom terminal was set on fire at least three times—and always promptly repaired. Several sections of the fence were also torn down by protesters, only to be re-erected in the following weeks. The response from Israel's security forces has been to shoot, as of January 2020, over 8,000 unarmed protesters with live ammunition. At least 1,200 of them are now crippled for life.

And yet, every Friday for almost two years now, protesters are back—challenging the material infrastructure of the blockade regime, adding friction to the system of organised containment, refusing the status quo, tearing the narrative of a humane blockade apart, forcing the colonial regime to reveal itself in all its sheer brutality—that of bullets shots through flesh. The steadfastness of Palestinians in the face of a 71 year-long colonial occupation is all the more laudable now that the daily violence to which they are exposed has been utterly banalised. Today, even the most revolting of abuses—such as the killing of 20-year old volunteer medic Rouzan Al-Najjar, hit in the thorax by an Israeli sniper's bullet as she was helping evacuating the wounded—won't stir much more than a fleeting moment of indignation by the so-called international community. Through their struggle and perseverance, the protesters in Gaza are not only undoing the myth that resistance itself can be crippled or contained. They are also helping us, on the other side of the fence, understand what true freedom might mean in the future.

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