

ADVANCED TECHNOLOGIES

SMART SHED

Industry in the city

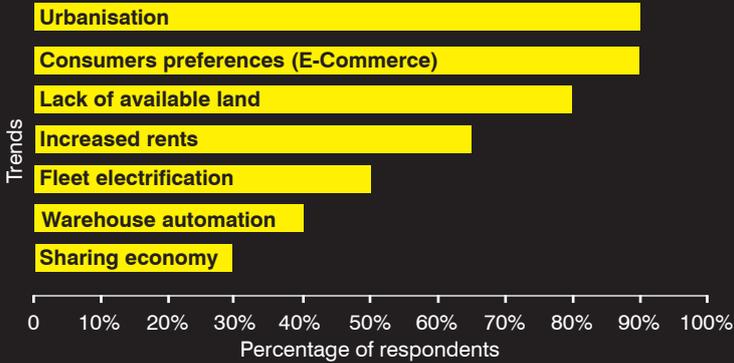
Contents

Vertical Urban Factories
A Global Phenomena
Layering Value
Transformational Planning
Vision

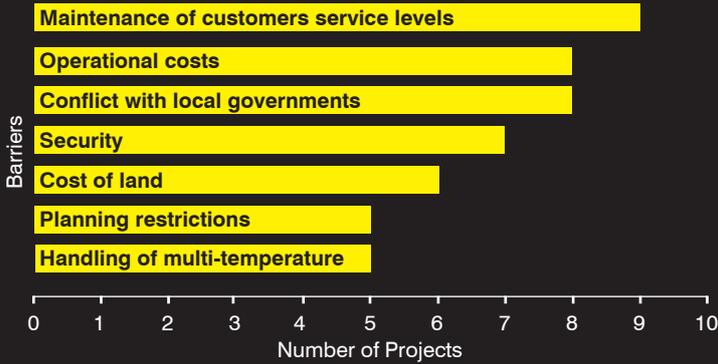


01

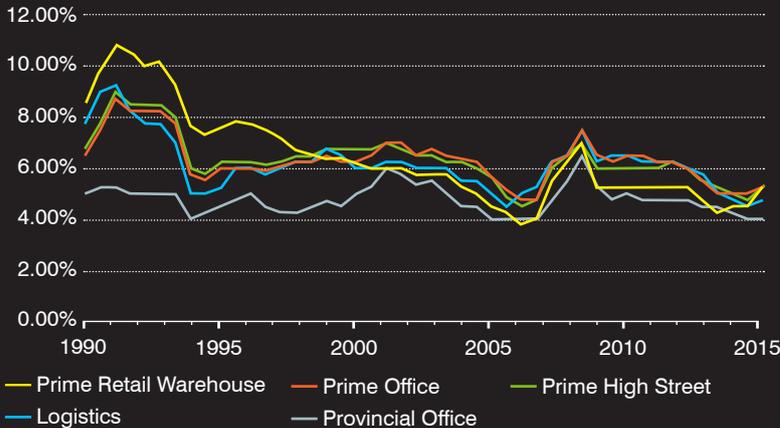
VERTICAL URBAN



City Logistics - Key trends for multi-storey urban warehouses
 DATA: Tommaso Franzolini - EMSc LSE Cities, London - UK



City Logistics - Key barriers to the implementation of Urban Distribution Centres
 DATA: CELS, University of Bergamo - Italy



Industrial real estate - yield comparisons in the UK

Logistics and prime retail warehouse yields have been roughly comparable to office and high street yields. DATA: Savills, Addressshaw Goddard



With the right political support the SMART SHED can play a pivotal role in driving urban economies as an ongoing driver of return for investors



FACTORIES

Scott Brownrigg's Smart Shed is an innovative building concept integrating urban logistics with high-value science and technology uses.

Re-tooling Cities by Design

At a planning level, the Smart Shed is a key element of our new approach to masterplanning smart development in world and hub cities. Our proposition recognises the increasing interest in re-programming urban industrial land to realise higher values, increase density and appropriately find new formats for contemporary productive and creative activities in metropolitan environments.

At the architectural scale, the Smart Shed features flexible spatial, structural and energy solutions aimed at attracting a range of businesses and communities increasingly involved in urban logistics, data storage and processing, advanced manufacturing, clean-tech and artificial intelligence.

Our Objectives

- Creating liveable productive (industrialised) quarters
- Unlocking industrial land
- Responding to emerging trends in urban logistics
- Identifying new city-centre locations for industry

City Logistics and Consolidation

Industrial zones and activities located in high-growth metropolitan regions globally are facing unprecedented pressures to change use. Consequently there is increasing interest from mayors and businesses in preventing this by realising higher values, increasing densities and integrating new employment premises within dense urban settings.

As emerging business sectors such as e-commerce, bioscience, clean-tech, and design-manufacture increasingly locate in urban settings, we see potential market opportunities in facilitating the co-existence of logistics and contemporary industrial activities through innovative planning and building design strategies.

Our approach frames these opportunities in specific economic contexts with realistic estimates of floorspace demand and supply, as provided through our ongoing collaboration with Savills.

A Global Phenomena

Multi-storey warehouses and urban distribution centres already exist in urban locations world-wide. However, their technological obsolescences and their lack of engagement with the public realm often prevents them achieving the higher-values that can be realised through either clustering with compatible higher-value uses, or catering for bespoke multi-tenant provisions that align with stakeholders.



Multi-storey warehouse developments in world cities



HK - Tsuen Wan Gateway

GFA: 30,000 sq m
Storeys: 11 with ramped access
Floor Loading: 13 kN/sq m
Ceiling Height: 5m
Source: Goodman



Tokyo - GLP Atsugi II

GFA: 76,000 sq m
Storeys: 5 with ramped access
Floor Loading: 15 kN/sq m
Ceiling Height: 6m
Source: GLP J-REIT

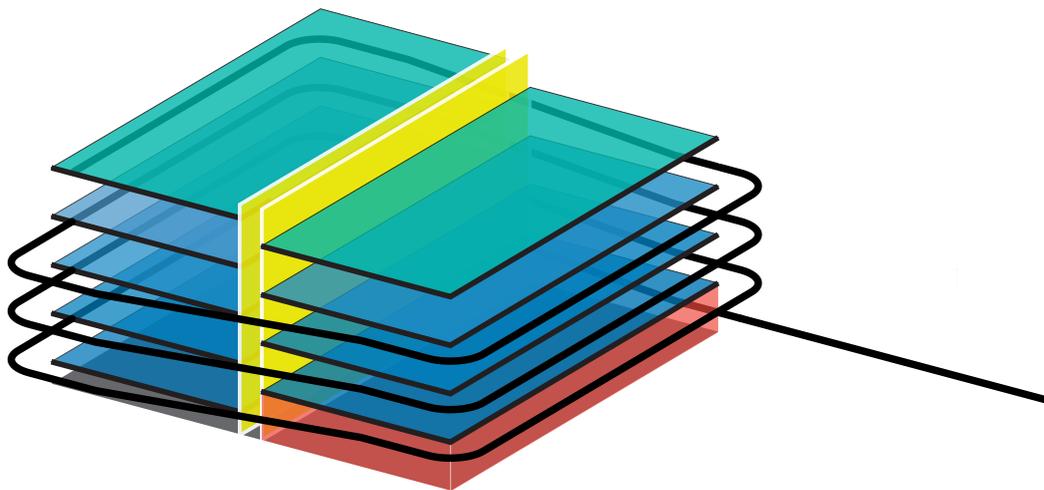
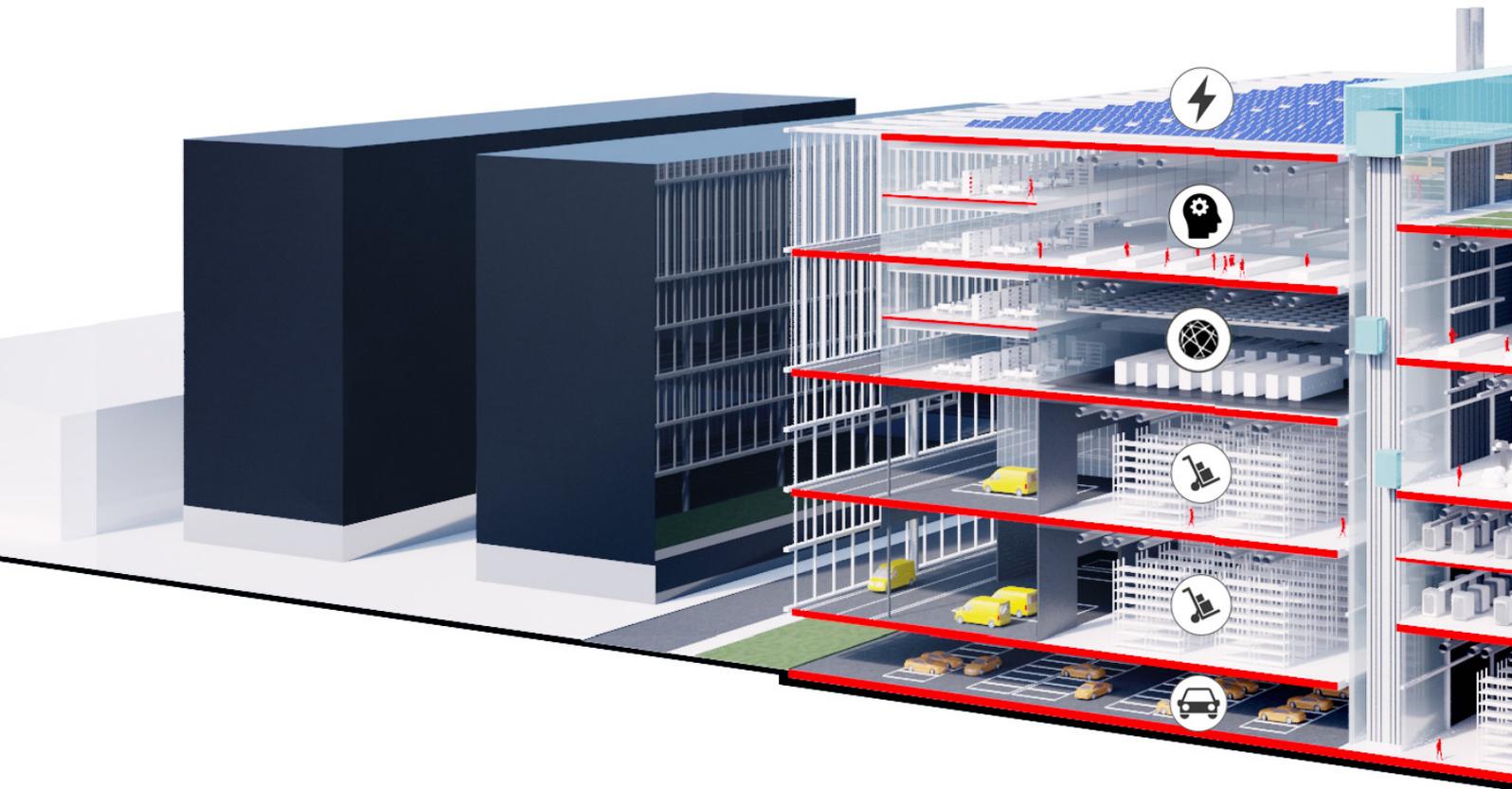


Singapore - Toll City Hub

GFA: 100,000 sq m
Storeys: 5 with ramped access
Floor Loading: N/A
Ceiling Height: N/A
Source: Toll Global logistics

Layering Value

The Smart Shed features flexible spatial, structural and energy solutions aimed at attracting businesses and communities increasingly involved in urban logistics, data storage and processing, advanced manufacturing, clean-tech and artificial intelligence.



Smart Shed - Uses and Flows

- Ramped access (trucks and vans)
- Vertical movements (personnel, building services)
- Retail frontage
- Park and charge
- Productive uses
- Performance roof (amenities, landing dock, plant space, energy)

- | | | |
|--|--|--|
|  SMART ENERGY |  DRONE PORT |  RETAIL |
|  Ai |  CLEAN TECH |  CO-WORK |
|  DATA STORAGE |  SMART MOBILITY |  FIN-TECH |
|  E-COMMERCE |  ROBOTICS |  3D PRINT |



Flexible and Robust

Re-establishing industry in the city will introduce the overriding concern of business i.e. the optimisation of time spent at any given stage in a process. The increasing automation of creative activity, and the organisation and movement of products, will dictate the configuration and adaptation of buildings and infrastructure through digital sensing and actuation (management).

Smart Shed recognizes the apparent contradiction of a high degree of real estate flexibility coupled with robustness. The starting point is creating stronger yet lighter structures and envelopes, with composite materials which allow internal reflux while meeting performance and urban design criteria.

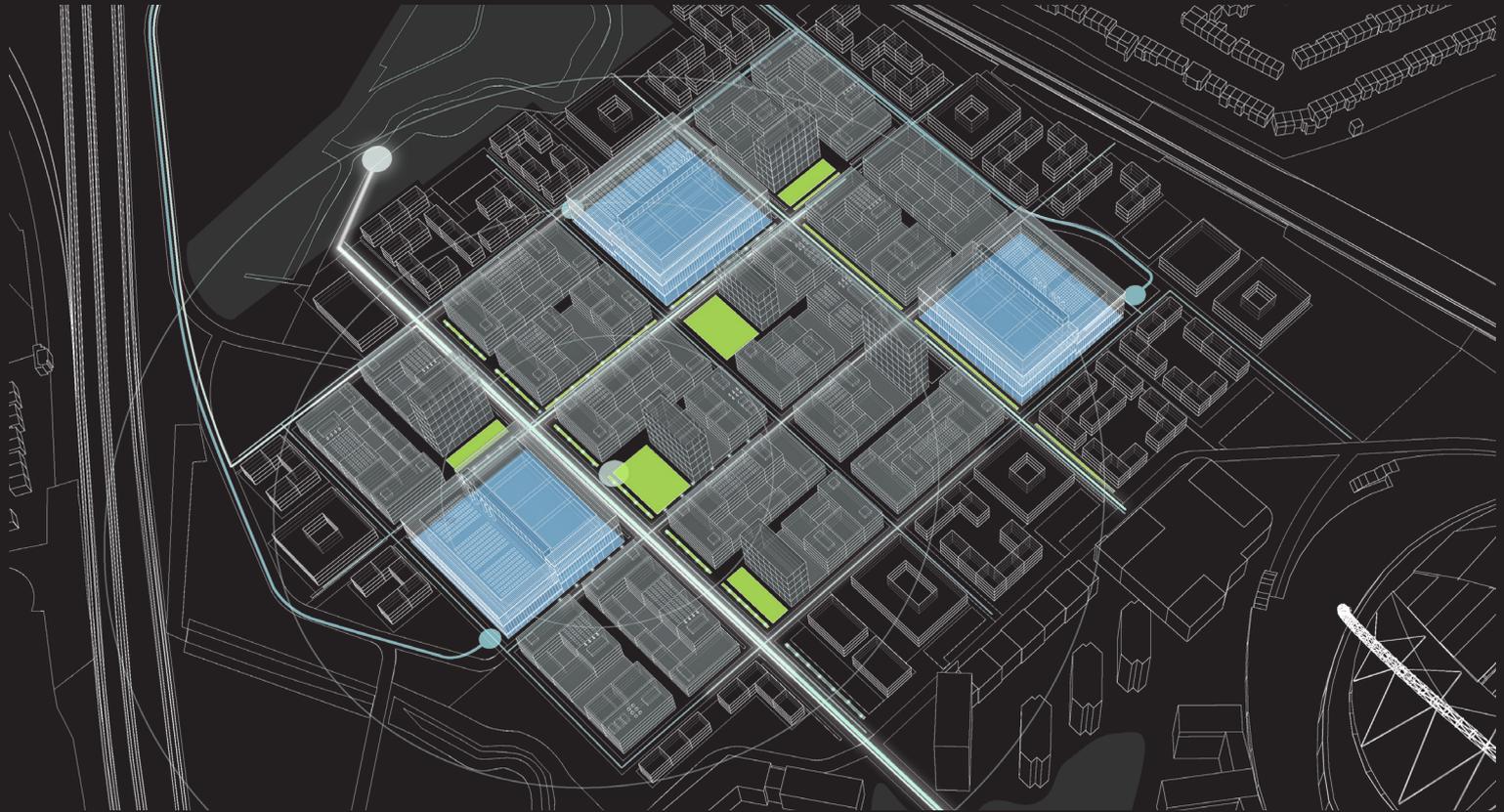
Outward facing and discreet, IP sensitive activities can co-exist in a secure digital and physical environment due to the organisation of space and fabric of enclosure, without sacrificing expression or efficiency.

The generic design embodies sufficient capacity to enable tenant activities to expand or intensify without having to move off-site. It de-conflicts human and vehicular movements vertically and horizontally without environmental impact.

Most importantly it layers value through the strategic placing of uses, giving a less volatile return on investment over time.

Transformational Urban Planning

There is an opportunity and reason to create or transform industrial areas into more appealing environments, while improving productivity. Harnessing big data to increase density, yet retain and transform existing employment, and free up space for emergent technology and living, is at the heart of transformational planning.



Smart Shed - Integrated with the city fabric

Vertical Consolidation

As companies mine data to map their processes and spatial requirements, similarly Smart Shed uses analytics to layer activity throughout the vertical structure to ensure optimal connectivity, lettable use of space, access to logistics and transport whether ground or airborne. Scaleability and flexibility is digitally managed in a 'plug and play' process to substitute manual or redundant processes with automated or innovative solutions.

Enabling Mixed-Use

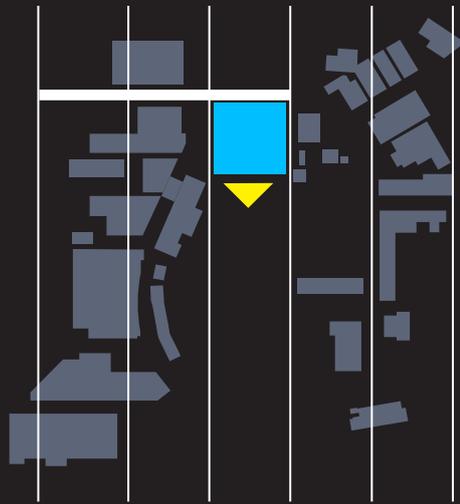
Whoever owns discovery owns the margin (of success). Personal interaction, openness, sharing ideas and problem solving remain important in the new economy. Therefore the ability to combine a range of work, logistical and social uses from the basement up, will increasingly be key in attracting and retaining skilled workers and entrepreneurs. Smart Shed enables previously invisible uses to blend and be accepted as part of the townscape that is the new urban mix.

Phased Delivery

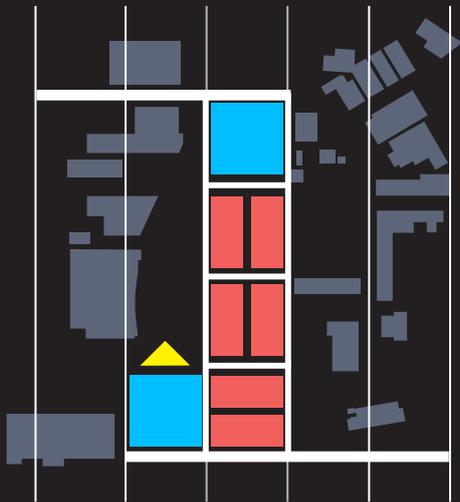
Smart Shed is a new primer for smart development. Perception particularly public and institutional, can determine whether or not a strategy will become a reality. In recognising the common three to five year timeline of mayors and senior executives, a guiding vision is divided into manageable phases of development. Each phase lasting approximately four years is initiated by the construction of a smart block within a coherent vector of development. Subsequent vectors are added, further concentrating the built fabric and the intensity of activity, which will virtually and physically connect with the metropolitan area.



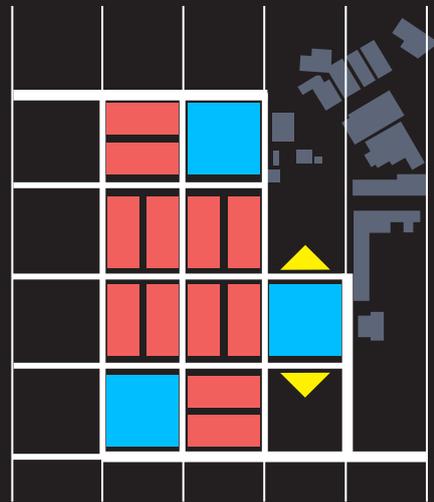
Year 0 Low Value industrial land



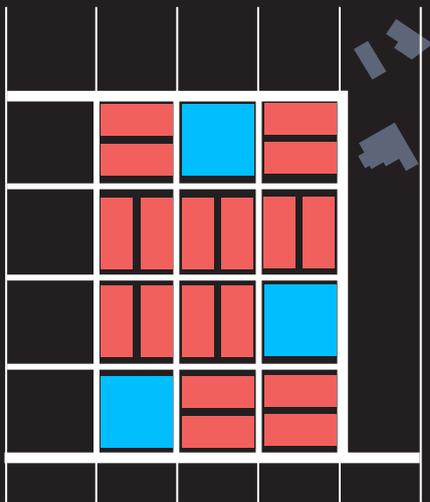
Year 2 Smart Shed 1



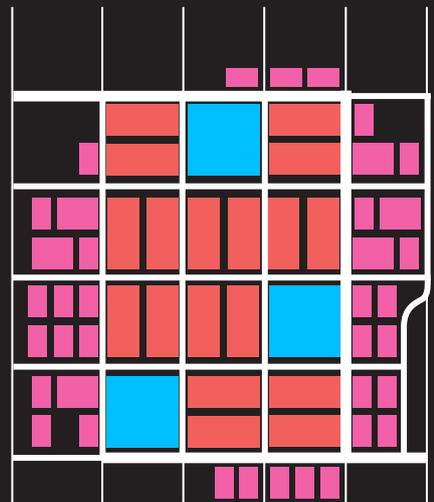
Year 4 Enabling mixed-use



Year 6 Enabling new connections



Year 8 Completed development



Year 10 Fringe development

Smart Shed - Enabling regeneration and phased delivery

- ▲ Vector of development
- Development grid
- ▬ Main roads
- ▬ Secondary roads
- Low-value sheds
- Smart Shed
- High density mixed use
- Medium to low density mixed-use



Smart Shed - Aerial View



EQUINIX

101 101

SMART SHED

ca
technologies

Scott Brownrigg - Advanced Technologies

Scott Brownrigg is an international practice of Architects, Masterplanners and Interior Designers.

Launched in 2015, the Advanced Technologies team utilises innovative analytical and design expertise to engage technology-led projects with advances in quality of life, environment and economic growth. The Advanced Technology team works with cities and corporate clients globally to deliver real estate success through smart development.

Contacts

Iain Macdonald - Director
i.macdonald@scottbrownrigg.com

Tommaso Franzolini - Associate
t.franzolini@scottbrownrigg.com