

AUTOMATED LANDSCAPES

Reimagining the fulfilment centre of the (Post-) Anthropocene

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*Cover text: binary translation of poem by Richard Brautigan:

ALL WATCHED OVER BY MACHINES OF LOVING GRACE

I like to think (and
the sooner the better!)
of a cybernetic meadow
where mammals and computers
live together in mutually
programming harmony
like pure water
touching clear sky.

I like to think
(right now, please!)
of a cybernetic forest
filled with pines and electronics
where deer stroll peacefully
past computers
as if they were flowers
with spinning blossoms.

I like to think
(it has to be!)
of a cybernetic ecology
where we are free of our labors
and joined back to nature,
returned to our mammal
brothers and sisters,
and all watched over
by machines of loving grace.



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CONTENTS

Executive Summary	1
Societal Change	3
From Storage to Flow	4
e-commerce and the Last Mile	6
The Spatiality of Logistics	9
Infrastructural Space	10
The Big Box as Ground Plane	12
Conditions of Coexistence	15
Human Exclusion Zones	16
Digital Ecology	17
Project Location	19
East London	20
Site	22
Program	24
Deliverables	25
Bibliography	27
Figure list	28
CV	29

In an era of increasing metabolic flow, we can no longer afford to read the city solely in terms of the architectural object. We must shift to engage the city from the perspective of its operational systems and procedural flows. It behooves us to hijack other flow models as a way to think more critically about the city as a fluid condition and thus revitalize the agency of urbanism and planning in the age of globalization.

(Lyster 2016)

EXECUTIVE SUMMARY

The thesis project is an inquiry into the spaces of logistics, the system that makes e-commerce possible.

It aims to expose the chains put in motion once the “buy” button is clicked. Currently hidden, their spatial implications are translated into flows of goods and information, enclosed in fulfilment and data centres overtaking both the periphery and urban centres.

Warehouses can be so immense to render the architectural scale and terminology insufficient, morphing the fulfilment centres of the 21st century into enclosed landscapes. Within these topographies of human’s desires, the conveyance of goods is handled by automated machines following algorithmic rules, rendering the warehouse floor a human exclusion zone.

Thanks to artificial intelligence and arrays of sensors these human-made machines autonomously react to the world around them, behaving like natural super-organisms. This new affinity between nature and robots, operating and communicating through patterns we cannot understand, point to new models of coexistence.

The project is a critique of the current logistical infrastructure, moulding its geography by subtracting nature in favour of hard landscape.

With the argument that “ground, not building shell, is the most significant feature of contemporary space”^[1] the intention of ‘Automated Landscapes’ is to free the logistical processes from their architectural boundaries, unboxing the warehouse into an integrated flow of goods, people and ecology.

The program will unfold through three scales, from the network to the architectural element in order to investigate the issues created by online shopping while proposing an unconventional coexistence of previously separated programs. Looking at how the flow of logistics can coexist with public space, it will reimagine the megastructures of fulfilment as an agent for new urban typologies within London.

The scheme will actively be engaging with the UN Goals of **Industry Innovation and Infrastructure** (9). Through a hybrid typology where logistical infrastructure, landscape and public space coexist, the project will address sustainable consumption patterns and combat climate change by pursuing the Goals of **Responsible Production and Consumption** (12) and **Climate Action** (13) to ultimately propose a new last-mile approach with the goal to further develop London as a **Sustainable City and Community** (11).



SOCIETAL CHANGE

From Storage to Flows

In the contemporary supply chains, shelf life is planned to be as brief as possible. Goods are not stored anymore, they flow.

We must read the city as a networked environment in order to propose new protocols that respond to this phenomenon, or the risk is that logistic players will overtake every corner.

e-commerce and the Last Mile

In an ever-ending race for speed and efficiency of online fulfilment, the urban fabric and infrastructure find themselves under an unseen, transformative strain.^[1]

Fulfilment is becoming a new utility and part of modern life, how can we as designers ensure that it grows alongside the urban fabric rather than taking over? Our test is to explore typologies to generate new answers that regard the political and spatial issues of logistics as essentially architectural.^[2]

Fig.1- Louis Kahn's, Philadelphia Traffic Flow, courtesy of MoMA

[1] Subramanian, Samanth. 2019. 'How Our Home Delivery Habit Reshaped the World', *The Guardian* <<https://www.theguardian.com/technology/2019/nov/21/how-our-home-delivery-habit-reshaped-the-world>> [accessed 7 February 2021]

[2] LeCavalier, Jesse. 2019. 'Human Exclusion Zones: Logistics and New Machine Landscapes', *Architectural Design*: 48

FROM STORAGE TO FLOW

At the urban scale, we think of storage as purpose-built warehouses, but in today's post-Fordist cities, where goods are skilfully synchronised, storage doesn't gather in one place, but rather it flows. This is thanks to the recent digitalisation of information as well as just-in-time organised flows that altered shipping and inventory from the 1970s. The aim of contemporary logistical flows is to shrink shelf life as much as possible, or even better, eliminate it completely.^[1] Storage morphs into a "dynamic, temporal system, rendering storage as much a choreographic strategy as it is a geospatial one. Designing and coordinating these systems is the central task of logistics".^[2]

Moving away from the notion of a central warehouse concealing logistical processes, storage has moved into the public sphere, merging with available hosts. Part of TfL's 'click and collect' initiative, in 2014 Amazon located pick-up points within London tube stations, to allow costumers to collect an order on their commute.^[3] Storage today doesn't rely on interrupting flow in a warehouse, rather it is portrayed as an open, flexible and permeable urban landscape: perpetually visible, mapped and available. Logistics new plan is to move goods into the space of distribution, combining storage and flow into a single space. The immense, purpose-built envelopes taking over the peripheries discussed in 'The Big Box as Ground Plane' are not going anywhere, but rather than storing their task is now to move goods onward as quickly as possible.^[4]

Exponential computational power, state-of-the-art technologies and new modes of transport will further dictate the material appearance of storage as a flow in the urban context. Regardless of their convenience, the purpose of storage flows is not to improve life, but rather to drive our craving for more stuff, quicker.^[5]

In the past urban areas have been planned following geometric and geographic guidelines, but progressively urbanisation is organised through flows - of information, goods, people and services - over different scales of territory. With new technologies constantly adapting and streamlining the spatiality of flows within the urban fabric, we must read the city as a networked environment in order to propose new protocols that respond to this phenomenon, or the risk is that logistic players will overtake every corner.^[6]

[1] Lyster, Clare. 2016b. 'Storage Flows: Logistics as Urban Choreography', *Harvard Design Magazine* <<http://www.harvarddesignmagazine.org/issues/43/storage-flows-logistics-as-urban-choreography>> [accessed 7 February 2021]

[2] Lyster, Clare. 2016b. 'Storage Flows: Logistics as Urban Choreography', *Harvard Design Magazine* <<http://www.harvarddesignmagazine.org/issues/43/storage-flows-logistics-as-urban-choreography>> [accessed 7 February 2021]

[3] 'TfL and Amazon Team up to Introduce Amazon Lockers'. 2014. *Transport for London* <<https://tfl.gov.uk/info-for/media/press-releases/2014/june/tfl-and-amazon-team-up-to-introduce-amazon-lockers>> [accessed 7 February 2021]

[4] Lyster, Clare. 2016b. 'Storage Flows: Logistics as Urban Choreography', *Harvard Design Magazine* <<http://www.harvarddesignmagazine.org/issues/43/storage-flows-logistics-as-urban-choreography>> [accessed 7 February 2021]

[5] Lyster, Clare. 2016b. 'Storage Flows: Logistics as Urban Choreography', *Harvard Design Magazine* <<http://www.harvarddesignmagazine.org/issues/43/storage-flows-logistics-as-urban-choreography>> [accessed 7 February 2021]

[6] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 01

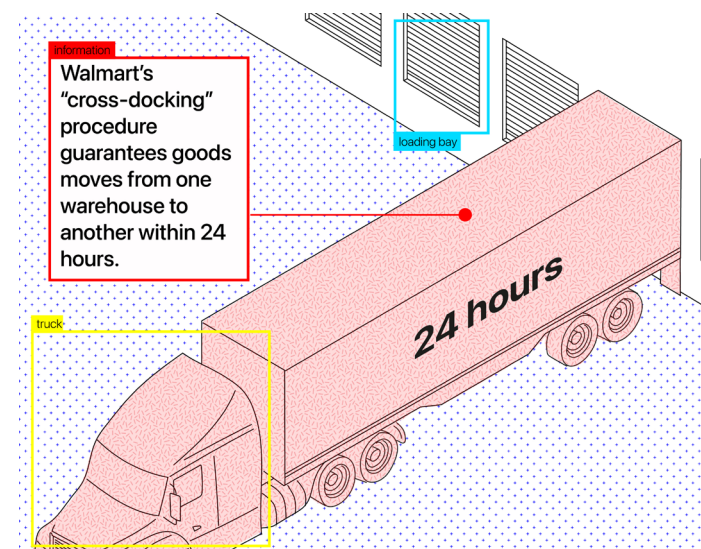
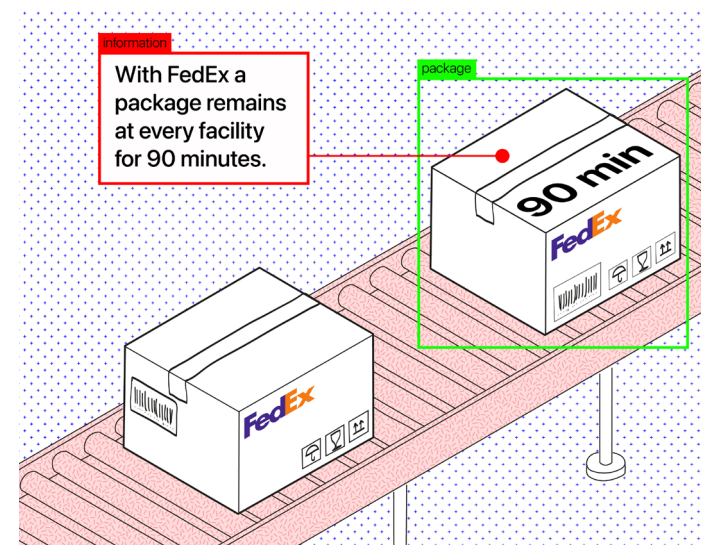
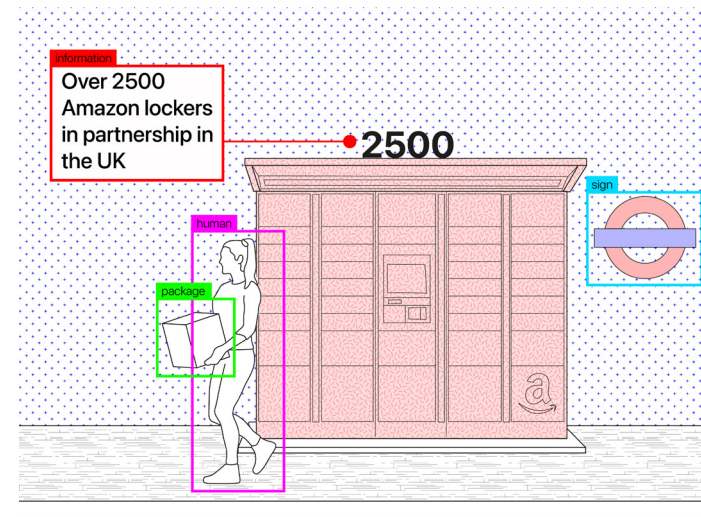


Fig. 2 - Author Illustration: storage has moved into the public sphere, merging with available hosts. Data from (Staff 2019)

Fig. 3 - Author Illustration: contemporary logistical companies want to shrink shelf life to a minimum. Data from (Lyster 2016a)

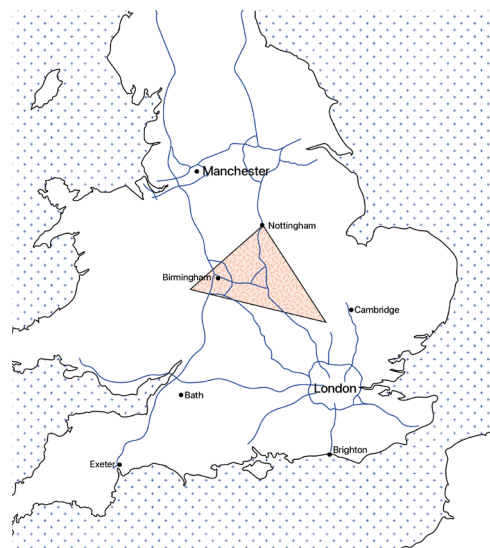
Fig. 4 - Author Illustration: contemporary logistical companies want to shrink shelf life to a minimum. Data from (Lyster 2016a)

E-COMMERCE AND THE LAST MILE

The powerful play of e-commerce has been to convince us to buy more while thinking less about it. The speed at which an on-line order reaches our home is breaking our awareness of space and time into unreasonable expectations. Logistics has superseded the conventional spatial-temporal span with the omnipresent here and now. Thanks in part to human exclusion zones, never before has the logistical machine become so abstract, producing an abyss between production and consumption.^[1]

Although media coverage might make you believe drones or autonomous vehicles might revolutionise the last mile, the crucial issues are much more mundane, but with wider implications: how to efficiently package a good, how to beat traffic or what happens when you are not home, and what to do with the mountains of used cardboard. In the e-commerce business, the last mile is the most costly and problematic one.^[2]

In Britain, the journey usually began in what the industry calls the Golden Triangle - an area between Nottingham, Birmingham and Bedford - where 90% of the island can be reached in four-and-a-half hours, the longest operators are allowed to drive without a break.^[3] Which means an item arriving at the port in Suffolk would travel up towards Nottingham for sorting to then be sent back to a store in Suffolk.



To achieve shorter delivery times, these vast hubs are now inadequate, forcing companies to open smaller Urban Fulfilment Centres closer to cities.

In an ever-ending race for speed and efficiency, the urban fabric and infrastructure find themselves under an unseen, transformative strain. The effortlessness of online shopping has made us forget that we used to be part of the logistic chain; by carrying stuff back home we were our own last-mile solution.^[4]

Fulfilment is becoming a new utility and part of modern life, how can we as designers ensure that it grows alongside the urban fabric rather than taking over? Our test is to explore typologies to generate new answers that regard the political and spatial issues of logistics as essentially architectural.^[5]

[1] Subramanian, Samanth. 2019. 'How Our Home Delivery Habit Reshaped the World', *The Guardian* <<https://www.theguardian.com/technology/2019/nov/21/how-our-home-delivery-habit-reshaped-the-world>> [accessed 7 February 2021]

[2] Subramanian, Samanth. 2019. 'How Our Home Delivery Habit Reshaped the World', *The Guardian* <<https://www.theguardian.com/technology/2019/nov/21/how-our-home-delivery-habit-reshaped-the-world>> [accessed 7 February 2021]

[3] Subramanian, Samanth. 2019. 'How Our Home Delivery Habit Reshaped the World', *The Guardian* <<https://www.theguardian.com/technology/2019/nov/21/how-our-home-delivery-habit-reshaped-the-world>> [accessed 7 February 2021]

[4] Subramanian, Samanth. 2019. 'How Our Home Delivery Habit Reshaped the World', *The Guardian* <<https://www.theguardian.com/technology/2019/nov/21/how-our-home-delivery-habit-reshaped-the-world>> [accessed 7 February 2021]

[5] LeCavalier, Jesse. 2019. 'Human Exclusion Zones: Logistics and New Machine Landscapes', *Architectural Design*: 48

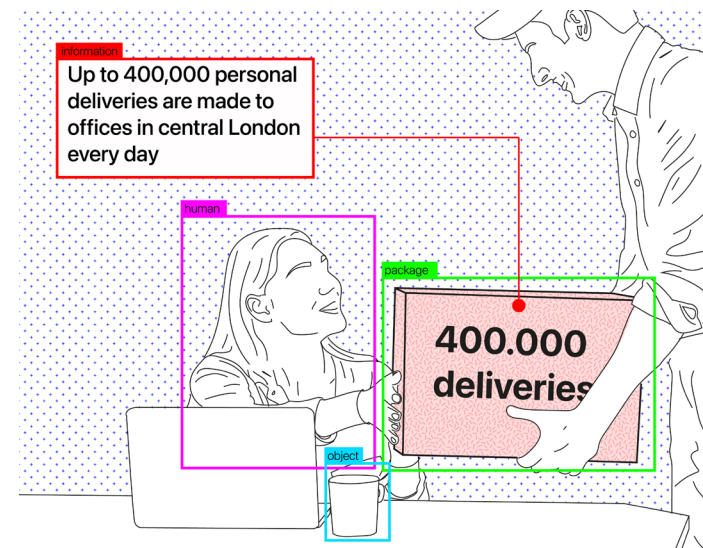
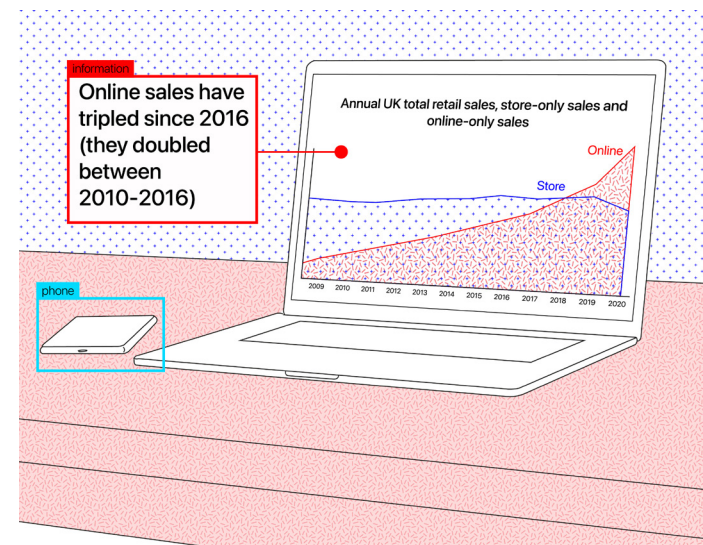
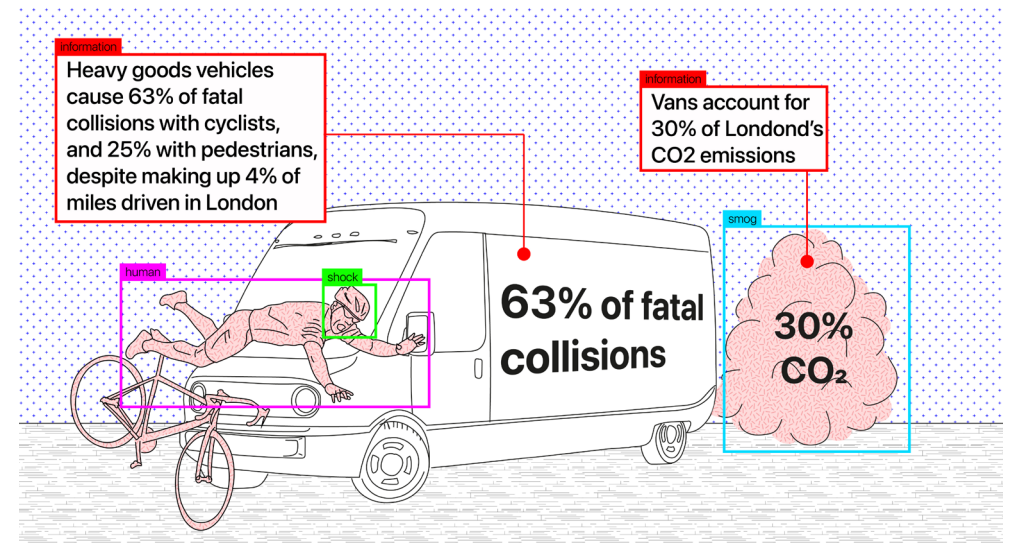


Fig. 5 (facing page) - Author Illustration: the Golden Triangle is the centre of logistical networks.

Fig. 6 - Author Illustration: aside from traffic, the last mile risks citizens's health and well-being. Data from ('The Mayor and TfL Launch Major Plan to Help Freight Deliver for Londoners' 2019)

Fig. 7 - Author Illustration: following the Covid-19 pandemic online sales are booming. Data from Retail Sales Inquiry; Office for National Statistics

Fig. 8 - Author Illustration: the staggering amount of deliveries require multiple stops, overtaking curbsides and increasing harmful emissions. Data from ('The Mayor and TfL Launch Major Plan to Help Freight Deliver for Londoners' 2019)



THE SPATIALITY OF LOGISTICS

Infrastructural Space

Logistics reshapes territories, it is the management of things in space and time. Its infrastructural network has superseded geography as the prerequisite for urbanism.^[1]

Logistics today also clashes and sometimes overtakes the city as the prevailing public and cultural space. How can we reconfigure this relationship between city and infrastructure to propose a new typology that, intertwined with logistics, can generate a new notion of public space?

The Big Box as Ground Plane

The big box is in reality the combination of different surface conditions that don't present themselves as distinct elements but function in conjunction as a wider cohesive ecology.^[2]

As interior and exterior join into an uninterrupted arrangement can we imagine a new typology where architecture meets landscape?

Fig. 9 - Ben Roberts, Amazon Unpacked

[1] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 17

[2] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 158

INFRASTRUCTURAL SPACE

Logistics is a multi-scalar network that connects something as small as the barcode to bodies working in fulfilment centres to the structures that are connected to each other leading to transformations at the scale of the planet. Logistics reshapes territories, it is the management of things in space and time.^[1] The structuring of the contemporary western world entails a growing mobility over the global, regional and local domains made possible by new networks typologies.^[2]

The network has superseded geography as the prerequisite for urbanism. Global systems have altered this correlation to the point that modern urban developments have few ties to its geographical place.^[3] In the networked landscape distant sites often share similarities more than spaces within the same city.^[4]

Although infrastructural space has extended to cover the entire city, its architectural manifestation tends to be in the form of industrial clusters, like megastructures in the landscape. The notion of megastructure is commonly used to envision uninterrupted large-scale urban geographies, but its key proposition is the apathy towards local geography (Fig. 11), with Archizoom's No Stop City (Fig. 12) exemplifying the most drastic version, reducing the city to an endless plateau for the circulation of commodities and people.^[5]

These urban distribution landscapes then extend onto the urban fabric through their infrastructure, and through partnerships with cities. In 2019 the Mayor of London and TfL introduced a plan to transform how goods are delivered: TfL will offer land for micro-distribution centres in various neighbourhoods to promote sustainable last-mile deliveries. This is also to alleviate the cost of logistics on London infrastructure, with half of the value of household expenditure, around £79 billion per year, going towards road freight.^[6]

Sadiq Khan, Mayor of London, said: "Freight is essential for London's economy. By creating a pan-London network [...] we will enable more commuters to collect packages near their home."^[7]

Logistics today clashes and sometimes supersedes the city as the prevailing public and cultural space. This is because its devices and infrastructure synthesise in a wider conception of urbanity, now morphed into a multi-layered organism of exchange: a service platform.^[8]

How can we reconfigure this relationship between city and infrastructure to propose a new typology that, intertwined with logistics, can generate a new notion of public space?

[1] LeCavalier, Jesse. 2019b. *Landscapes of Fulfilment* (YouTube: Columbia GSAPP) <<https://www.youtube.com/watch?v=mPSSfXW5l4>> [accessed 7 February 2021]

[2] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 10

[3] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 17

[4] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 34-35

[5] Marullo, Francesco. 2015. 'Logistics Takes Command', *Log* 35: 103-20

[6] 'The Mayor and TfL Launch Major Plan to Help Freight Deliver for Londoners'. 2019. *Transport for London* <<https://tfl.gov.uk/info-for/media/press-releases/2019/march/the-mayor-and-tfl-launch-major-plan-to-help-freight-deliver-for-londoners>> [accessed 8 February 2021]

[7] 'The Mayor and TfL Launch Major Plan to Help Freight Deliver for Londoners'. 2019. *Transport for London* <<https://tfl.gov.uk/info-for/media/press-releases/2019/march/the-mayor-and-tfl-launch-major-plan-to-help-freight-deliver-for-londoners>> [accessed 8 February 2021]

[8] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 125

Some of the most radical change to the globalising word are being written, not in the language of law and diplomacy, but in these spatial, infrastructural technologies.

(Easterling 2014)

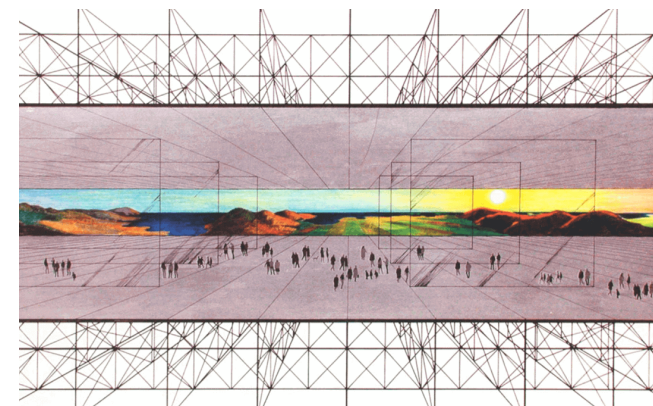
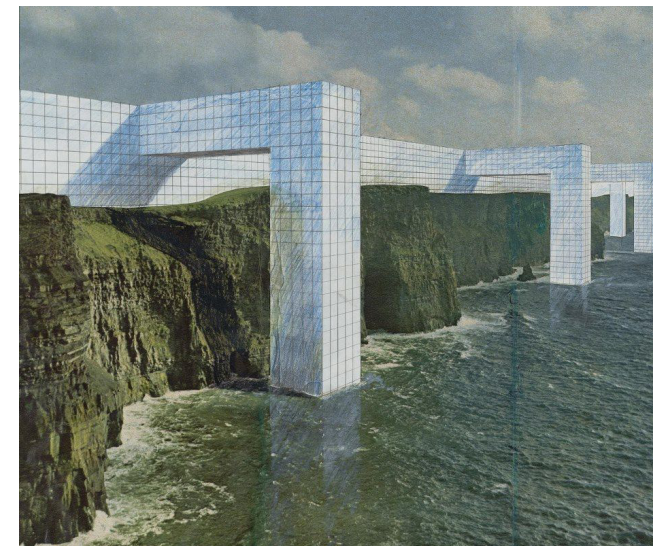
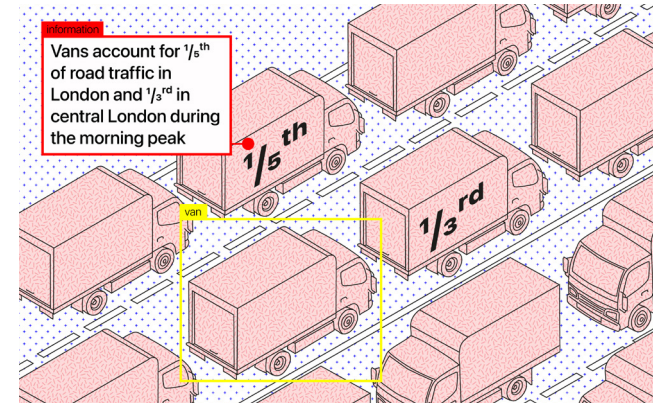


Fig. 10 - Author Illustration: cities are struggling to keep up with the strain the last mile imposes on their infrastructures. Data from Mayor and TfL Launch Major Plan to Help Freight Deliver for Londoners' (2019)

Fig. 11 - Superstudio's Continuous Monument for Total Urbanisation, clear in its monumentality while ignoring geographic features and place. Courtesy of MoMA

Fig. 12 - Archizoom's No Stop City with similar ambitions to Superstudio's Continuous Monument, here the lack of an exterior suggest that total urbanisation can be an interior condition. Courtesy of sectioncut.com

THE BIG BOX AS GROUND PLANE

If logistics are networks connecting barcodes leading to transformations at the scale of the planet then the warehouse is the architectural consequence of these networks. As containers transformed the harbour into an automated landscape, digitalisation has revolutionised how goods are tagged and dispatched, remodelling their envelope into colossal semiautomated structures.^[1]

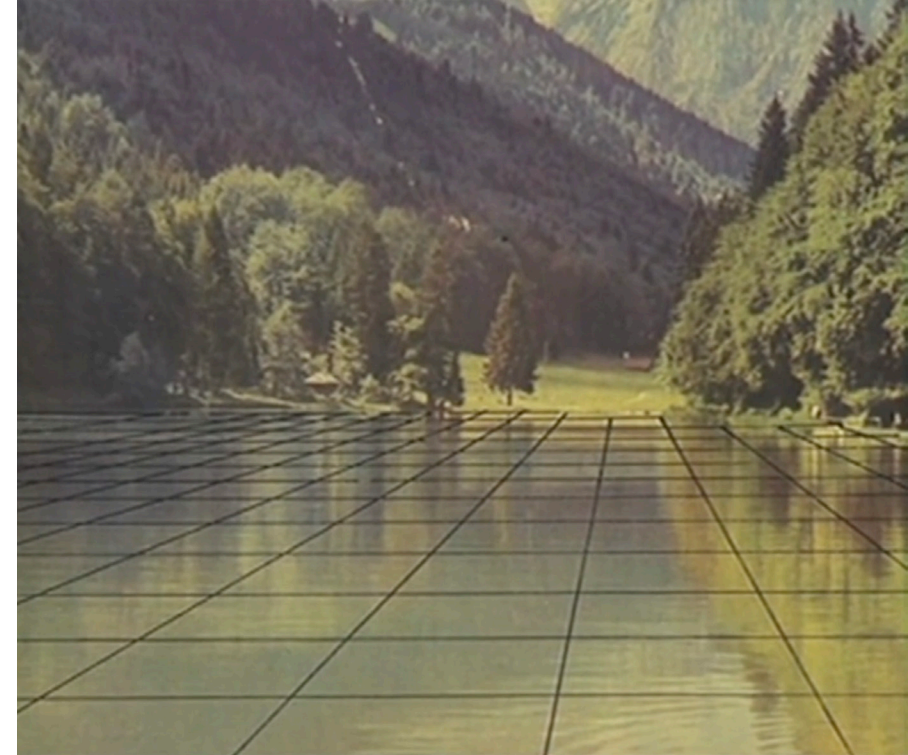
These structures are of such importance that some are classed as nationally significant infrastructure projects. Called fulfilment centres - rather than warehouses - they act as relays, receiving goods and redirecting them. Buildings are deployed as territorial instruments becoming part of a much larger system of trucks, trains, the internet and subsidiary distribution points in a continuous flow of goods.^[2] Building isn't the right term as they are a tangle of conveyance systems with the architectural expression being at its minimum, a thin membrane to enclose this giant machine.^[3]

Architecture is therefore decipherable in the tectonic details that allow the movement of products from different transport systems. Their values can be found not in their aesthetic characteristics but in the opportunity they yield to architecture, now a machine for controlling flows that occur beyond its physical boundary.^[4]

In fulfilment landscapes the value of "ground" can be taken verbatim. Fulfilment centres are often made up of one or two stories and vast footprints are central to their functionality. Their size goes beyond what we regard to be architectural, forcing us to measure them in hectares. This ambivalence of vocabulary carries uncertainty, are they architecture or landscape? This subsides the parameters between these formerly incompatible disciplines of space making into a new hybrid realm where measurements are mixed and typologies are remodelled.^[5]

In the contemporary automated human exclusion zones of logistics the ground plane is described as an 'informal landscape', a compound area that is 'more than merely the durable surface underfoot has become the brains of an intelligent navigation system'.^[6] With the modern transformation of fulfilment landscapes, it is as if the vision of Superstudio's Supersurface (Fig. 13) of continuous urbanisation without architecture has finally come alive.^[7]

The big box is in reality the combination of different surface conditions that don't present themselves as distinct elements but function in conjunction as a wider cohesive ecology.^[8] As interior and exterior join into an uninterrupted arrangement can we imagine a new typology where architecture meets landscape?



[1] Marullo, Francesco. 2015. 'Logistics Takes Command', *Log* 35: 103-20

[2] Moore, Rowan. 2018. 'A Shed the Size of a Town: What Britain's Giant Distribution Centres Tell Us about Modern Life', *The Guardian* <<https://www.theguardian.com/artanddesign/2018/apr/15/shed-the-size-of-town-what-britains-giant-distribution-centres-tell-us-about-modern-life>> [accessed 7 February 2021]

[3] LeCavalier, Jesse. 2019b. *Landscapes of Fulfilment* (YouTube: Columbia GSAPP) <<https://www.youtube.com/watch?v=mPSSfXWi5I4>> [accessed 7 February 2021]

[4] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 151-152

[5] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 153-154

[6] Keller, Easterling. 2012. 'Floor. Dwg', *Cabinet* 47: 98

[7] Kuijpers, Marten, and Ludo Groen. 2020. 'Automated Landscapes and the Human Dream of Relentlessness', *Strelka Mag* <<https://strelkamag.com/en/article/reporting-from-automated-landscapes>> [accessed 7 February 2021]

[8] Lyster, Clare. 2016a. *Learning from Logistics* (Birkhäuser), p. 158

The monument of the modern city was the skyscraper; in the post-Fordist city, it is the ground.
(Lyster 2016)

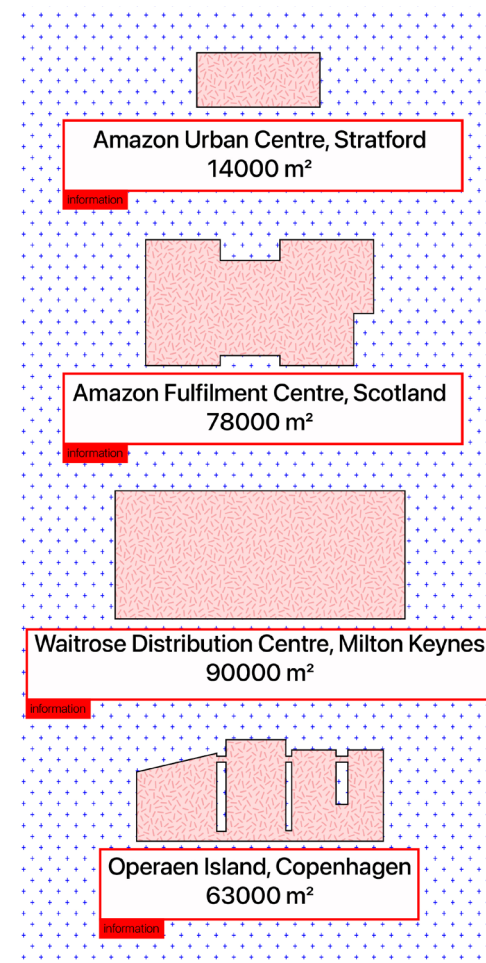


Fig. 13 - Superstudio's Supersurface. Courtesy of MoMA

Fig. 14 - Author Illustration: Footprint of fulfilment centers in the UK compared to Operaen Island in Copenhagen.

CONDITIONS OF COEXISTENCE

Human Exclusion Zones

Fulfilment and data centres, the defining cultural typologies our times, are increasingly devoid of people. Akin to landscape infrastructures and reigned by autonomous machines they are precursors of a new typology: a technological sublime.^[1]

We require the machinic intelligence of logistics hubs to extend beyond their envelope to encapsulate both local and national territories and as designer we have the opportunity to regard it as an architectural issue.

Digital Ecology

Benjamin Bratton argues that computation wasn't invented, it was discovered; the world computes itself. Are robots natural then?^[2]

As the line separating natural and automated blurs, the boundless logistical networks underpinning our economies suggest new archetypes of coexistence.

[1] Young, Liam. 2019. 'Neo-Machine: Architecture Without People', *Architectural Design*: 6–13

[2] Bratton, Benjamin H. 2015. *The Stack* (The MIT Press), pp. 76–81

HUMAN EXCLUSION ZONES

These distribution and fulfilment zones are increasingly devoid of people. They are becoming less dependent on us and are turning into spaces where humans and robots are kept safe from one another, creating 'human exclusion zones'.^[1]

The breakthrough of Kiva robots, autonomous machines used in stocking facilities, was to discover a way to carry things to people rather than vice versa.

If the barcode is the language by and for machines Kiva's automated warehouse floor is that language turned spatial.^[2] The plan of a Kiva fulfilment centre becomes a topological representation of our shared consumer impulses, encrypted and displayed through a machine language we cannot read.^[3]

By examining these machined landscapes we could argue that we are already moving beyond the Anthropocene. Benjamin Bratton describes it as "a new age of nonhuman actors where it is technology and artificial intelligence that now compute, condition and construct our world."^[4]

Because in the 21st-century culture is produced and experienced mainly digitally, these structures are reminiscent of grand cathedrals or libraries of the past, beyond mere computation systems, they are becoming the defining cultural typologies our times.^[5]

The fulfilment landscapes of today are precursors of a new typology: a technological sublime.^[6]

If we want this transition to succeed we require the machinic intelligence of logistics hubs to extend beyond their envelope to encapsulate both local and national territories. Logistical actors are letting automation shape the public urban fabric for their own agenda, as designer we have the opportunity to regard it as an architectural issue and propose new urban prototypes.

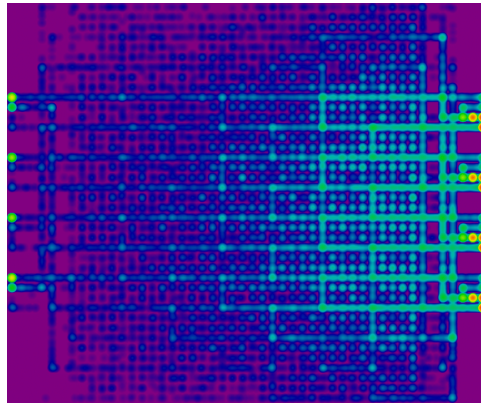


Fig. 16 - Heatmap of the robot movement in a warehouse. The most requested items will flow to the front of the warehouse. Courtesy of researchgate.net

[1] Young, Liam. 2019. 'Neo-Machine: Architecture Without People', *Architectural Design*: 6–13

[2] LeCavalier, Jesse. 2019b. *Landscapes of Fulfilment* (YouTube: Columbia GSAPP) <<https://www.youtube.com/watch?v=mPSSfXWi5I4>> [accessed 7 February 2021]

[3] LeCavalier, Jesse. 2019. 'Human Exclusion Zones: Logistics and New Machine Landscapes', *Architectural Design*: 48

[4] Bratton, Benjamin H. 2013. 'SomeTrace Effects of the Post-Anthropocene: On Accelerationist Geopolitical Aesthetics', *E-Flux Journal*: 1–12

[5] Young, Liam. 2019. 'Neo-Machine: Architecture Without People', *Architectural Design*: 6–13

[6] Young, Liam. 2019. 'Neo-Machine: Architecture Without People', *Architectural Design*: 6–13

DIGITAL ECOLOGY

In the Netherlands, every surface is man-made. Nature as in physical matter unaltered by humans barely survives. Most of what we define natural has adopted an artificial authenticity, bananas are yellower, perfectly shaped and longer lasting.^[1] We have become so accustomed to some technological processes to regard them as natural.

The line between culture and nature is blurring. If we consider culture that which we control and nature as everything autonomous of human input, then GMOs are cultural, while computer viruses and warehouse robots are natural.^[2]

Kiva robots, through sensor and mathematical protocols can react to their surroundings. In that respect, they operate like ants and other organic super-organisms (a group of synergistically interacting organisms of the same species)^[3], acting as a pack following a shared objective. Similarly, they strive for homeostasis (the state of equilibrium maintained by the living systems of a group)^[4] and communicate through stigmergy (a mechanism of indirect coordination based on consensus between agents or actions)^[5].

Servers, robots and autonomous vehicles, the components making up logistical infrastructures transform into bodies of a new techno-ecology.^[6] The mutual programmed harmony between mammals and computers that poet Richard Brautigan described in 1967 (see inside front cover) might become reality.^[7]

As the line separating natural and automated blurs, the boundless logistical networks underpinning our economies suggest new archetypes of coexistence. By unboxing the warehouse, autonomous machines are freed from their architectural limits, cohabiting with nature in a constantly morphing balance.

[1] Van Mensvoort, Koert. 2006. 'Real Nature Is Not Green', *Next Nature Network* <<https://www.nextnature.net/story/2006/real-nature-isnt-green>> [accessed 11 February 2021]

[2] Van Mensvoort, Koert. 2006. 'Real Nature Is Not Green', *Next Nature Network* <<https://www.nextnature.net/story/2006/real-nature-isnt-green>> [accessed 11 February 2021]

[3] 'Superorganism'. 2003. *Wikipedia* <<https://en.wikipedia.org/wiki/Superorganism>> [accessed 11 February 2021]

[4] 'Homeostasis'. 2002. *Wikipedia* <<https://en.wikipedia.org/wiki/Homeostasis>> [accessed 11 February 2021]

[5] 'Stigmergy'. 2002. *Wikipedia* <<https://en.wikipedia.org/wiki/Stigmergy>> [accessed 11 February 2021]

[6] Captcha. 2019. 'Computational Landscapes and the New Sublime', *Strelka Mag* <<https://strelkamag.com/en/article/computational-landscapes-and-the-new-sublime>> [accessed 11 February 2021]

[7] Madrigal, Alexis C. 2011. 'All Watched Over by Machines of Loving Grace', *The Atlantic* <<https://www.theatlantic.com/technology/archive/2011/09/weekend-poem-all-watched-over-by-machines-of-loving-grace/245251/>> [accessed 11 February 2021]

PROJECT LOCATION

East London

Aiming to reimagine the fulfilment centre, the project will be located in an existing 1km² logistical and industrial park in East London between Canning Town and West Ham.

Surrounded by development opportunity areas the site has no current redevelopment plans despite its vicinity to the Olympic Legacy SPG and the Isle of Dogs

Site

Currently a logistical park, highway and rail development has produced an inaccessible zone, creating apparent uninhabitable areas splitting the social and physical fabric of the urban environment.

In between major new developments and with a strong connection to public infrastructure the site offers a platform to reimagine what a logistic landscape that integrates and enhances its urban surrounding can look like.

EAST LONDON

'Infrastructural Space' argued that urban space can be interpreted through the networks that inhabit it. If we look at the sites along these network from an architectural standpoint they become areas ripe for new urban configuration. This provides new relevance to edge urban areas that architects have been disregarding. New infrastructural domains such as airports or logistical centres can resurface as urban catalysts.^[1]

Aiming to reimagine the fulfilment centre, the project will be located in an existing 1km² logistical and industrial park in East London between Canning Town and West Ham. Its position allows for express deliveries across central London; direct access to the A13 and a 20 minute drive to the M25 enables fast access to the periphery and the London Container Terminal. The prime location made it a new crucial infrastructural node for last mile deliveries, giving rise to two major Urban Fulfilment Centres.

Surrounded by development opportunity areas the site has no current redevelopment plans despite its vicinity to the Olympic Legacy SPG and the Isle of Dogs, generating new residential, cultural and education complexes. Of particular notice is the new TwelveTrees development - completing in 2023 - on the northern boundary, offering 3800 new apartments and 23.000m² of retail and commercial space.

[1] Lyster, Clare. 2016. *Learning from Logistics* (Birkhäuser), p. 42

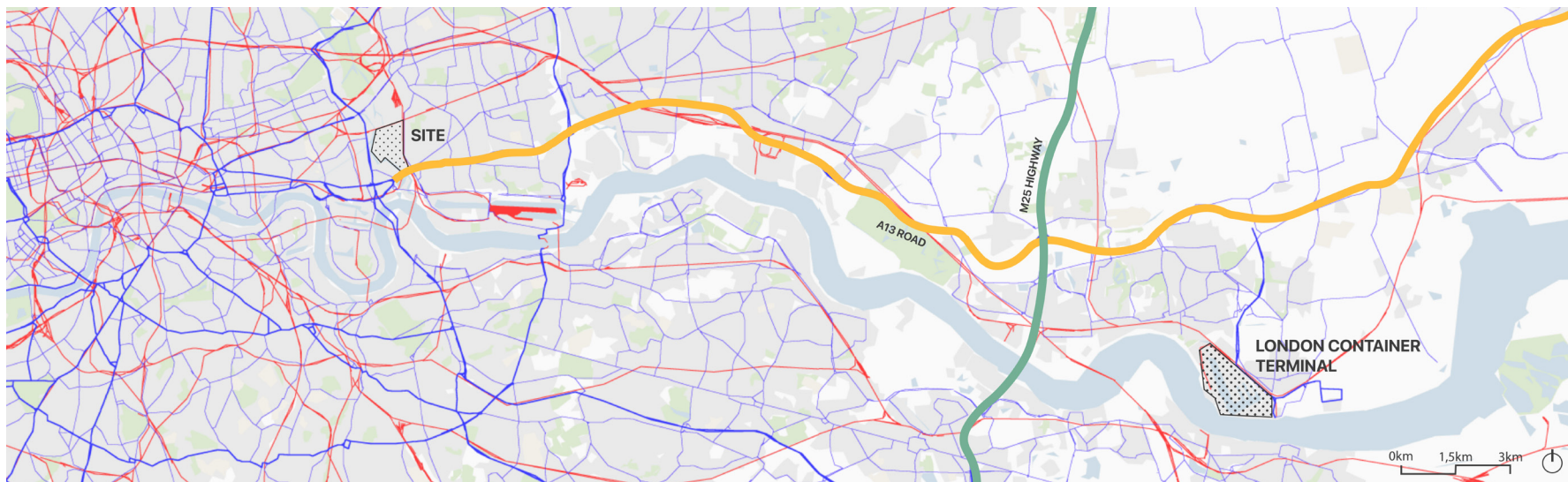
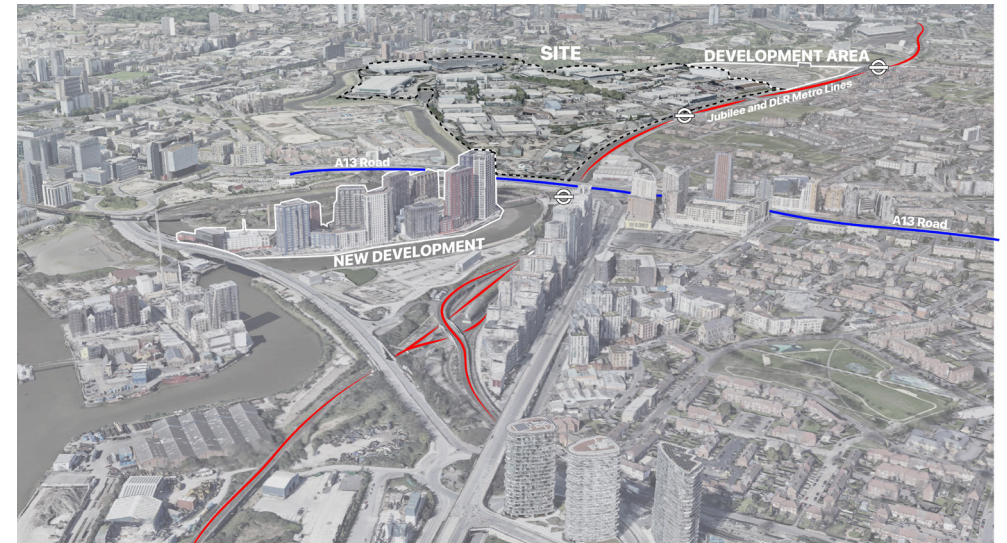
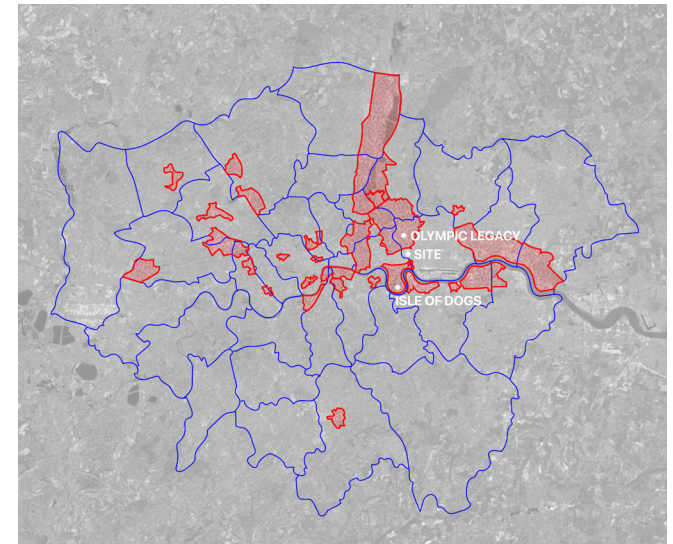


Fig. 17 - Author Illustration: diagram of London highlighting the Areas of Opportunities as presented by the Mayor of London. Data from london.gov.uk

Fig. 18 - Aerial View overlooking the site, in relation to the city and infrastructure nodes. Image from Google Earth, graphic additions by Author.

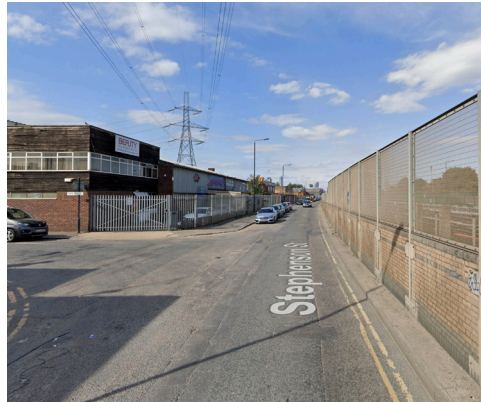
Fig. 19 - Author Illustration: map of East London and the infrastructural connection between the site and the London Container Terminal.

SITE

The lack of design attention could be because ugly and ordinary, logistical areas offer spaces where challenging existing conditions collide with the economic and social division.^[1] Delineated by the District and Hammersmith & City to the North, the Jubilee and DLR metro lines to the East, the A13 to the South and the river Lea to the West, it represents a condition typical of logistical sites: highway and rail development has produced an inaccessible zone, creating apparent uninhabitable areas splitting the social and physical fabric of the urban environment.^[2]

At the same time, Star Lane DLR station is located on the western edge of the site, with 3 additional tube and rail stations at the corners, potentially offering great links to the public transport infrastructure.

In between major new developments and with a strong connection to public infrastructure the site offers a platform to reimagine what a logistic landscape that integrates and enhances its urban surrounding can look like. Thanks to the Queen Elisabeth Olympic Park to the north connecting to the site through the river Lea the site is predisposed to continue the green connection to the edge of the Thames, suggesting a new coexistence between the natural and the industrial language.



[1] Crisman, Phoebe. 2009. *Inhabiting the In-between: Architecture and Infrastructure Intertwined*, Print (University of Virginia School of Architecture), p. 1

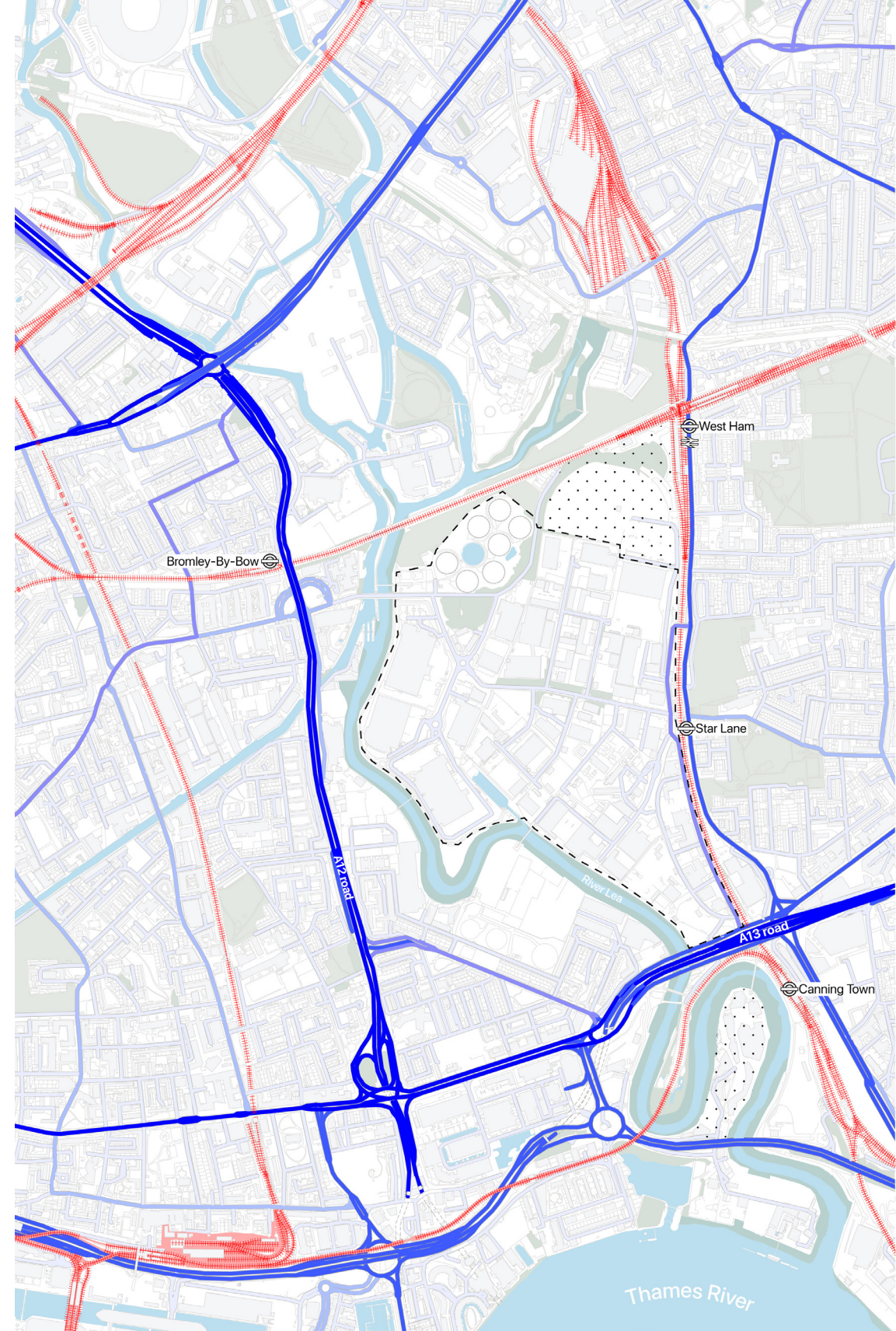
[2] Crisman, Phoebe. 2009. *Inhabiting the In-between: Architecture and Infrastructure Intertwined*, Print (University of Virginia School of Architecture), p. 1



Fig. 20 - Main street crossing the site East-West, facing towards the Amazon Fulfillment Centre. Courtesy of Google Street View, September 2020

Fig. 21 - Main access road from A13 alongside the metro line, facing North towards Stratford. Courtesy of Google Street View, September 2020

Fig. 22 - Overview of the site from the old gas holders at the North edge of the site, looking South towards the Thames and the O2. Courtesy of evyrealstate.co.uk



⊕ Metro Station
⊕ Train Station
— Train Tracks
— Roads
- - - Site
⋯ New Residential Development
0m 100m 200m

PROGRAM

In the constantly shifting urban landscape, trade leaving the city and leisure constantly occupying it, logistics can adjust land use to create more open space, formulating a new vision for urbanism around recreation, leisure and new subcultures.^[1]

The machine of fulfilment melts its apparatus (hardware and software) into a unified domain of flows, blurring envelope and system into a single body. At this juncture, 'ground' has the potential to merge city conditions previously segregated.

With this in mind, **the project is a critique of the current logistical infrastructure overtaking both peripheries and cities, moulding its geography by subtracting nature in favour of hard landscape. The scheme investigates how this boundless landscape can be rethought as a new typology; how can the flow of logistics coexist with public space, turning the megastructures of fulfilment into a connector of different urban conditions?**

To establish architecture's influence on the wider urban environment, the scheme will make use of three interdependent scales: the cartography scale of the logistic networks, the site scale of logistical megastructures and the human scale of the architectural proposal.

Network scale: from port to park

The cartographical scale will map Britain's existing freight infrastructure as well as the public and logistical network within London as a research into how stocks and people move across the island. The aim is to present an alternative distribution system to sustain the immediacy of e-commerce and address the issues of the last mile.

Site scale: the logistic park

The key element of the program will be the logistic park. To imagine how a new relationship between consumption and demand can affect consumerism, the project will investigate how the now hidden logistical flows can be showcased in a new public realm.

Extending like current megastructure it will be akin to the magnitude of landscapes; the scheme will be concerned with the friction between landscape and architecture.

Architectural scale: giving agency to consumers

The architectural element will unfold through smaller interventions within the vastness of the logistical park. Looking both at the building scale as well as the architectural detail, it will explore new forms of interaction between the automated fulfilment zone, the ecological processes of landscape and the flow of its users.

In conjunction, these scales aim to investigate the issues created by online shopping while proposing an unconventional coexistence of previously separated programs.

'Automated Landscapes' presents a new prototype beyond the standard envelope of urban fulfilment centres by freeing the logistical processes from their architectural limits in an integrated flow of goods, people and ecology. Made possible by automation and just-in-time logistics it will re-imagine fulfilment as an agent for new urban typologies in London.

DELIVERABLES

The scheme will test and consider various representation techniques, ranging from 3D models to 2D drawings, to investigate unrealised opportunities of current logistical landscapes within London.

The spatial implications will be predominantly investigated at the site scale of the logistic park. 1:5000 plans, to explore its relationship to the context, to 1:1000 sections, to look at the links over its infrastructural and natural boundaries, will be supported by sketches and axonometric views to jointly explore its scale in connection to its surroundings.

The use of the architectural scale will supplement the program through 1:200 plans and sections to further explore the coexistence between the automated fulfilment zone and the public sphere.

In addition, the logistical network will use schematic strategies to diagrammatically examine existing connections and possible interventions within London and beyond to support the architectural and site-wide scale.

Network Scale

Atlas / Maps: Diagrammatic

Diagrams

Site Scale

Site: 1:5000

Section: 1:1000

Axonometric views

Diagrams

Architecture Scale

Plans: 1:200

Sections: 1:200

Diagrams

Visualisations

The origin of architecture is not the primitive hut, but the making of ground to establish a cosmic order around the surrounding chaos of nature.

Vittorio Gregotti, *Il Territorio dell'Architettura*, 1983

[1] Lyster, Clare. 2016. *Learning from Logistics* (Birkhäuser), p. 141

'Automated Landscapes' will envision a new archetype where nature, goods, and humans will cohabit. In exploring the different boundaries between these programs the scheme will engage in interdisciplinary discourse. Working and in dialogue with experts from different fields, the thesis project will study the current logistical systems, the existing and new ecological processes as well as the infrastructure networks making it all possible.

This is a preliminary list of people I will confer with:

Logistics:

Jesse LeCavalier

Designer, writer, and educator exploring the architectural and urban implications of contemporary logistics. Associate professor of architecture at the University of Toronto.

Paul Ashraf

Regional Director for Last-Mile Distribution at Amazon UK

Robin Hickman

Professor of Transport and City Planning at The Bartlett School of Planning

George Papam Papamattheakis

Postgraduate student of Urban Geography at the Harokopio University in Athens exploring the geography of infrastructures.

New Ecologies:

Captcha

Research group that investigates the field of techno-ecology.

João Costa

Research assistant in the Mediated Matter Research Group. He has worked on both Silk Pavilion II and Aguahoja II

Liam Young

Cofounder of Tomorrows Thoughts Today, an urban futures think tank, exploring the local and global implications of new technologies

Brad Cantrell

Landscape architect and scholar at the University of Virginia. His work focuses on the role of computation and media in environmental and ecological design.

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FIGURE LIST

Cover Image -Courtesy of Drawing Matter

Fig. 1 - Courtesy of MoMA

Fig. 2 - Author Illustration

Fig. 3 - Author Illustration

Fig. 4 - Author Illustration

Fig. 5 - Author Illustration

Fig. 6 - Author Illustration

Fig. 7 - Author Illustration

Fig. 8 - Author Illustration

Fig. 9 - From photographer Ben Roberts for the project 'Amazon Unpacked'

Fig. 10 - Author Illustration

Fig. 11 - Courtesy of MoMA

Fig. 12 - Courtesy of sectioncut.com

Fig. 13 - Courtesy of MoMA

Fig. 14 - Author Illustration

Fig. 15 - Semester Project Autumn 2020 by Asbjørn Falck and Author

Fig. 16 - Courtesy of researchgate.net

Fig. 17 - Courtesy of london.gov.uk

Fig. 18 - Courtesy of Google Earth, additions by Author

Fig. 19 - Author Illustration

Fig. 20 - Courtesy of Google Street View, September 2020

Fig. 21 - Courtesy of Google Street View, September 2020

Fig. 22 - Courtesy of evyrealestate.co.uk

CV

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Employment:

2018 Stanton Williams Architects, London,
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Education:

2019 - (2021) USC, KADK, Royal Danish Academy of Fine Arts
MA in Architecture

2014 - 2017 Kingston School of Art
BA in Architecture

Distinctions:

2017 RIBA Bronze Medal Nomination

Extracurriculars:

2020-2021 Peer Review (previously LASC)
Organising and facilitating crits between students from
different institutions across London and beyond.

