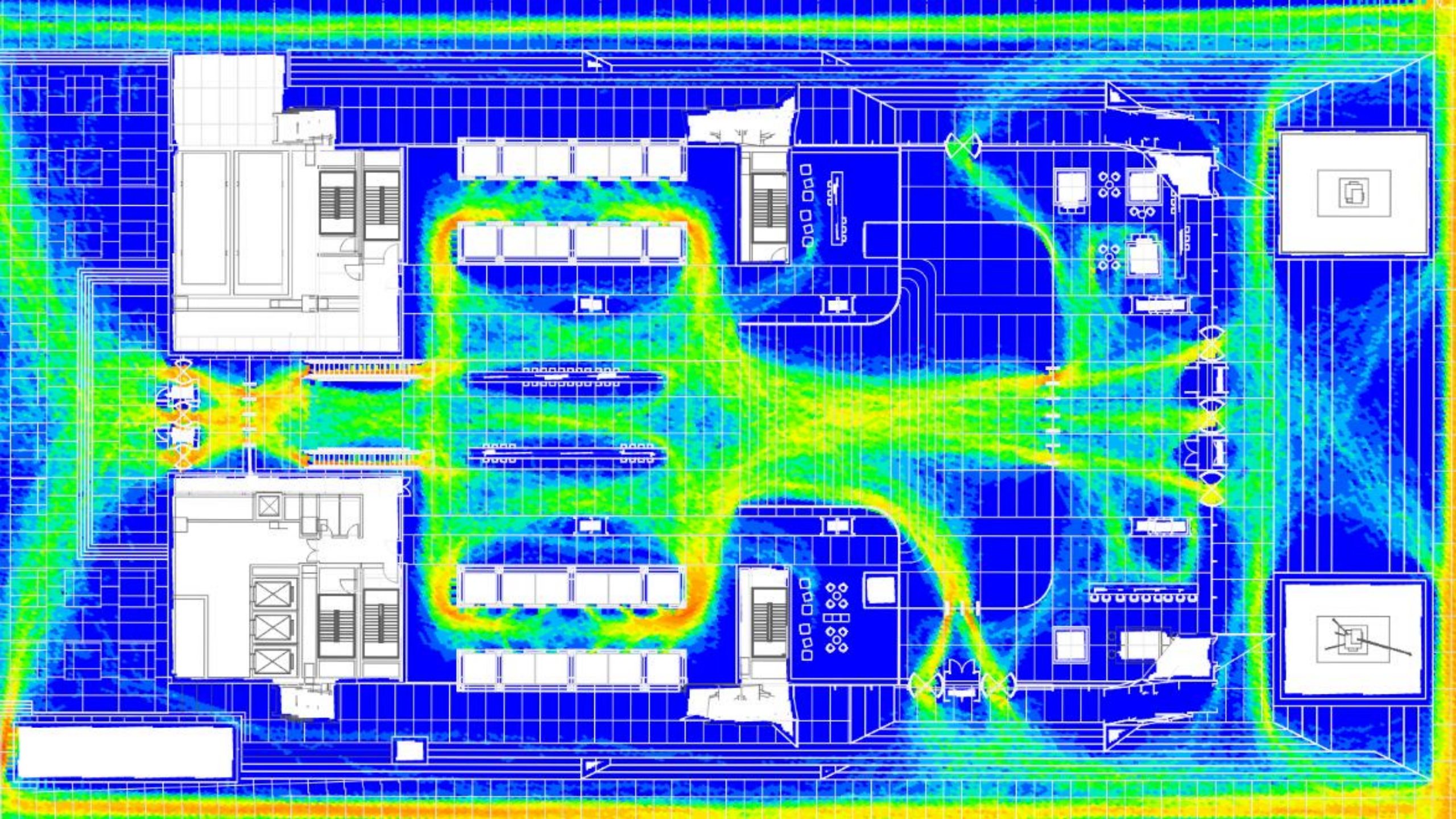
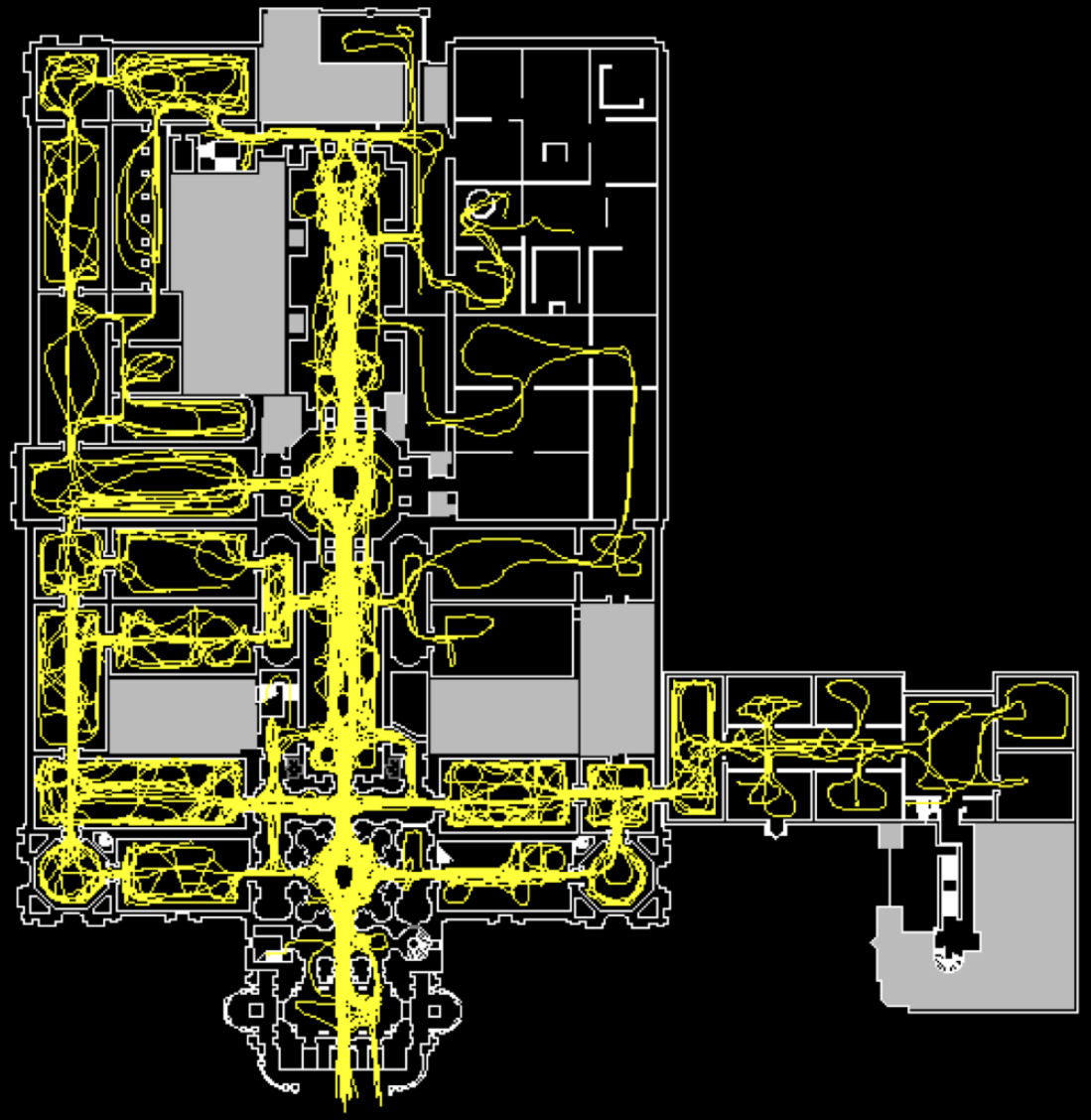
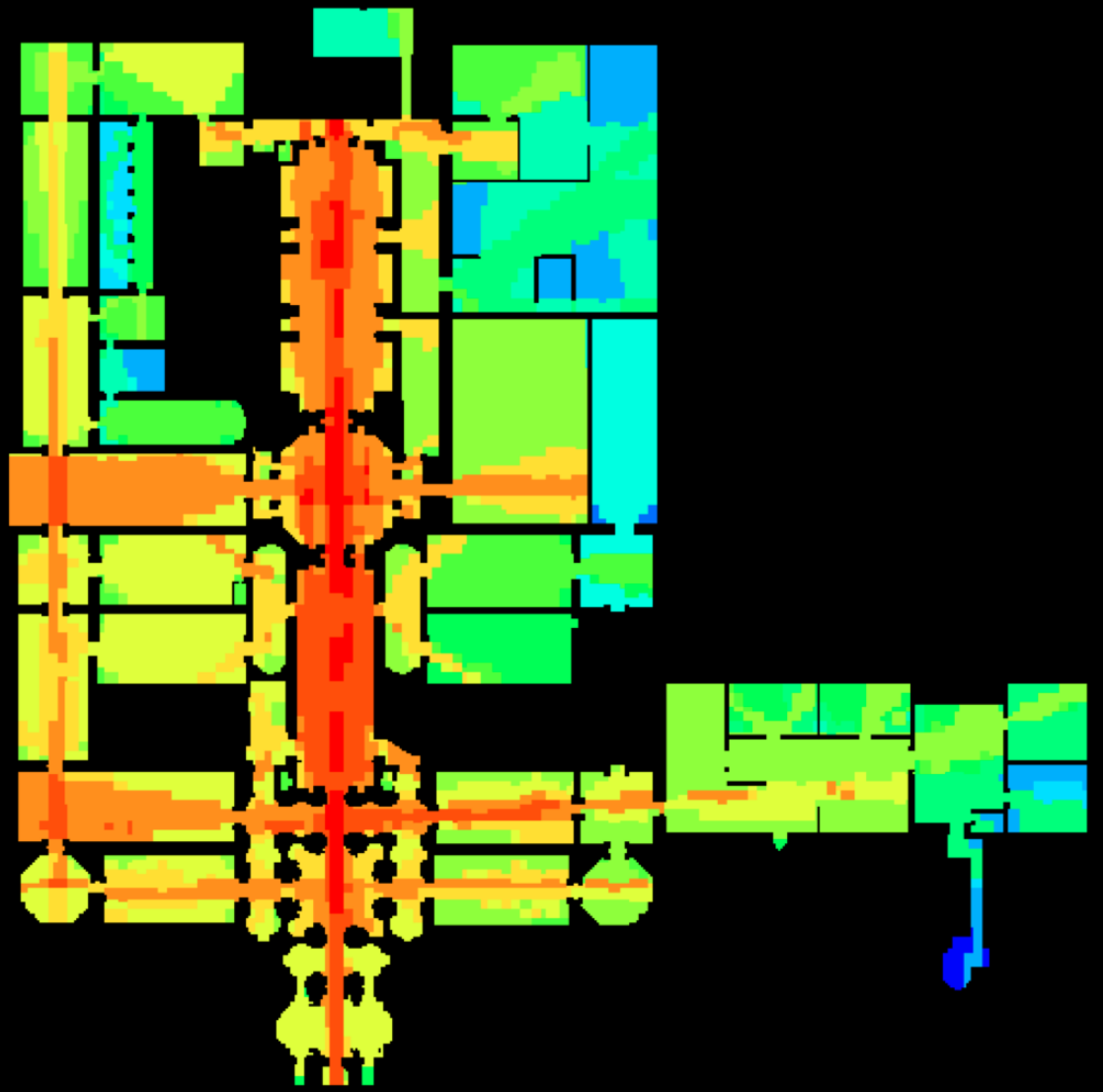


Buildings & estates

Space Syntax





Buildings & estates

Contents

Contact us
81 Rivington St
London
EC2A 3AY

+44 20 7400 1320

london@spacesyntax.com
www.spacesyntax.com

Introduction | **Buildings & estates**

Space Syntax is a globally respected pioneer in science-based, performance-focused design.

Acting across a wide range of sectors, from retail environments to research departments, parliamentary offices to passenger terminals, we analyse space-use patterns in existing buildings and provide targeted design advice on development options.

By putting the movement and interaction of people at the heart of the design process, we help organisations create places that work for their users.

Key services

We provide expert advice in the following key areas:

- Appraisal & benchmarking
- Strategic design
- Performance forecasting.

Key asset classes

Our experience covers the following:

- Transport
- Mixed-use
- Workplace
- Retail
- Healthcare
- Cultural
- Education
- Government.

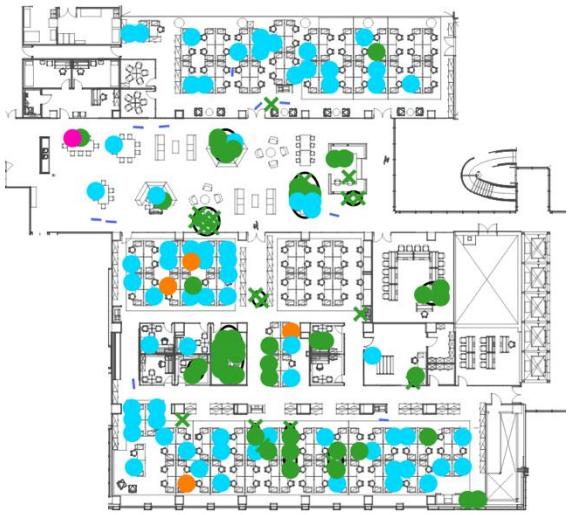
Services | **Appraisal & benchmarking**

Analysing existing assets to assess current performance & establish realistic design targets.

User behaviour and spatial layout appraisals to provide benchmarked evidence for brief-writing and design development.

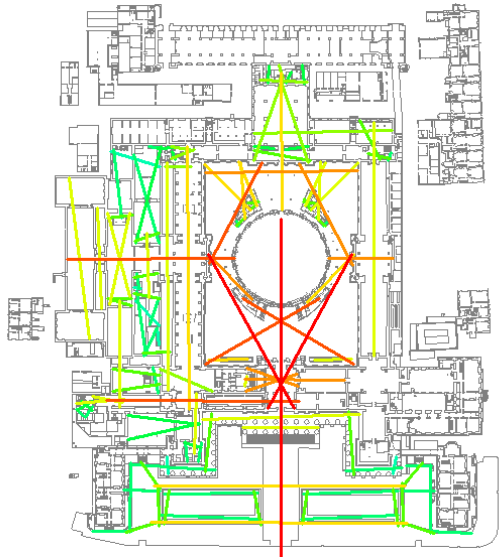
User behaviour analysis

We survey existing patterns of movement and interaction, recording current user flows, congestion hotspots and underused areas. We cross-match this with sales, safety and other building performance data.



Spatial layout modelling

We evaluate the spatial layout of buildings, using advanced modelling techniques to explain existing user behaviours and reveal potentials for improvement. We benchmark spatial layouts against international exemplars.



Services | **Strategic design**

Optimising human performance through targeted spatial layout design advice.

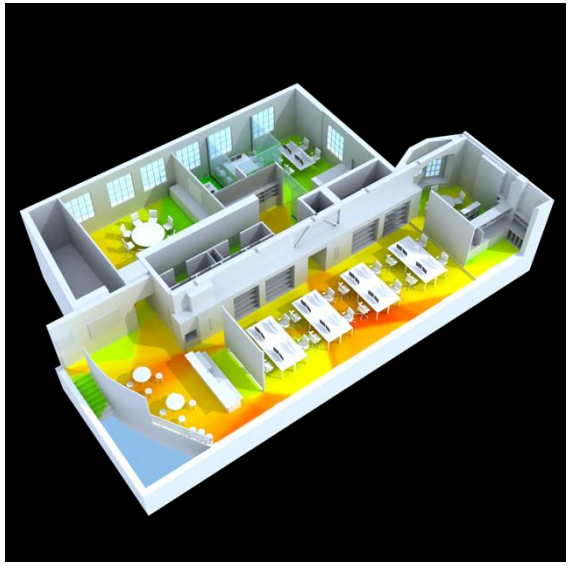
Data-driven planning and design strategies that inspire audiences and optimise performance outcomes. Vision-led concepts, from strategic designs to detailed floorplate layouts.

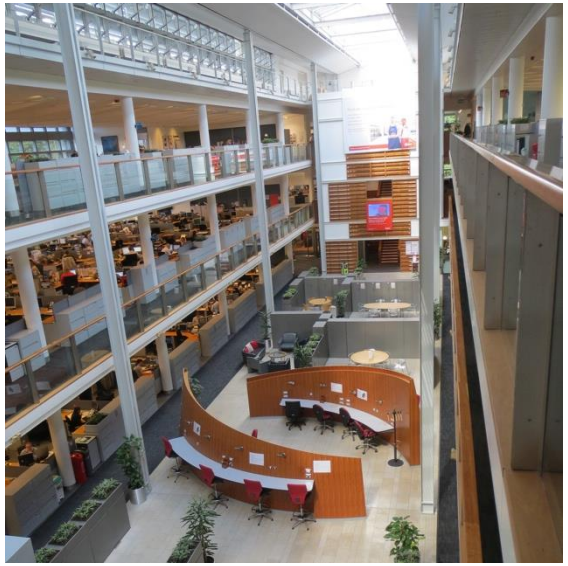
Design development

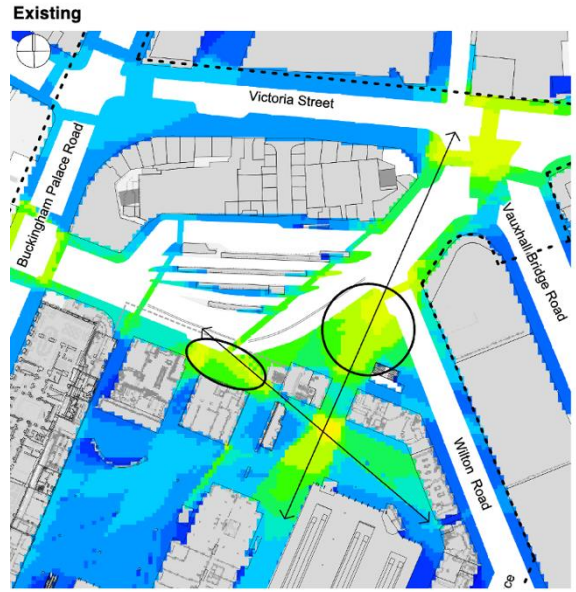
We work throughout the design process from initial strategy to detailed space-planning. We analyse proposed designs to forecast how people are likely to move through them, testing and refining options.

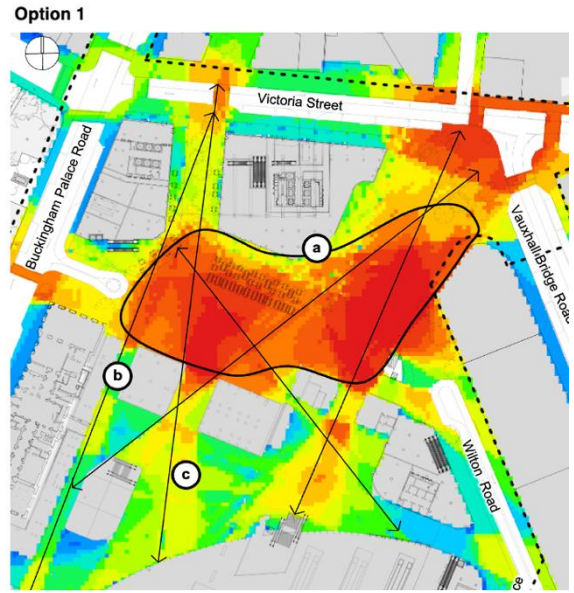
Functional performance

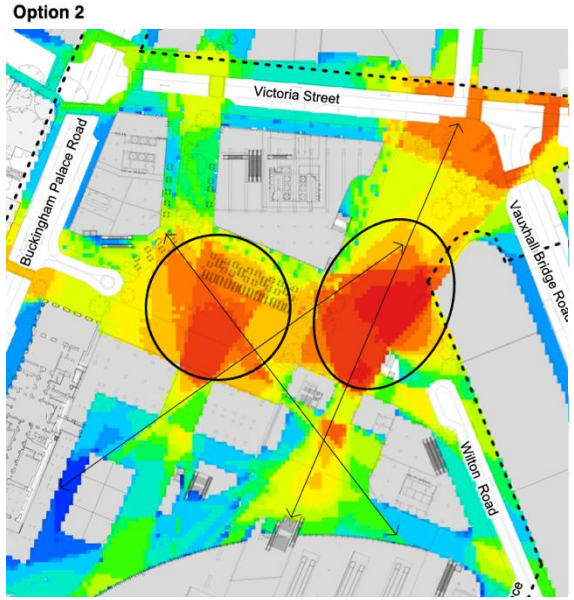
We identify the locations that are best suited to specific uses, ensuring that activities are in the places that best support them. We use targeted spatial layout design to enhance functional performance.

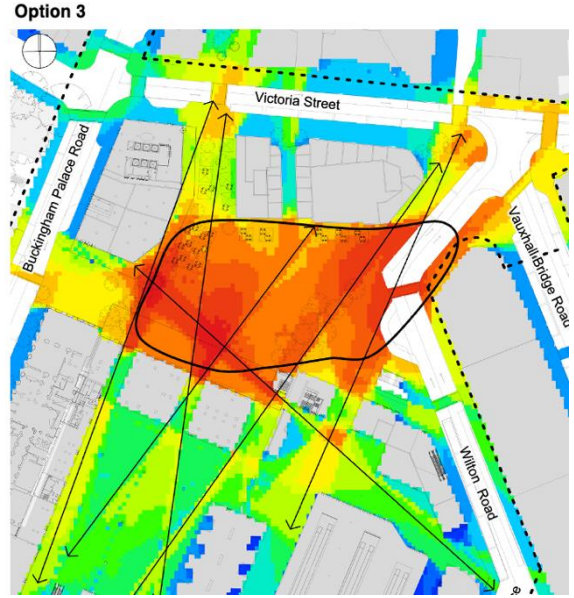












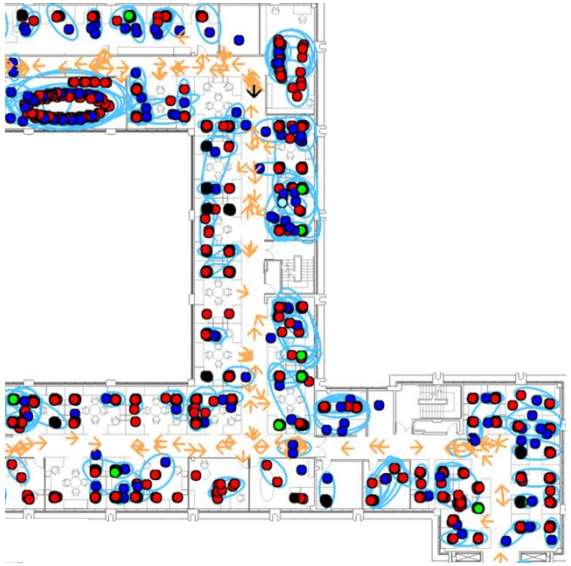
Services | **Performance forecasting**

Measurably improving performance to enhance user experience & increase value to owners.

Predictive modelling of user flows and interactions to support development appraisals, augment planning applications, facilitate negotiations and aide decision-taking.

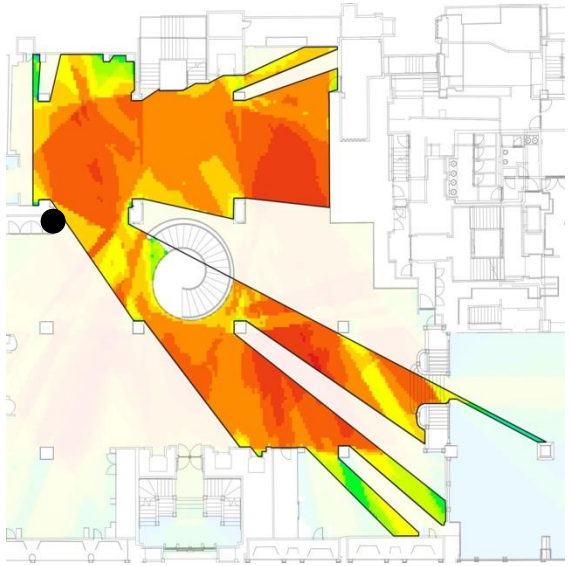
User behaviour

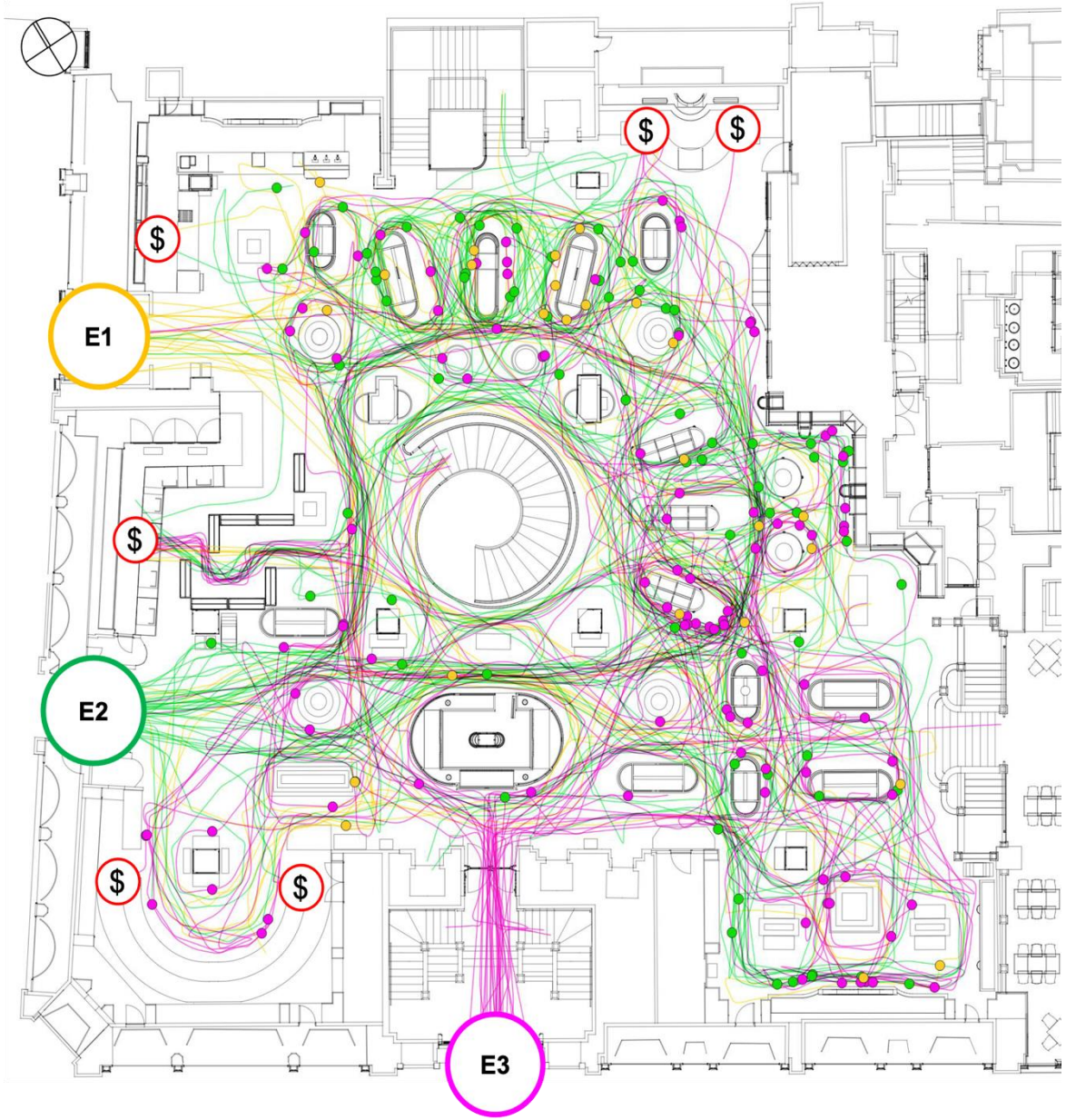
We generate data-driven insights on future user experience patterns. We forecast space-use patterns, flow densities, ease of wayfinding and human/object interactions.



Spatial layout

We demonstrate how proposed spatial layout designs will support individual user needs and deliver operational objectives. We provide comparative appraisals to assist in client selection.





Asset class | **Transport**

Asset class | **Transport**

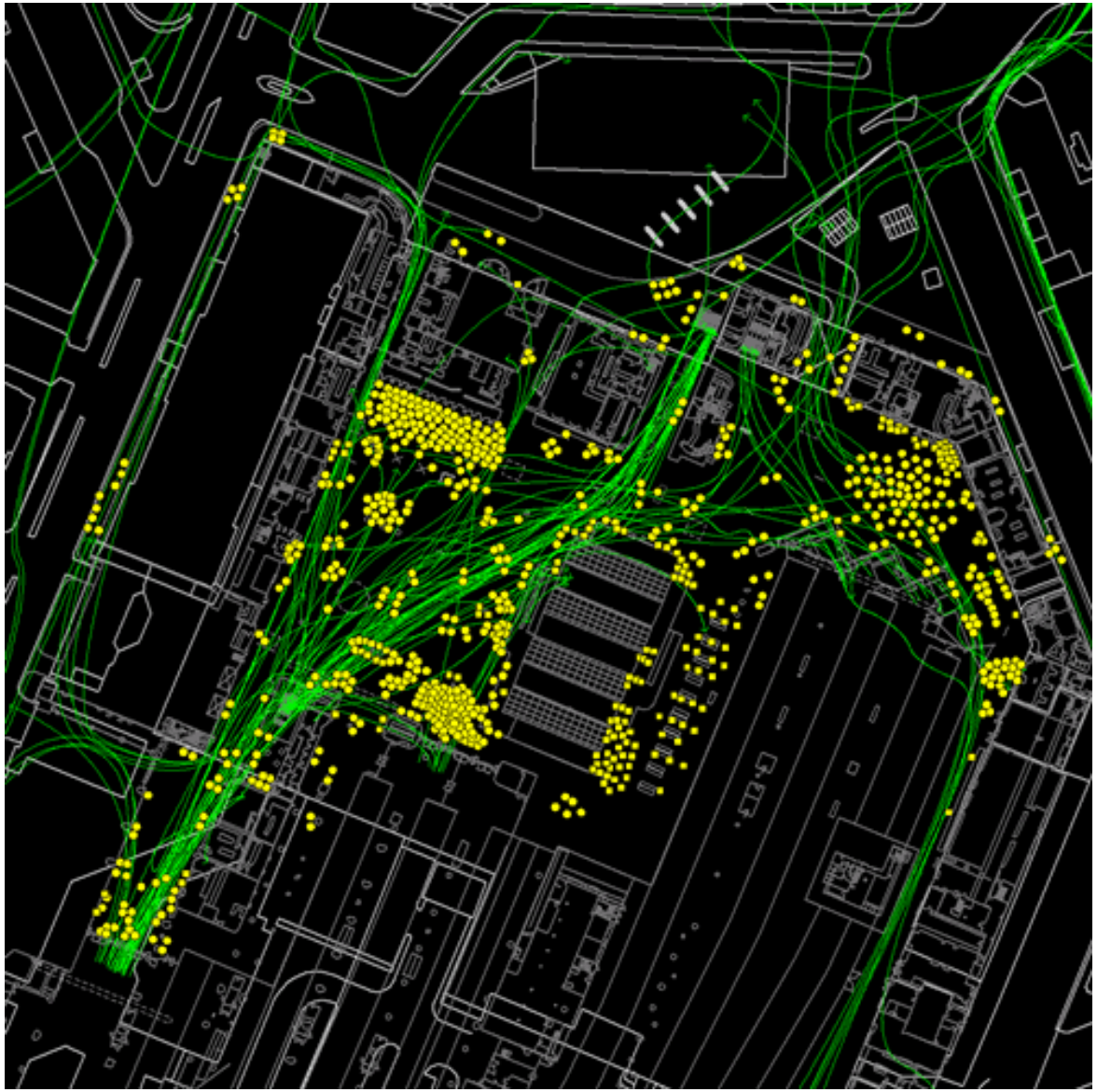
Enabling efficient & legible passenger movement in relation to the surrounding urban context.

Our focus

- Passenger arrival, departure and interchange patterns across modes
- Pedestrian movement, capacity and comfort under peak and off-peak conditions
- Relationship between station layout and surrounding urban movement networks
- Spatial hierarchy of entrances, concourses and routes
- Integration with public realm and adjacent urban fabric

Value

- Ensure reliable and legible passenger movement across everyday and peak conditions
- Reduce operational pressure at entrances, concourses and interchange points
- Improve the relationship between the station and surrounding streets and public spaces
- Improve returns from footfall dependent uses, such as retail and catering



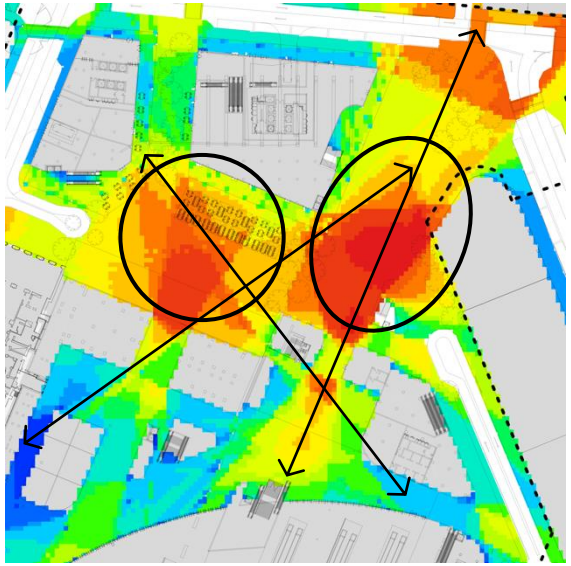
Observation study of existing passenger activity, Victoria Station, London.

Transport | Selected projects

Victoria Station Redevelopment | Certo

Feasibility study for the redevelopment of Victoria Station

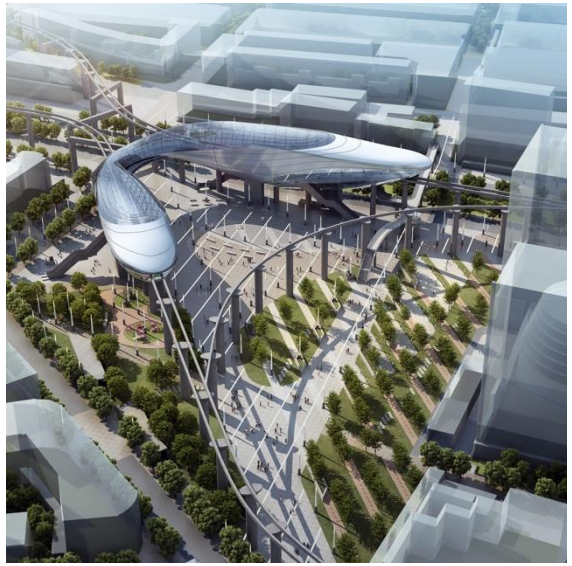
Analysis of passenger circulation to test strategies that enhance connectivity and legibility to inform future redevelopment scenarios for the station.



Jilin Lightrail Corridor and Stations | Jilin Municipality

Transport masterplanning & urban development strategy

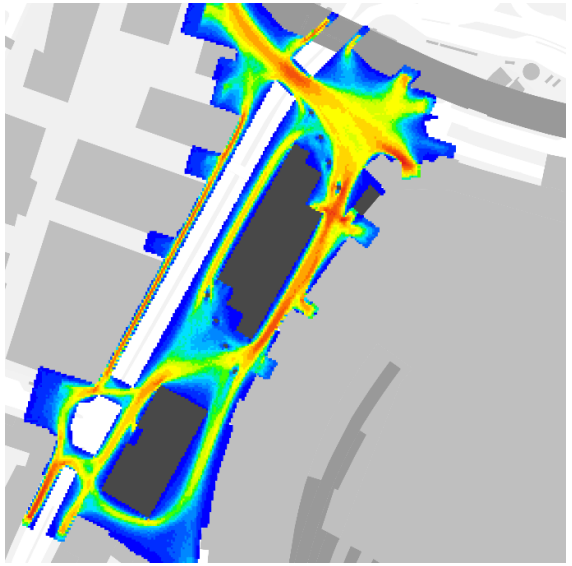
Creation of a comprehensive, integrated approach to public transport and urban space design. Scenario testing and impact modelling.



Elizabeth House | HB Reavis

Impact assessment of office building & rail station upgrade

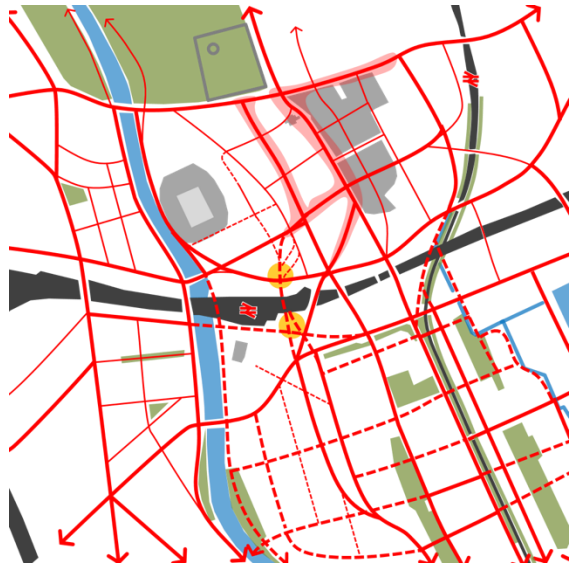
Impact assessment of an office building and Waterloo Station upgrades, using agent-based modelling to predict pedestrian movement across the area.



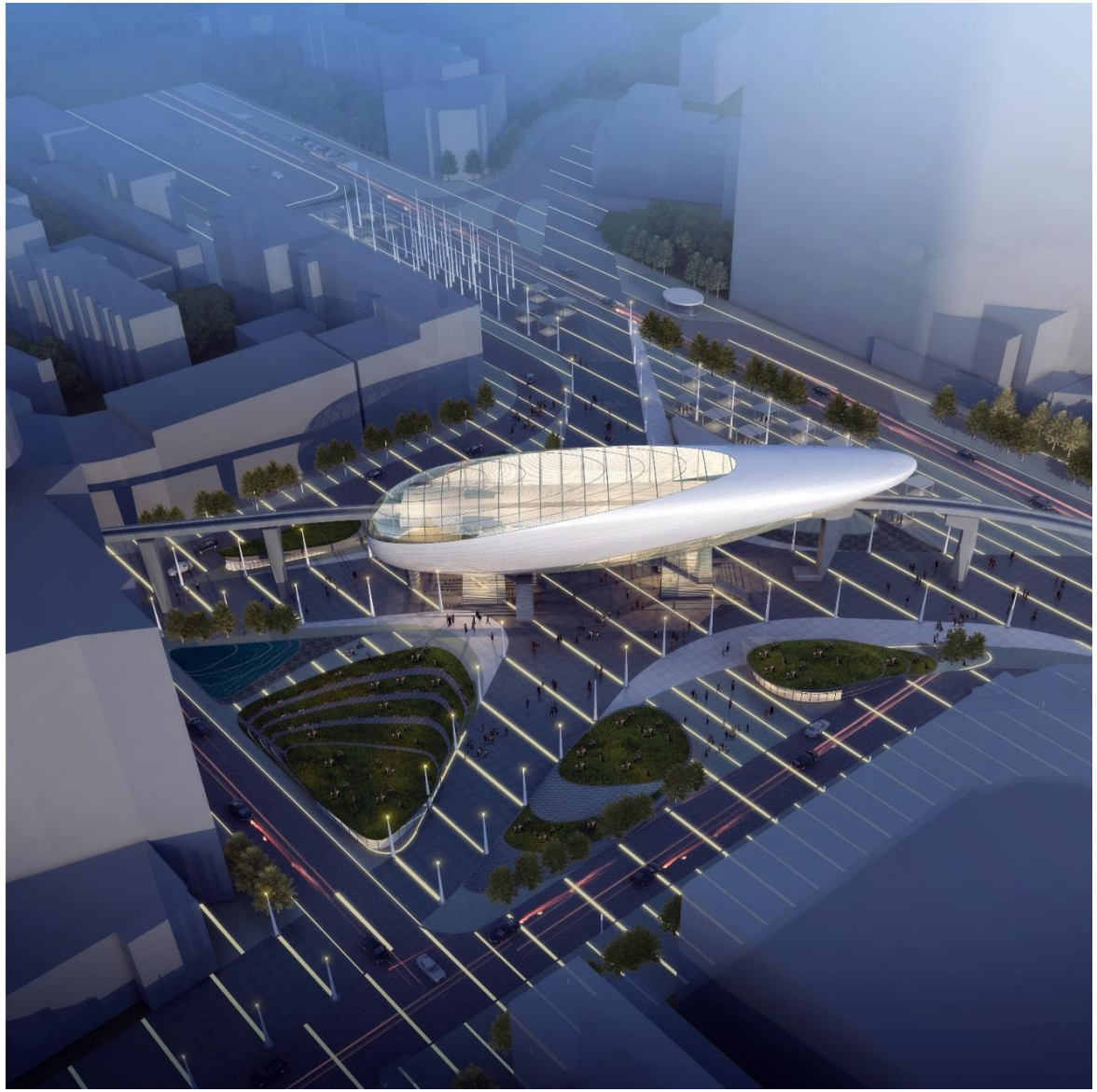
Cardiff Central Station | Network Rail

Design evaluation and movement forecasting

Construction of a Pedestrian Movement Forecast Model to evaluate design options for the comprehensive redevelopment of the station & its surroundings.



Case study | **Jilin Lightrail Corridor** Jilin, China



Space Syntax advised on the design & alignment of Jilin Metro's elevated lightrail network, optimising station placement through spatial analysis & designing public spaces around stations, enhancing connectivity, pedestrian flow, & urban vitality for a sustainable, connected city.

Client
Jilin Rail Transit Construction Investment Co.

Year
2017

Role
Consultant & Designers

Key Features
Spatial analysis
Metro network alignment
Lightrail station design
Evidence-based design
Public space Design
Pedestrian-focused design

The opportunity

Jilin, a rapidly growing industrial city in Northeast China, is experiencing urban expansion driven by its increasing population of 6.5 million. The development of a world-class transit system through the Jilin Metro presents an important opportunity to reshape the city's urban fabric. With the metro network elevated above the ground, it provides a unique chance to improve connectivity across key urban areas that have been separated by high volumes of vehicular traffic.

The strategic placement of metro stations within these areas can activate underutilized spaces, boosting mobility and facilitating the integration of isolated neighbourhoods. In addition to improving transportation, the design of high-quality public spaces around the stations offers the chance to foster social interactions, encourage pedestrian activity, and create vibrant urban hubs. By connecting major city locations with a seamless transport network, Jilin Metro can contribute to a more sustainable, accessible, and connected cityscape, enhancing the quality of life for residents.

Case study | **Jilin Lightrail Corridor** Jilin, China

Our contribution

Space Syntax was brought on board to advise Jilin Rail Transit Construction Investment Co. Ltd. on the alignment of the city's metro lines and station placement.

Using our evidence-based approach, we conducted in-depth spatial analyses to ensure that the metro network serves areas with the highest potential for growth and activity. By examining movement patterns, catchment areas, and the socio-economic potential of various neighbourhoods, we identified the most optimal station placements along the different rail and metro lines. In addition to our work on the metro alignment, we designed public spaces around four key stations, ensuring these spaces serve as vibrant hubs of activity.

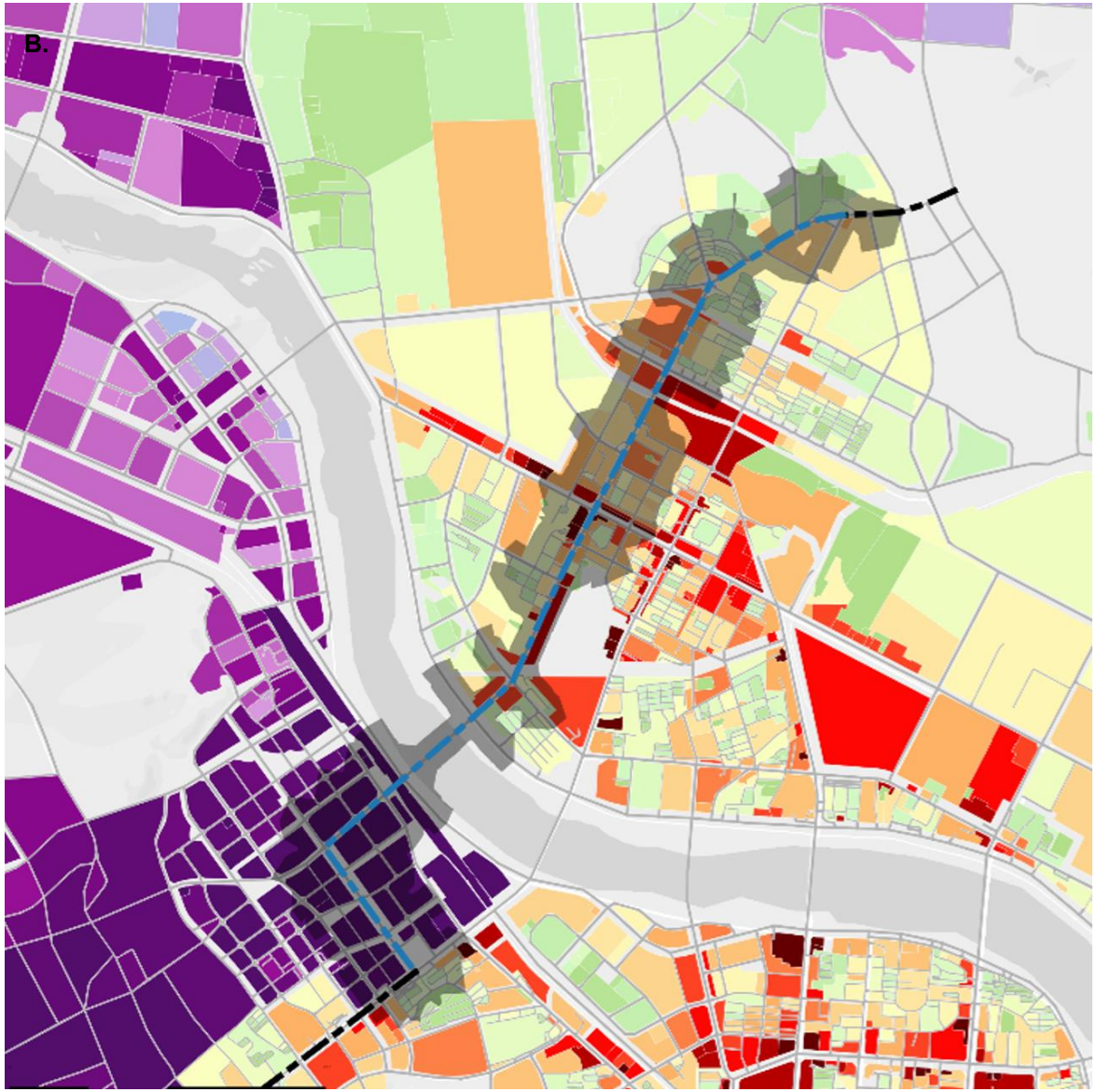
Our design principles focus on pedestrian flows, accessibility, and connectivity while minimizing the impact of vehicular traffic. By applying our cutting-edge spatial analytics methodologies, we aimed to create urban environments that are functional, welcoming, and economically successful.

The outcome

The outcome of our work on the Jilin Metro project is a seamless integration of transportation and public space design that addresses both the functional and social needs of the city.

Our spatial analysis and evidence-based approach to station placement ensured that the metro network connects high-activity areas, supports sustainable urban growth, and facilitates easy access to key locations throughout Jilin. The public spaces around the metro stations have been carefully designed to increase pedestrian movement, foster social interactions, and create safe, vibrant areas for the city's residents. Our designs promote higher foot traffic, improved public safety, and enhanced economic activity, aligning with the goals of a movement-based economy. By strategically designing these public spaces to link historically separated neighbourhoods, the Jilin Metro project will improve connectivity, reduce isolation, and contribute to the city's long-term urban development.

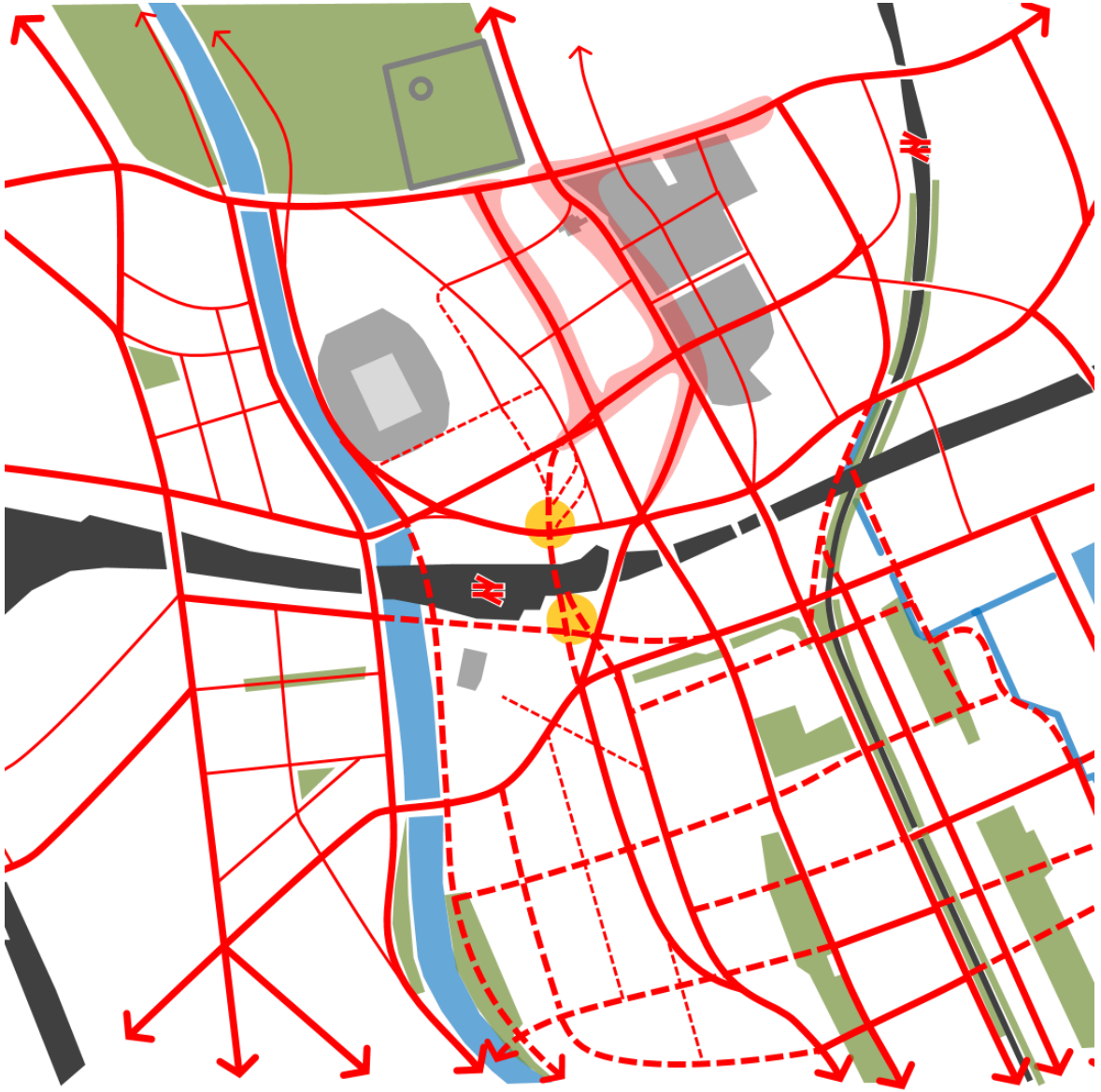
Ultimately, the project will enhance Jilin's urban experience, supporting the city's growth into a modern, connected metropolis.



A. *Visualisation of a public space & metro station design (previous page).*

B. *Proposed metro alignment catchment overlaid on existing & proposed city spatial performance.*

Case study | **Cardiff Central Station** Cardiff, UK



Construction of a Pedestrian Movement Forecast Model to evaluate design options for the comprehensive redevelopment of the station & its surroundings.

Client
Network Rail

Year
2015

Role
Strategic urban design advisor

Team
Powell Dobson Architects

Key Features
Urban baseline study
Design assessment and development
Pedestrian movement forecast

The opportunity

Cardiff Central Station is the main gateway to Cardiff. The local context of the station is currently constrained by the largely vehicle oriented road infrastructure, the railway infrastructure and the poor quality of the public realm.

Cardiff Central Masterplan represents an opportunity for Cardiff and the surrounding region to raise the profile of the area both within the UK and internationally.

The masterplan includes the BBC project with a Central Square to the north of the station, a new Arena and public sector offices to the south and a new public route through the Central Station.

In order to assess the impact on pedestrian movement patterns of the station masterplan and the future developments around it, Network Rail commissioned Space Syntax to develop a Predictive Movement Model and Forecast.

Case study | **Cardiff Central Station** Cardiff, UK

Our contribution

One of the unique inputs of Space Syntax was to provide contextual understanding of the site in terms of connectivity and movement potential. Firstly, our Spatial Accessibility Model of the existing network of Cardiff was used to analyse spatial opportunities and constraints of the site.

During the design development process, this model was used as a design tool to test the impact of spatial layout changes as a result of the emerging design options. This informed the design development and influenced strategic decisions by enabling an objective evaluation of proposed scenarios in terms of potential impact on movement patterns and activity potential.

Combined with land use, population and transport data, the Spatial Accessibility Model was used as the base for the Predictive Movement Model.

This was used in order to translate future changes in layout, quantum of development and station demand uplift into a Pedestrian Movement Forecast for the preferred masterplan option and its immediate context.

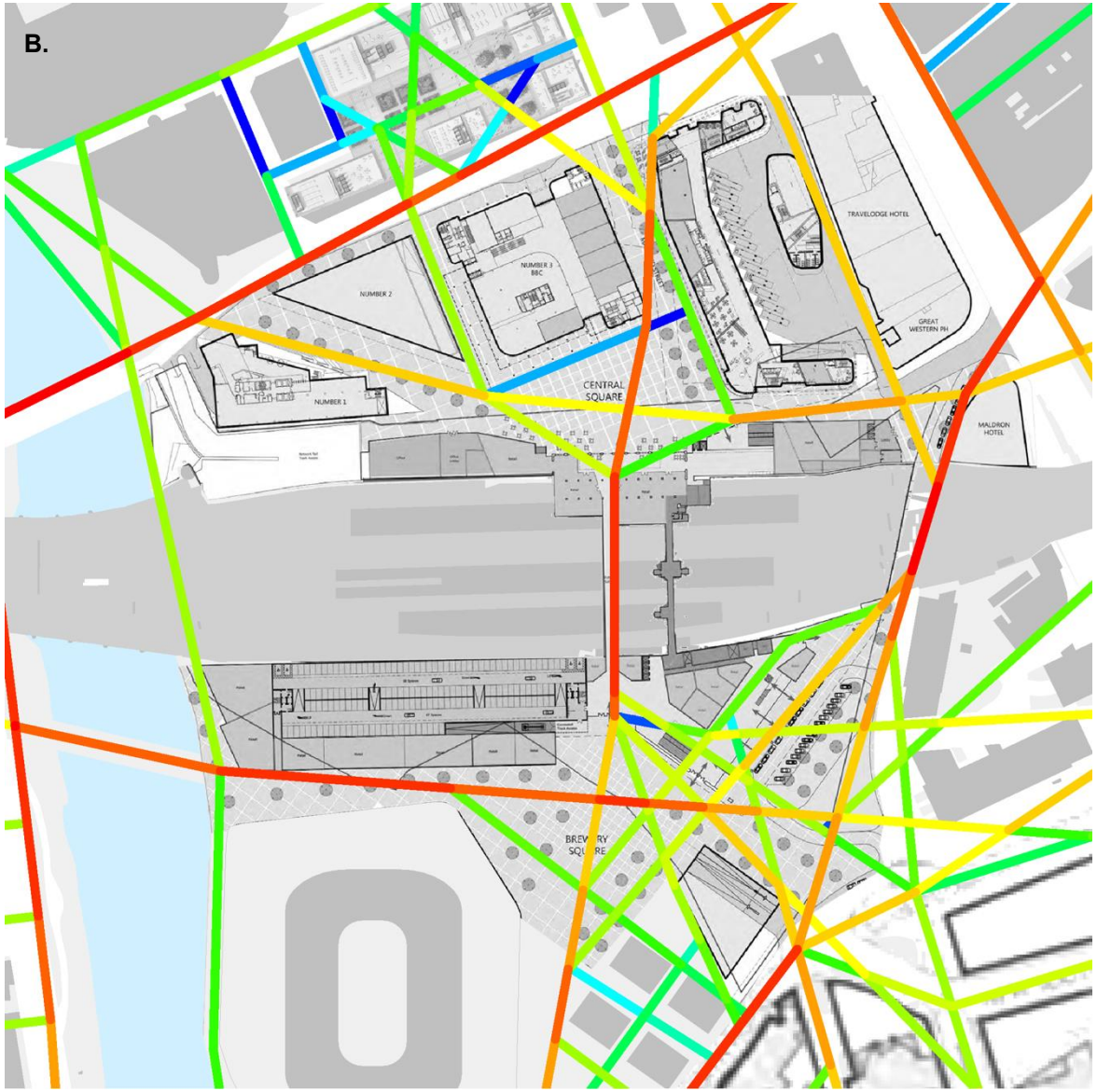
The outcome

The Spatial Accessibility Analysis highlighted the potential of the proposed public route to create a well-used north-south connection that would contribute to the overall improvement of connectivity in the area.

This was validated by the Pedestrian Movement Forecast for the future scenario.

A. *The future developments around the station and the introduction of a public route through it creates an opportunity for enhancing the connectivity of the area and embedding the station into the wider movement network (previous page).*

B. *Spatial accessibility analysis of the proposed masterplan.*



Asset class | **Mixed-use**

Asset class | **Mixed-use**

Ensuring residential quality while contributing to active & inclusive public space.

Our focus

- Spatial Accessibility and connectivity
- How the project supports everyday access to surrounding services, amenities and public space
- How residential spaces relate to and coexist with non-residential uses
- Managing transitions between public life and residential privacy
- Design of interfaces between housing, active ground floors and public space
- How patterns of use and access change across the day and night

Value

- Create liveable residential environments within active urban settings
- Reduce conflict between residents, visitors and different user groups
- Improve safety, comfort and privacy for residents and other users
- Contribute to, and benefit from, the surrounding neighbourhood

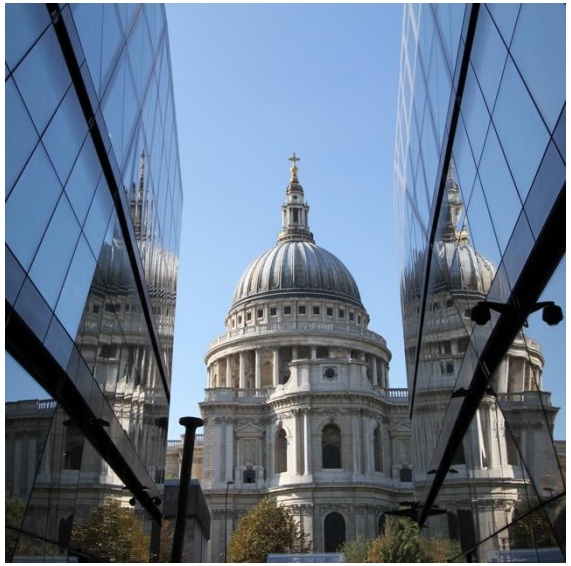
Redevelopment of Television Centre London with new public realm and pedestrian access.

Mixed-Use | Selected projects

One New Change | Land Securities

Spatial layout design advice

Pedestrian movement forecasting, informing retail strategy and planning negotiations.



Earl's Court | Capco

Evidence-based design advice

Strategic design and modelling of pedestrian movement impact to quantitatively evaluate and optimise emerging residential neighbourhood designs and development of design briefs.

Rathbone Square | Great Portland Estates

Planning support related to urban & landscape design

Pedestrian movement forecasting, informing discussions with future tenants and supporting planning negotiations.

Television Centre | Stanhope

Evidence-based design advice

Modelling of pedestrian movement impact to quantitively evaluate and optimise emerging residential layouts and character areas.

Asset class | **Workplace**

Asset class | **Workplace**

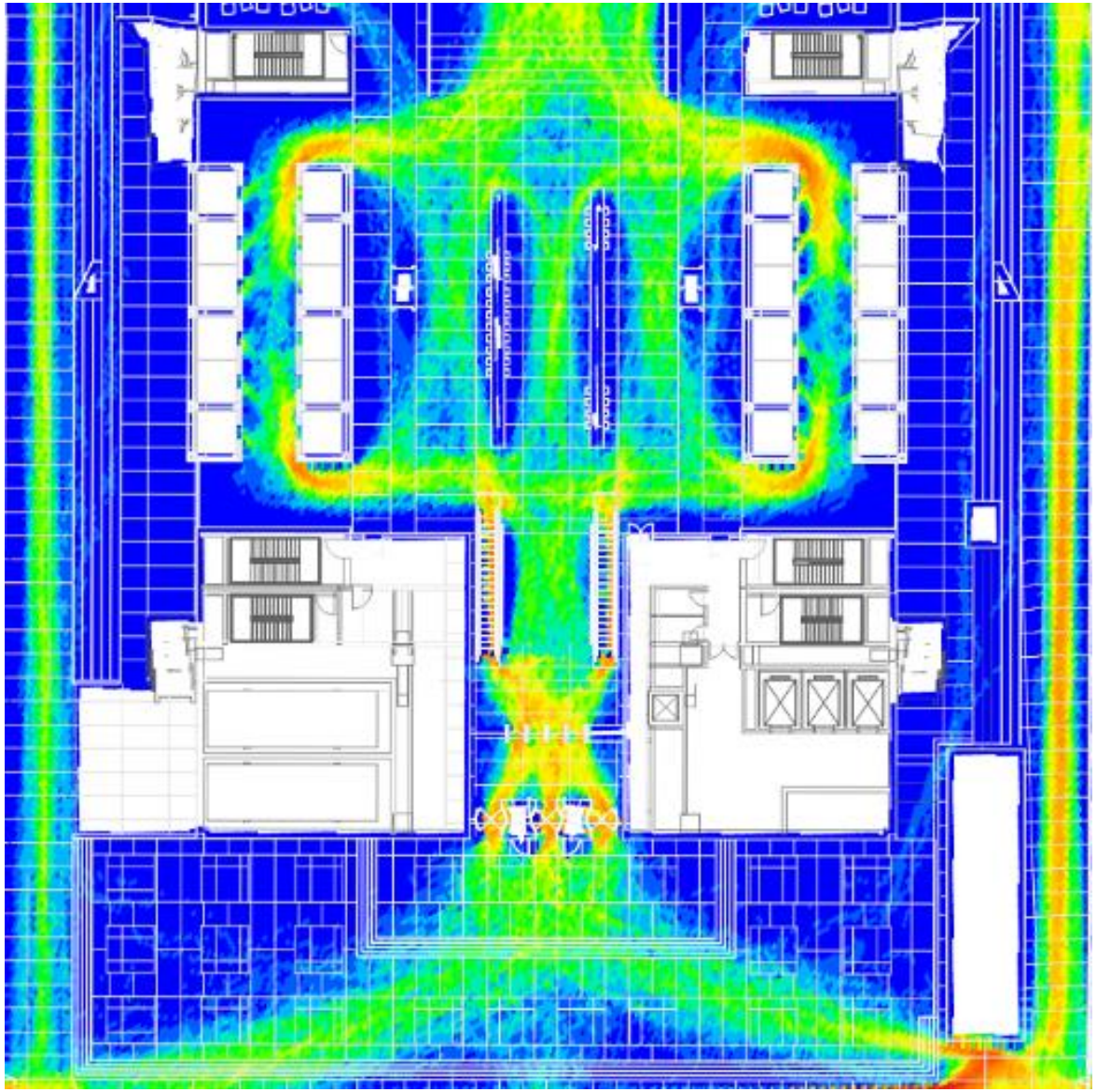
Using space efficiently while enabling collaboration, concentration & everyday work.

Our focus

- Movement and encounter patterns across teams
- Role of circulation and shared spaces
- Balance between interaction, privacy and concentration
- Relationship between layout and organisational structure

Value

- Support innovation and knowledge exchange
- Align space with organisational culture
- Improve long-term adaptability of workplaces
- Support evidence-based space planning and consolidation



User movement simulation of the Lobby layout at 270 Park Avenue.

Workplace | Selected projects

Bloomberg Headquarters, London | Bloomberg

Urban integration & workplace design advice

Architectural and Urban design advice including pedestrian movement forecasting and ground floor activation. User circulation and interaction analysis, workplace, entrance and lobby design advice.

270 Park Avenue | JP Morgan Chase & Co

Building circulation, workplace & public realm design advice

Public realm and building circulation design advice ensuring the building and its surroundings work seamlessly to create a comfortable experience for both users and the local community.

22 Bishopsgate | Lipton Rogers Developments

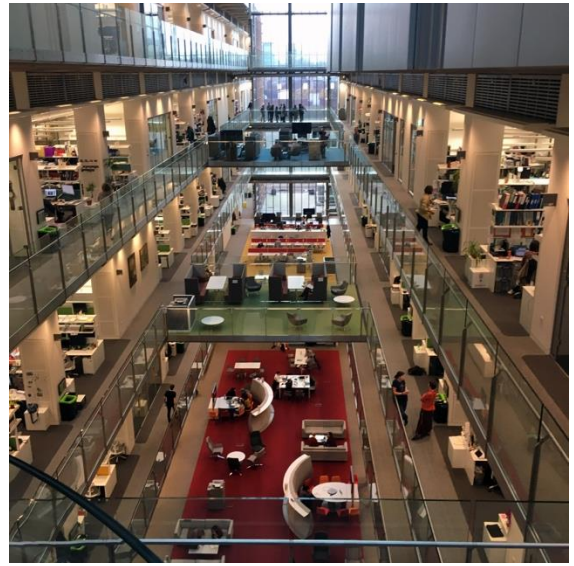
Planning support related to urban & landscape design

Urban analysis and pedestrian and cycling movement forecasting, informing design development, stakeholder engagement and planning negotiations.

Francis Crick Institute | Francis Crick Institute

Space utilisation study & workplace design advice

Staff circulation, activity and occupancy patterns analysis and workplace design advice for the operations floor and central social space to enhance staff interaction and cross-department collaboration.



Case study | **270 Park Avenue** New York, USA

Ensuring the seamless integration of the building & the wider city with a comfortable experience for both users & the local community.

Client
JP Morgan Chase & Co

Year
2019

Role
Spatial Strategy and Circulation Consultant

Team
Foster + Partners

Key Features
Strategic Design Advice
Visibility & Accessibility Analysis
User Movement Simulation & Forecasting
Entrance Demand Analysis
Common Spaces Capacity Assessments

The opportunity

Space Syntax supported Foster + Partners in the design of the new global headquarters for JP Morgan Chase & Co at 270 Park Avenue in Midtown Manhattan.

The design of the 60-storey tower was conceived to redefine the workplace experience by offering high-quality amenities within an innovative environment that encourages informal encounters, social interaction and communication. The aim in doing so is to enhance employee wellbeing and drive operational performance.

Space Syntax was appointed to provide strategic design advice on spatial layout and user activity both outside and inside the building. Our scope covered the new public space on Madison Avenue, the entrance lobby areas and the 'Exchange': four levels that include the lift transfer areas, a multi-level food hall and conference facilities.

With a building capacity of up to 14,000 employees, the study included a comprehensive analysis of movement patterns and space utilisation. These insights informed the design of circulation areas to ensure they accommodate key desire lines, anticipate demand and support different types of workplace activity.

Case study | **270 Park Avenue** New York, USA

Our contribution

Our analysis began with an evaluation of the public realm and lobby design. Using existing urban movement data, turnstile records and projected trip generation for the new building, we assessed the key approaches to the building. We also established arrival/departure profiles for both employees and visitors and analysed the entrance demand during peak periods. Our insights created an early understanding of the building's likely impacts on surrounding movement patterns and helped make a key decision regarding the number and location of principal building entrances.

For the Exchange - the four levels that include the lift transfer areas, a multi-level food hall and conference facilities - we undertook spatial layout analysis of user wayfinding patterns, which informed the early-stage designs. An agent-based model was constructed for the public realm, lobby and the Exchange to simulate user movement and identify key desire lines, activity levels and potential congestion hotspots.

The outputs of this work included a detailed assessment of queuing capacity within the main circulation areas, including at entrances, security barriers, lift lobbies, transfer zones, escalators and reception areas. Based on the analysis, recommendations for design optimisations were provided to help the design team create a work environment that offers a high-quality user experience.

The outcome

Working closely with the design team, our analysis revealed opportunities and provided recommendations for layout and programme optimisation. This included feedback on the legibility of the circulation areas, refinement of the location of key functions such as security and catering, advice on the placement of interior design fixtures and optimisation of the location and design of vertical circulation elements, including internal staircases.

We also advised on the spatial layout and programmatic design of workspace areas in order for these to accommodate a wide variety of uses from quiet, focused work zones to informal meeting areas fostering unplanned encounters and social interactions.

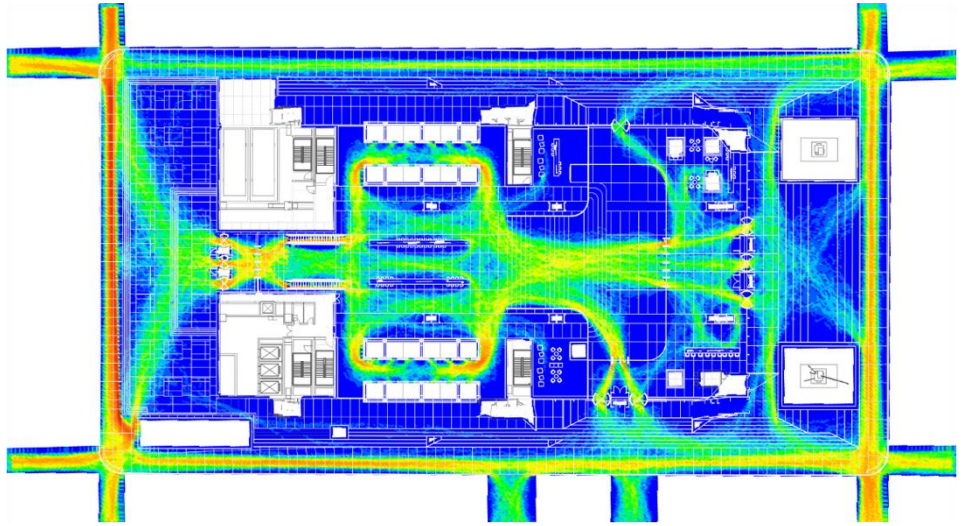
Our insights helped shape a workplace design that brings people together while supporting communication, productivity and wellbeing.

A. *View of the lobby area, CGI © Foster + Partners (previous page).*

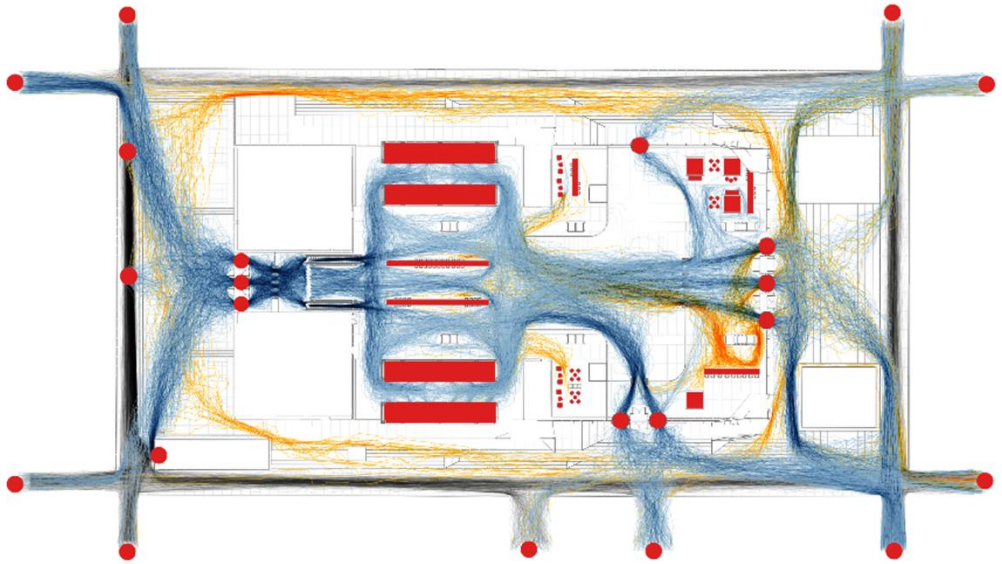
B. *User movement simulation of the Lobby layout, highlighting areas with highest density of movement.*

C. *Visualisation of circulation paths for different user groups, showing arrival patterns & entrance demands.*

B.



C.



Case study | **Bloomberg Headquarters** London, UK

Advice on all aspects of design from urban integration, to workplace layout to user circulation.

Client
Bloomberg

Year
2011-12

Role
Strategic Design Advice

Team
Foster + Partners

Key Features
Visibility & accessibility analysis
User movement simulation & forecast
Entrance demand analysis
Design recommendations

The opportunity

Foster + Partners were appointed to design Bloomberg's European headquarters in the heart of the City of London.

Bloomberg's ambition was to create a workplace that fully realised the value of physical proximity — a building designed to maximise opportunities for interaction, collaboration and knowledge exchange, both within the organisation and in relation to the surrounding city.

Space Syntax was engaged to advise across multiple aspects of the design. Our role was to enhance the building's integration with its urban context while shaping an internal environment that carefully balanced vibrant, co-present spaces with quieter, focused settings essential for productive work.

Case study | **Bloomberg Headquarters** London, UK

Our contribution

Space Syntax undertook a series of studies at multiple scales, applying advanced spatial modelling and analytical techniques tailored to each design question.

At the urban scale, we analysed spatial network integration and pedestrian movement patterns to inform the building's relationship with the City. This supported the case for reinstating a historic Roman route that had been severed by 1960s office development.

At the building scale, we evaluated alternative footprint configurations to understand how variations in layout, floor plate geometry, void placement and service core positioning influenced visibility, movement flows and patterns of interaction. Multiple iterations were modelled and compared to support evidence-led decision making and the selection of a preferred option.

We also tested morning arrival sequences using agent-based simulations. These studies assessed proposals to route staff through shared social spaces, balancing the objective of encouraging interaction with user comfort, convenience and operational efficiency.

Finally, we modelled the capacity and performance of entrances, lobbies, security areas and lift waiting spaces under peak morning conditions, ensuring that the building would operate effectively during its most demanding periods.

The outcome

The completed design demonstrates how a workplace can be strategically shaped to maximise the benefits of co-location. The building fosters chance encounters, informal exchange and collective awareness, while providing a carefully calibrated range of quieter and more private environments to support diverse modes of work.

At the urban scale, the scheme makes a significant contribution to the City of London. The reinstated historic street alignment strengthens permeability and connectivity, while active frontages animate the surrounding public realm and create meaningful points of engagement between staff and the wider city.

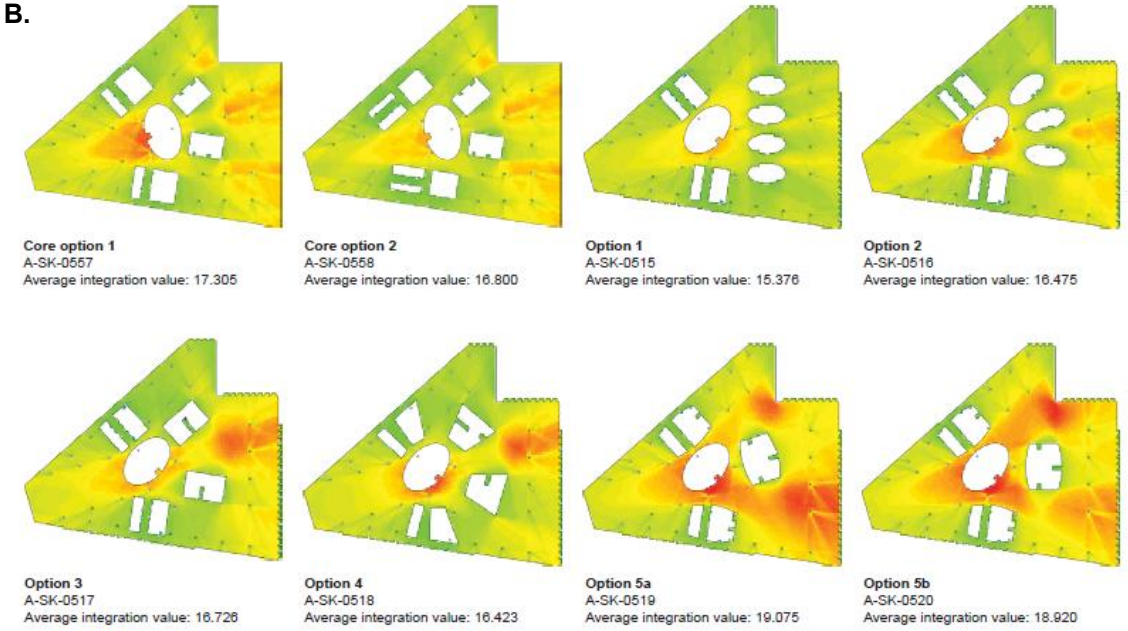
The project has received multiple awards, including the RIBA Stirling Prize and the British Council for Offices 'Best of the Best', recognising both its architectural quality and its contribution to workplace innovation.

A. *Bloomberg headquarters exterior (previous page).*

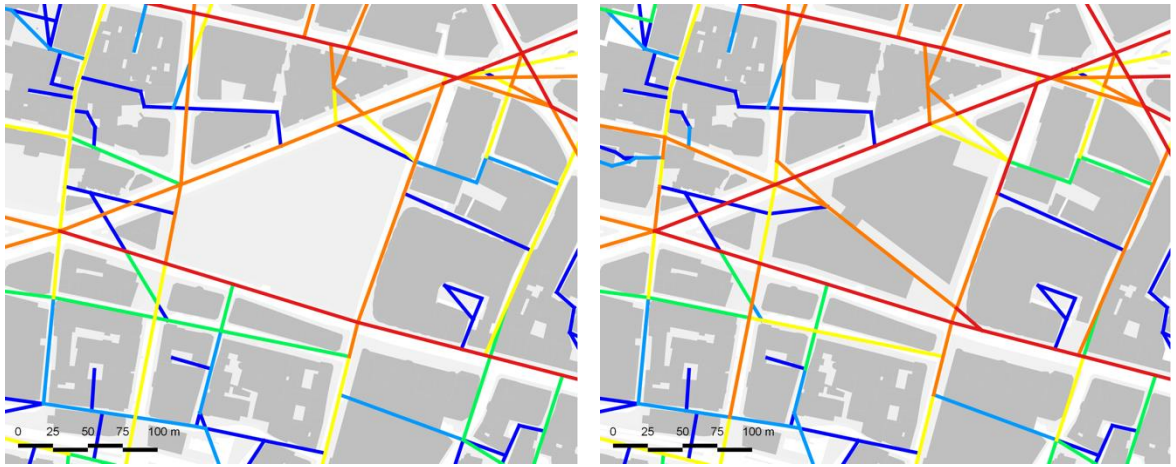
B. *Analysis of proposed floorplates to understand impact on visibility, co-presence and interaction.*

C. *Analysis of building footprint on site to study strength of connections, potential footfall and opportunities for active uses.*

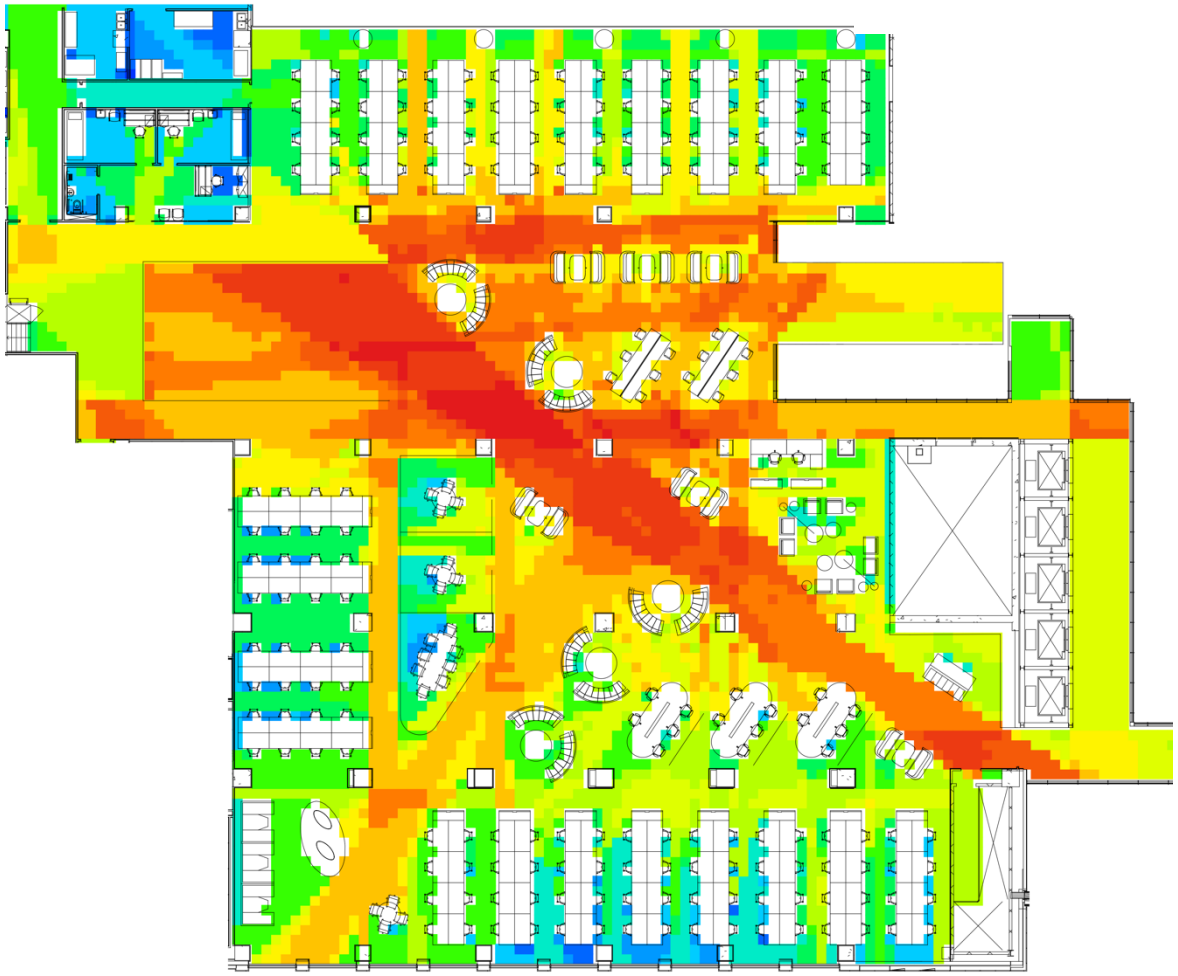
B.



C.



Case study | **Francis Crick Institute** London, UK



Space utilisation study & workplace design advice to enhance staff interaction and cross-department collaboration.

The opportunity

The Francis Crick Institute is a world-class biomedical discovery institute in central London. Following an initial period of residence in the new building, the Operations team were looking to enhance their working environment, adapting spaces to encourage greater collaboration and knowledge-sharing within and between departments.

Space Syntax was part of the design team led by Pilbrow & Partners Architects that was appointed following an invited competition.

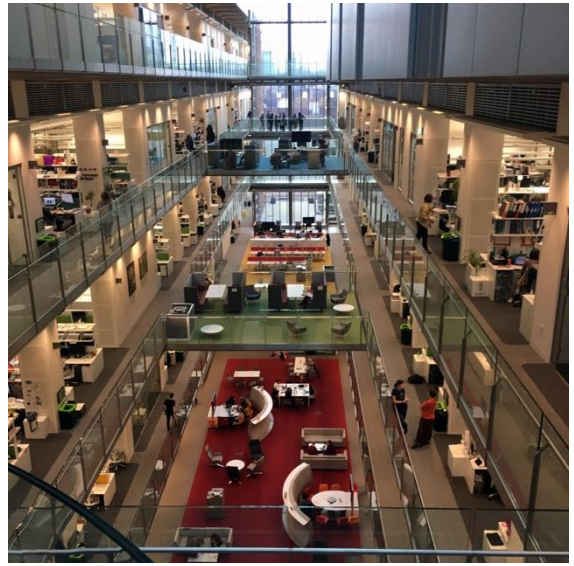
Client
The Francis Crick Institute

Year
2018

Role
Spatial layout advisor

Team
Pilbrow & Partners Architects

Key Features
Space utilisation survey and analysis
Design review
Detailed circulation analysis
Design option evaluation



Case study | **Francis Crick Institute** London, UK

Our contribution

At the competition stage, Space Syntax worked with the design team to develop, test and evaluate concept design proposals. Our work facilitated communication with key client groups and was instrumental in securing the competition win.

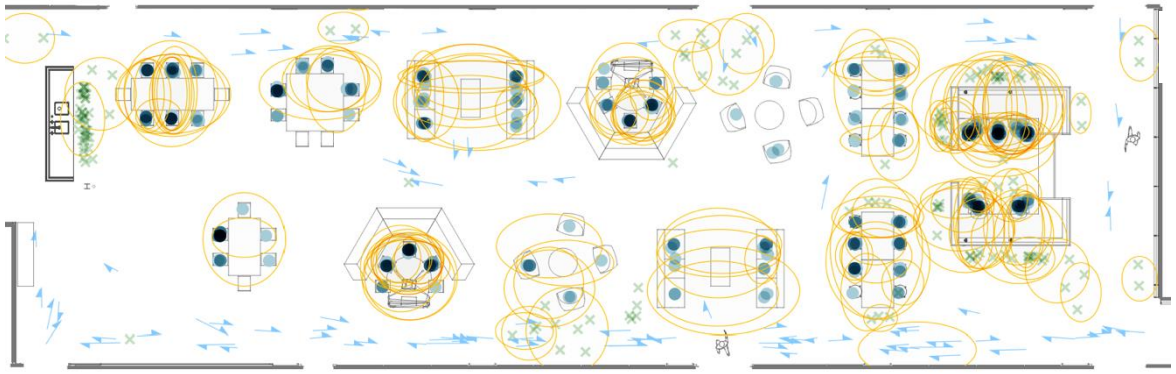
We then provided evidence-based design advice that assisted the client and design team in a number of key processes. First, we developed an understanding of how the day to day activities of the Institute were affected by the design of the building and, secondly, we developed and tested design proposals with the aim of optimising the layout and therefore improving performance in terms of staff interaction and communication.

The outcome

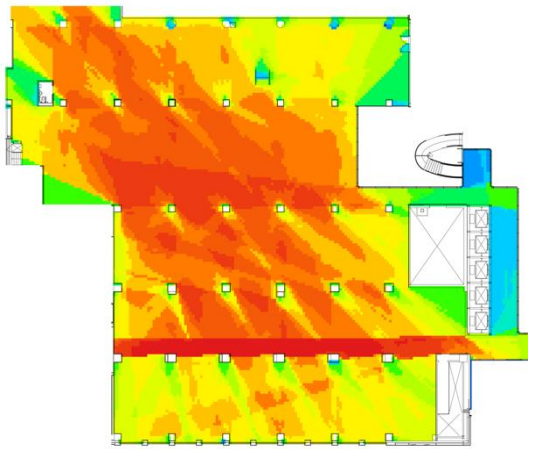
The proposed changes create an easy to wayfind layout with a clear hierarchy of circulation spaces. The design increases opportunities for formal and informal interactions between colleagues - both for those working in Operations as well as those visiting from other parts of the building.

At the same time, the various functions in the floor (meeting rooms, collaborative spaces, etc) were optimally distributed according to their required exposure to movement and interaction.

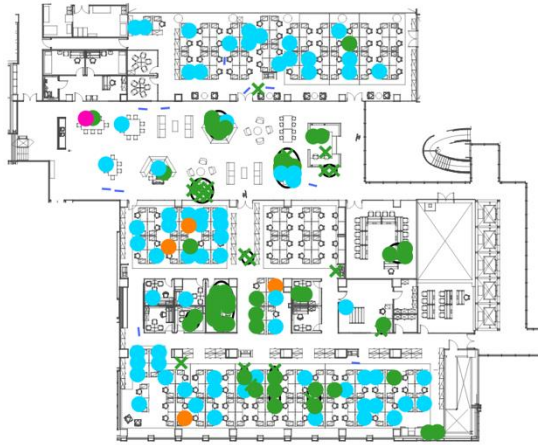
A new feature central staircase integrates Operations with the other departments in order to enhance movement potential, and therefore opportunities for unplanned conversations across the building, a key characteristic leading to innovation



C. *Diagram of staff interaction and occupation patterns in the central social space of the operations floor, based on the on-site surveys.*



D. *Spatial accessibility analysis of the operations floor showing patterns of inter-visibility and potential interactions.*



E. *Diagram of staff activity patterns on the operations floor.*

A. *Spatial accessibility analysis of one of the layout options highlighting the activity potential of each space (previous page).*

B. *The central atrium of the Francis Crick Institute (previous page).*

Asset class | **Retail**

Asset class | **Retail**

Understanding how spatial layout structures customer behaviour & sales patterns across the whole site/store.

Our focus

- Customer movement flows and route choice
- Location value in terms of passing trade and dwell potential
- How spatial hierarchy influences product exposure and choice
- Spatial potential of locations for products and activities
- Interaction between circulation, queuing and selling activities
- Differences between average and peak trading conditions

Value

- Improve customer experience and legibility
- Support better product placement and merchandising
- Reduce congestion and friction
- Link spatial decisions to commercial performance

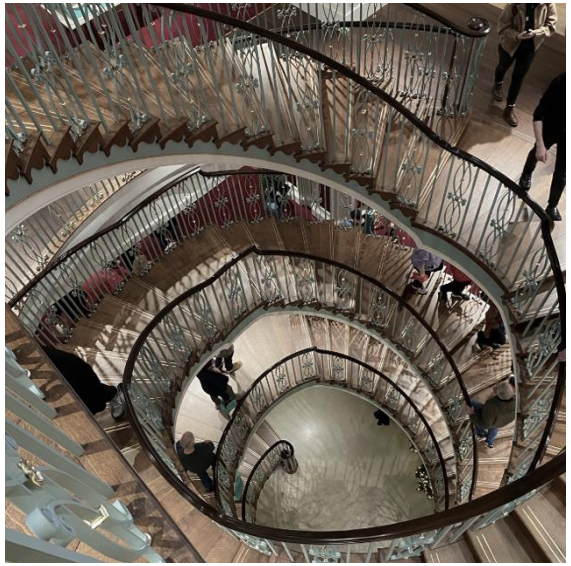
Double helix staircase at the Fortnum & Mason lobby in Piccadilly, London.

Retail | Selected projects

Fortnum & Mason, London | Fortnum & Mason

Customer behaviour analysis & design impact study

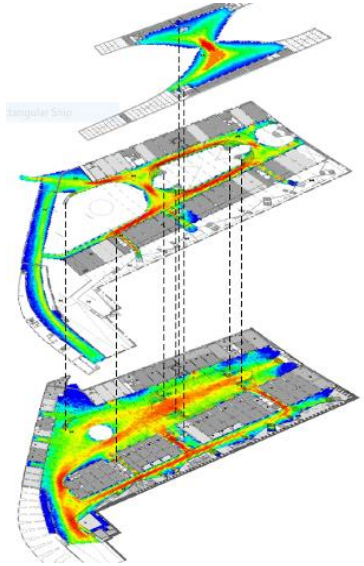
Impact of store layout and visual connectivity on customer behaviour across floors, demonstrating that targeted architectural and layout improvements can enhance movement distribution, engagement, and overall retail performance.



Coal Drops Yard | Agent LLP

Strategic access & internal circulation design advice

Public realm and strategic access, legibility and wayfinding analysis. Evaluation of circulation interventions aimed at optimising land use distribution and visitor flows.



St David's Centre, Cardiff | Landsec

Visitor footfall forecast

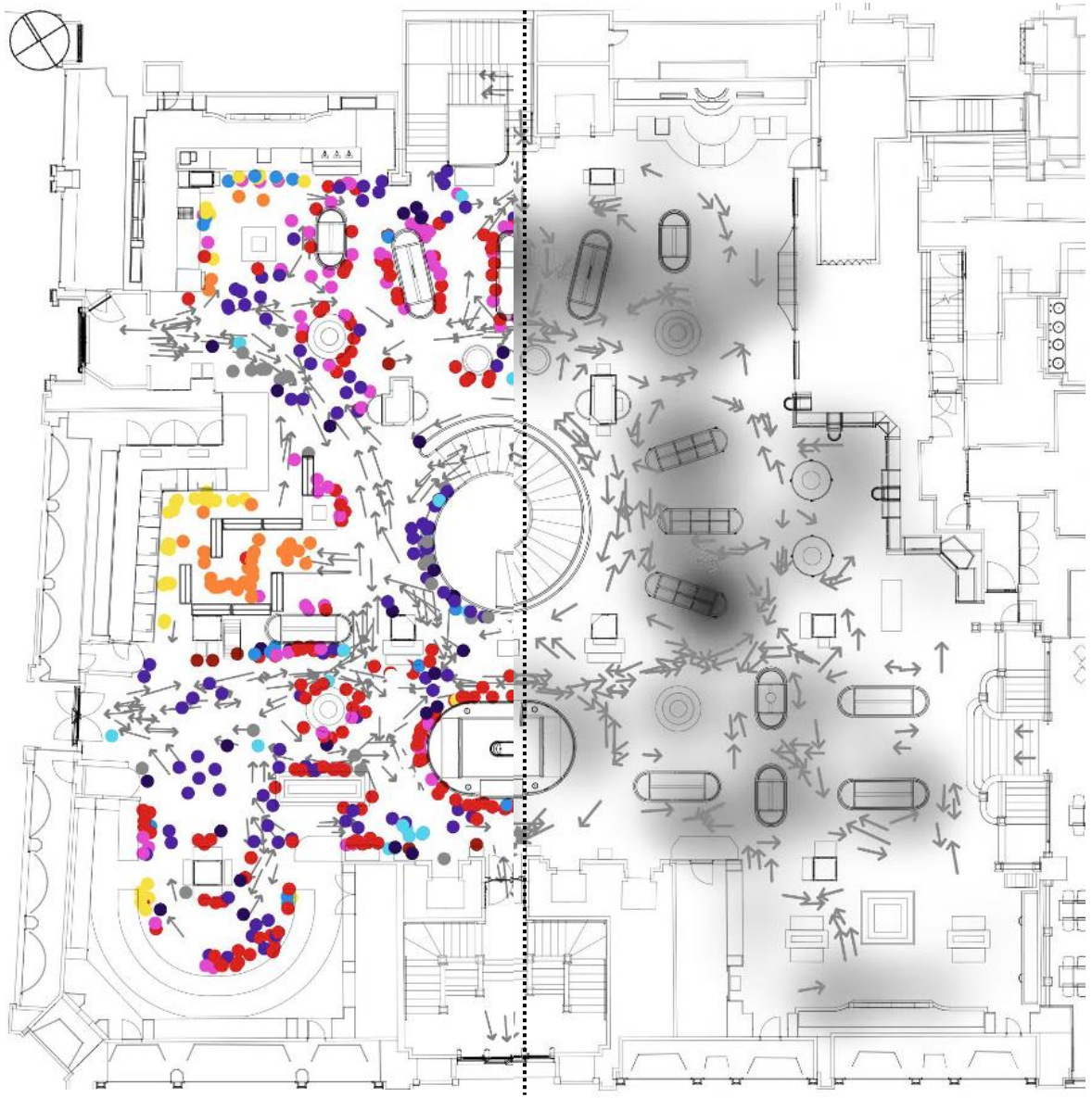
Construction of a pedestrian forecast model to predict visitor flows in a major extension of an existing city centre retail development.

Trinity Centre, Leeds | Landsec

Circulation design advice & scenario testing

Evaluation and development of circulation design proposals to ensure a major shopping and leisure development integrates the surrounding areas and the former Burton and Trinity Arcades.

Case study | **Fortnum & Mason** London, UK



Analysing customer circulation, product engagement & purchasing patterns in a landmark shopping environment to inform layout design & enhance retail performance.

Client
Fortnum & Mason

Year
2024

Role
Customer Behaviour & Spatial Strategy Adviser

Team
Ben Pentreath Ltd

Key Features
Customer Behaviour Analysis
Spatial Accessibility Modelling
Spatial Layout Design Advice
Customer Circulation Forecasting

The opportunity

In large, multi-level retail environments, spatial complexity can quietly undermine the customer experience. Visitors may struggle to find their way, miss key departments, or feel uncertain navigating across floors. These issues can affect first-time visitors more acutely, but they also shape how returning customers engage with the store over time, impacting brand appreciation and economic performance.

With a major store transformation project under development the moment was right to better understand how customers interact with the store and to use that understanding to model design proposals and their likely impact on future customer behavior and retail sales.

The project combined on-site behavioral observations with spatial analysis of the existing layout, including product visibility analysis. By linking qualitative insights with quantitative data, Space Syntax was able to form a more complete picture of how layout, visibility and vertical access impact customer navigation, circulation and product interaction.

This research provided a crucial foundation for future change, enabling the client to move forward with clearer, evidence-based strategies for improving circulation patterns throughout the multi-level store as part of the redevelopment project.

Case study | **Fortnum & Mason** London, UK

Our contribution

Space Syntax carried out a detailed, mixed-method assessment of how customers use and experience the store. We conducted on-site behavioural observations across all floors, recording how visitors entered, moved, paused, made decisions and interacted with the environment, products and each other.

We focused on circulation patterns, moments of hesitation and how customers engaged with staircases, floor entrances, departments, furniture, product categories and displays. This included documenting not only where people went, but how they navigated, whether they chose to continue, double back, or disengage.

These observations were linked to a spatial analysis of the existing layout, using visibility analysis to understand how sightlines and spatial structure shaped observed behaviour. By comparing what people did with what the space afforded, we could distinguish between operational challenges and spatial constraints that could be addressed through design.

These methods allowed us to build a detailed evidence base: a spatial narrative explaining how the store worked from a customer's perspective. We focused on uncovering the conditions that support confident movement and inclusive access, giving Fortnum & Mason a foundation for future improvements grounded in data and lived experience.

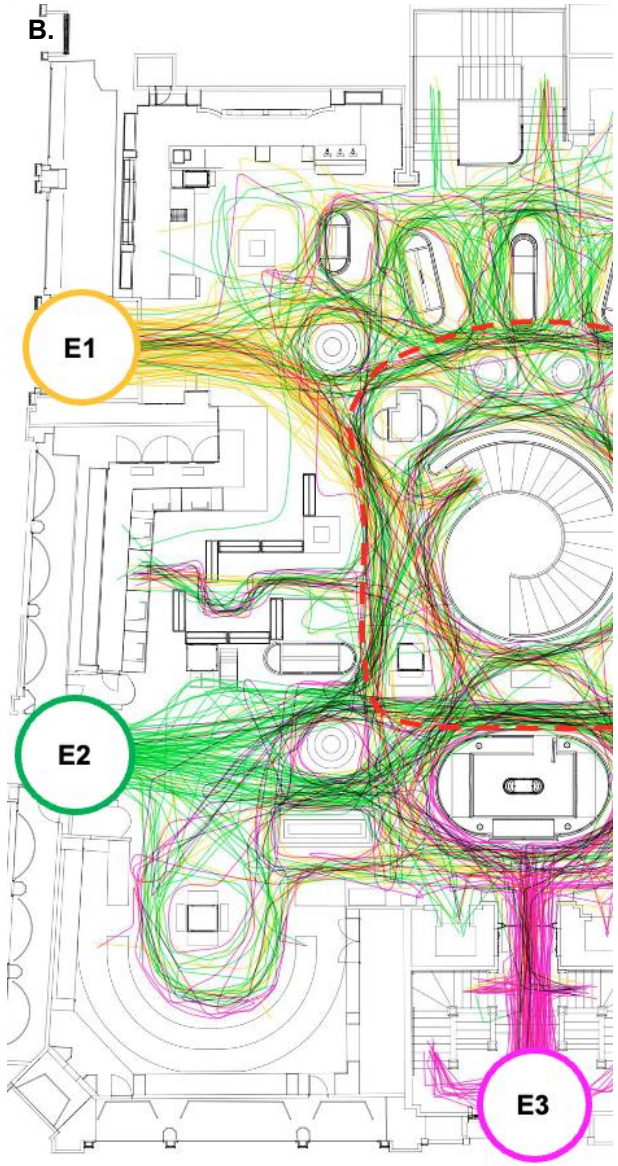
The outcome

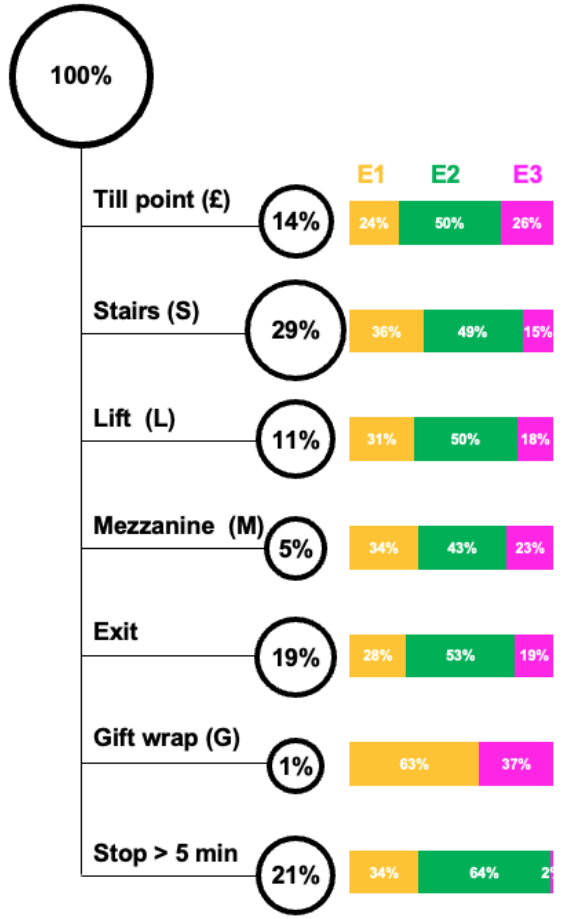
By capturing how people move and behave, the findings created a shared evidence base that was then used to support future design, wayfinding and operational decisions. The work highlighted where the spatial layout supported confident, intuitive movement and where friction points disrupted the customer journey.

We used a Customer Behaviour Model to test and advise on the design of the proposed double helix staircase connecting from Lower Ground to Level 2 as well as a new Ground Floor mezzanine staircase. Our work also informed decisions about the use of different types of product fixtures and locations.

The insights from this work helped reframe spatial issues not as isolated problems but as part of a broader customer experience, shaped by visibility, flow and behavioural patterns.

The result is a clear, actionable foundation for improvement – empowering the client to make more informed, inclusive and strategic interventions that enhance both performance and experience over time.





A. *Movement and activity snapshots (left) & heatmap of product related activities (right) (previous page).*

B. *Movement traces from the three entrances to the end points of their journeys.*

Asset class | **Healthcare**

Asset class | **Healthcare**

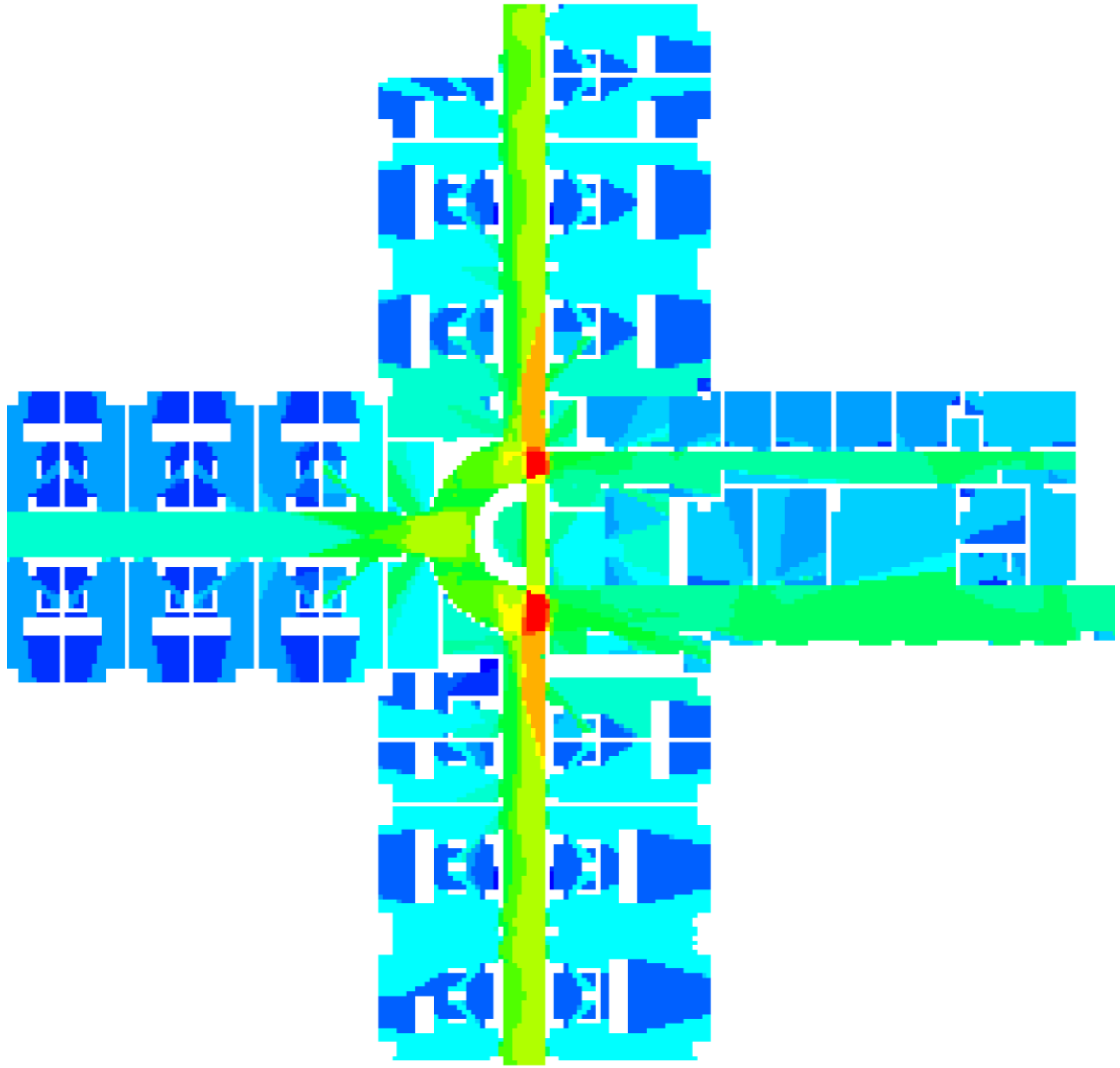
Managing critical, overlapping flows while ensuring safety, supervision & dignity.

Our focus

- Separation and interaction of patient, visitor and staff routes
- Visibility, oversight and blind spots
- Adjacencies between critical clinical functions
- Continuity of patient journeys from arrival to discharge
- Capacity and pressure under peak conditions
- User experience and comfort

Value

- Reduce risk of operational failure
- Improve safety, supervision and efficiency
- Support smoother patient journeys and staff workflows
- Enable evidence-based redesign without disrupting care
- Improve quality of experience of all users



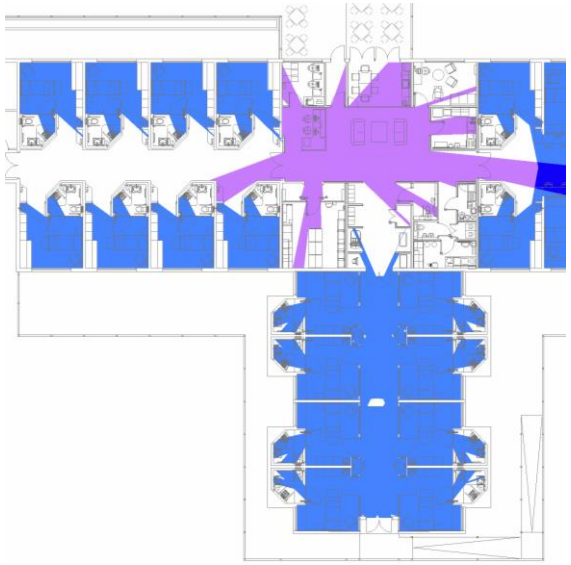
Spatial layout analysis of a ward at the Hillingdon Hospital, London.

Healthcare | Selected projects

Hillingdon Hospital Pilot | The National Patient Safety Agency

Ward layout study

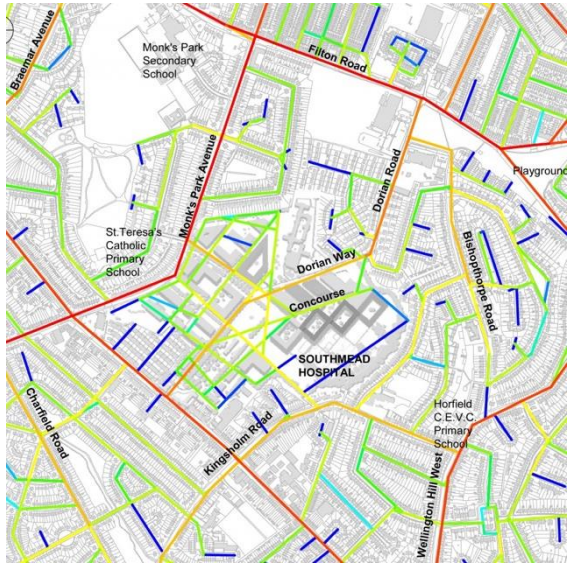
Evaluation of ward layout for delivery of care, focussing on the impact of 100% single room accommodation in hospital wards.



Bristol Southmead Hospital | University of Manchester

Hospital layout & circulation study

Creation of design principles and spatial models to develop and test emerging proposals that encourage interaction and innovation.



Warneford Park Mental Health Campus | Oxford NHS Foundation Trust

Campus-wide coherence

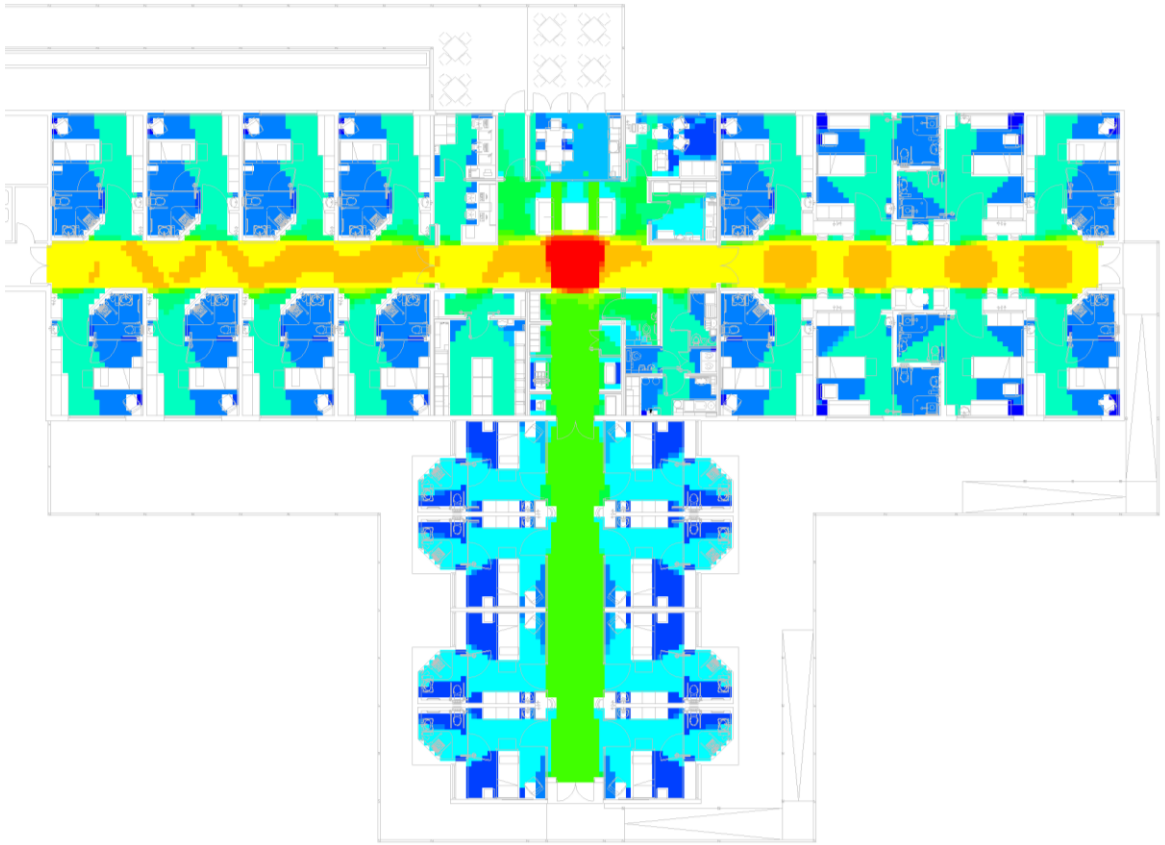
Development of spatial strategies integrating healthcare, research and teaching functions to create a high-quality, unified campus environment.

Hospital, China | Beijing Institute of Architectural Design

Hospital layout optimisation study

Development and testing of a Circulation Model to evaluate and optimise the proposed hospital layout, enhancing spatial accessibility, wayfinding and overall user experience.

Case study | **Hillingdon Hospital** London, UK



An evaluation of ward layout on the delivery of care.

Client
Department of Health National Patient Safety Agency

Year
2010

Role
Spatial Strategy and Circulation Consultant

Team
York Health Economics Consortium

Key Features
Baseline study

Post-occupancy surveys

The opportunity
Space Syntax was commissioned by the Department of Health and the National Patient Safety Agency to join an interdisciplinary research team investigating the impact of 100% single room accommodation in hospital wards on patient care and specifically to evaluate the effect of spatial layout and room configuration on staff working practices

Built as a temporary structure in the car park of Hillingdon Hospital, the Bevan Ward research project offered a unique opportunity to test examples of best practice in ward design. The 24 bed T shaped ward has three ensuite 8-bed clusters that share a central support zone with reception, kitchen and social areas. Each of the three wings has been designed to test different room configurations based on the location of ensuite facilities: standardised, courtyard and outboard.

Case study | **Hillingdon Hospital** London, UK

Our contribution

The analytic process included:

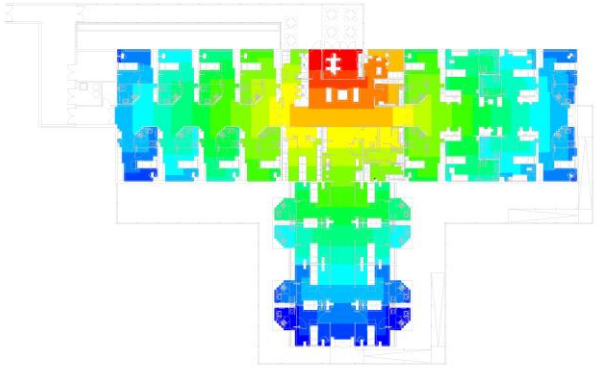
- observation of occupation and interaction patterns of patients, visitors and staff;
- nurses' travel paths and interaction patterns;
- spatial accessibility analysis;
- room and bed-head visibility;
- walking distances;
- natural surveillance & visual field analysis; and
- structured interviews and questionnaires with key members of staff.

In order to establish a comparative baseline, the first part of the research used four existing wards of various configurations and accommodation types as a case study. These case studies included two wards within Hillingdon hospital, one of which was then relocated to the newly built Bevan ward.

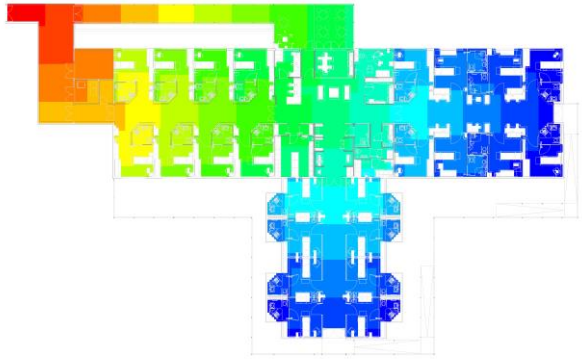
The second stage applied the same methodology to the Bevan ward, with two observations studies. The first undertaken in February 2009, a month after the Bevan ward was commissioned as a working ward, with a second follow-up on site surveys in December 2009 and January 2010.

The outcome

Single-room accommodation is likely to provide a better patient experience than that offered in multi-bed wards as long as key conditions are achieved. These refer firstly to the design of the layout and secondly to the fundamental requirement for staff to adapt their practices to the new layout. The success of the Bevan ward was only possible after the charge nurse re organised certain routines that, while successful in multi-bed bays, were inefficient in a single-room environment.

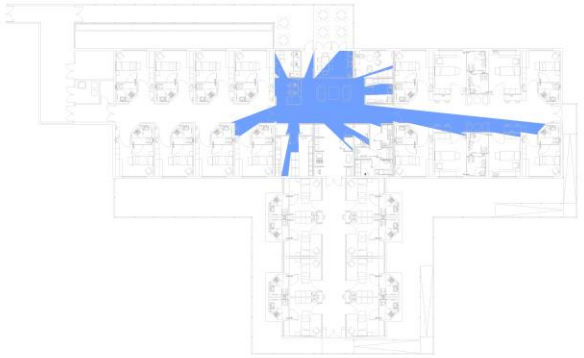


A. *Spatial accessibility model of the pilot ward highlighting the intersection of corridors as a strategic location. Visitor entrance & the reception are located adjacent to this strategic point (previous page).*



B. *Walking distance from the visitor entrance for the pilot ward.*

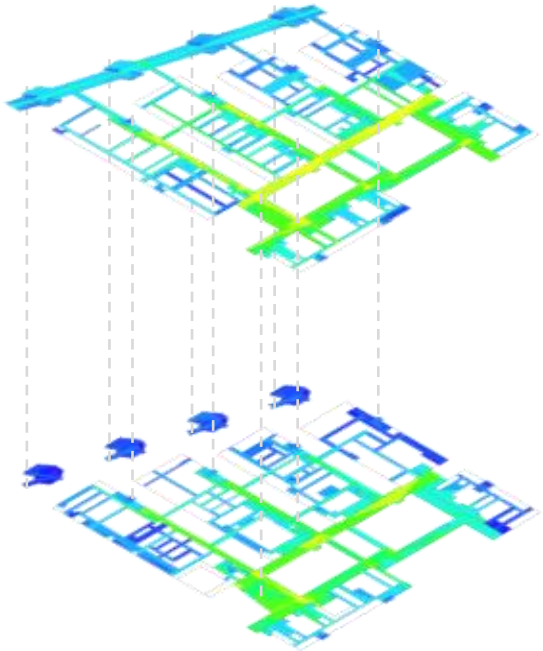
C. *Walking distance from the staff entrance for the pilot ward, demonstrating a deeper structure compared from the one from the visitor entrance.*



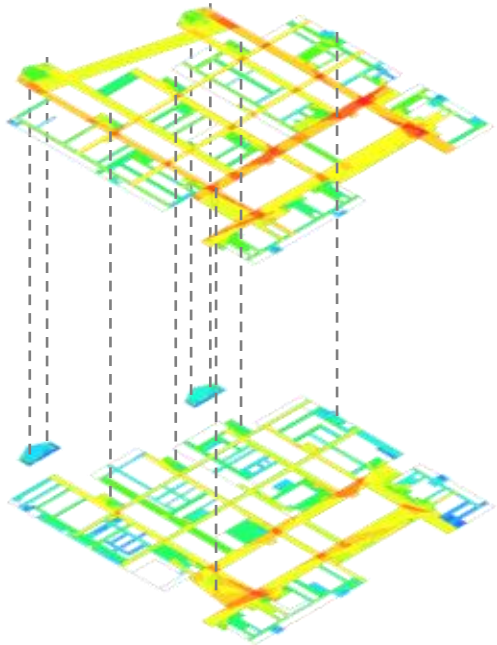
D. *Visibility from each bedroom (patient's bed head), showing the different spatial properties between the three clusters.*

E. *Visibility from the main reception, which is limited to the support zone & does not stretch into each bedroom cluster.*

Case study | **Hospital** China



A.



B.

Space Syntax conducted design optimisations of a proposed hospital layout in China – enhancing spatial connectivity to improve wayfinding and user experience across the facility.

Client
University Hospital

Year
2020

Role
Strategic design advice

Team
Beijing Institute of Architectural Design

Key Features
Spatial analysis
Proposed option testing

The opportunity

Space Syntax carried out a Circulation Design Review of the proposed hospital. The aim of the design review was to produce a rapid, high-level quantitative review of the designs in order to identify opportunity areas for design optimisation.

Our contribution

Space Syntax constructed a Circulation Model of two floors – First and Second Floors – of the proposed hospital. The model measures levels of Spatial Accessibility, a robust initial proxy for pedestrian circulation flows, throughout the floors.

Based on the analysis results of the proposed hospital layout, design changes that optimise spatial accessibility of the two hospital floors were suggested. These optimisations were tested using the Circulation Model.

The outcome

Our work informed the key issues regarding main access to the hospital, internal circulation and the locations of key functions.

A. *Spatial accessibility of the proposed layout*

B. *Spatial accessibility of the optimised layout*

Asset class | **Cultural**

Asset class | **Cultural**

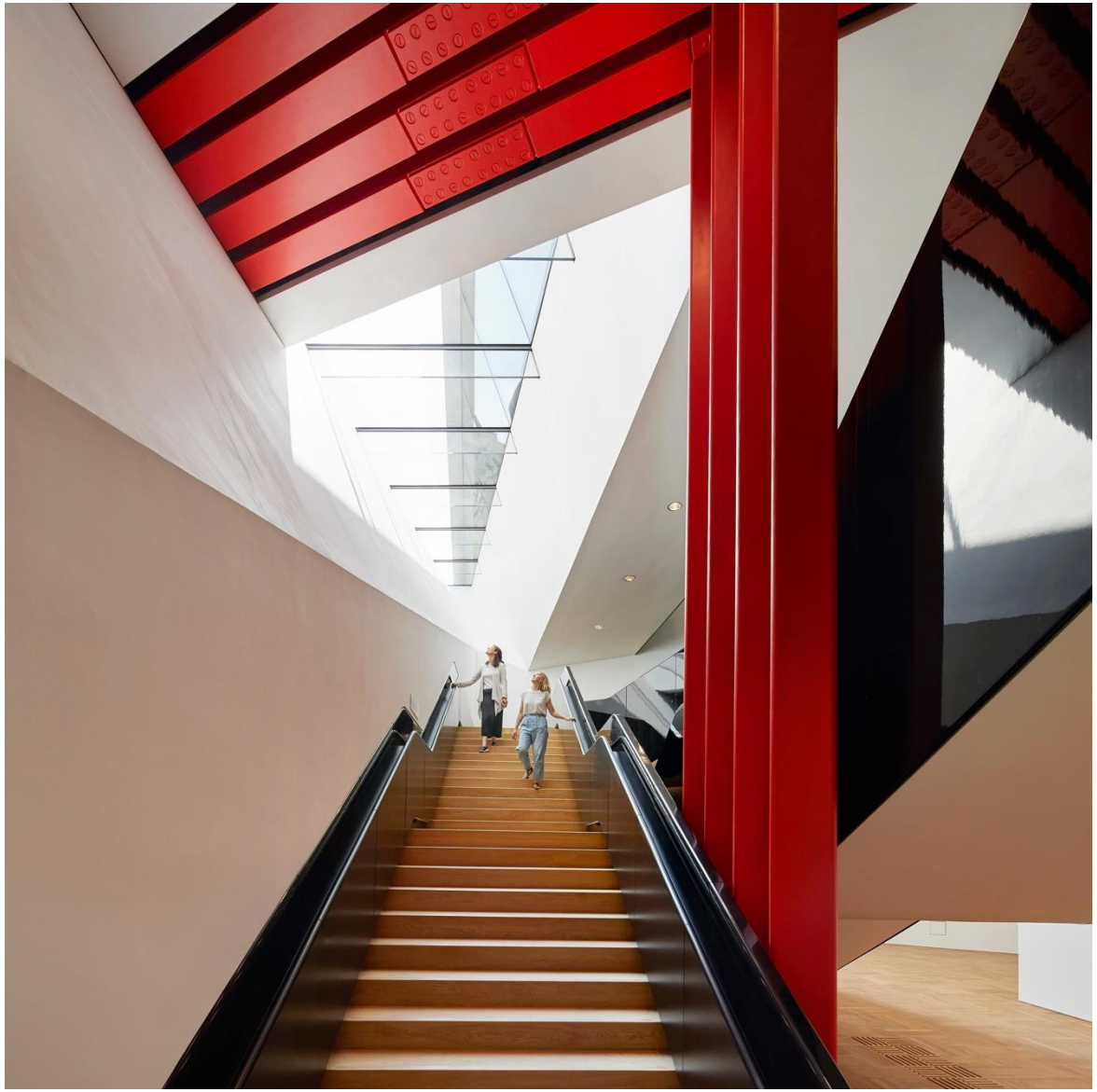
Creating high quality coherent visitor journeys & meaningful engagement with collections.

Our focus

- Visitor circulation and spatial sequencing
- Visibility, sightlines and visual connections
- Wayfinding and decision-making points
- Capacity, comfort and visitor distribution

Value

- Improve visitor experience and satisfaction
- Strengthen spatial and curatorial narratives
- Balance visitor distribution and reduce congestion
- Support confident design, planning and phasing decisions



The Sackler Courtyard at the V&A, London, providing a new entrance, public space & underground gallery.

Cultural | Selected projects

Natural History Museum | Natural History Museum

Visitor circulation strategy

Design and testing of strategic circulation interventions to optimise visitor flow, engagement and experience.

The V&A Exhibition Road Quarter | Victoria & Albert Museum

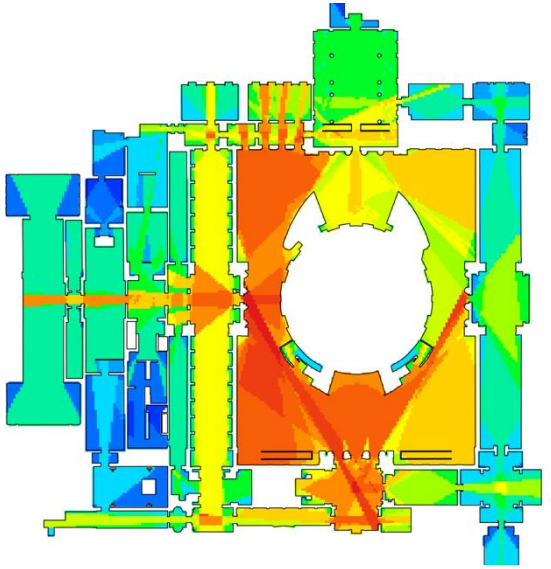
Visitor circulation & design impact study

Analysis of existing visitor flows and development of future visitor flow scenarios to test the impact of design proposals on wayfinding and capacity.

British Museum | The British Museum

Visitor circulation & museum layout study

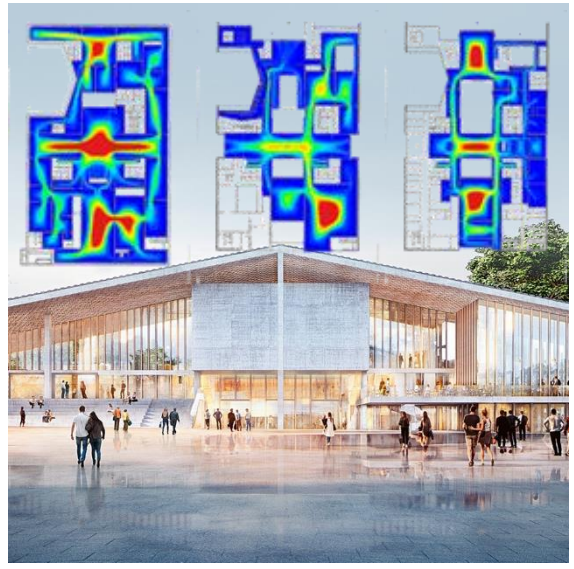
Spatial Strategy and Visitor Circulation Advice for shortlisted Design Competition Entry for the British Museums Western Range, with Eric Parry and Jamie Foubert Architects.



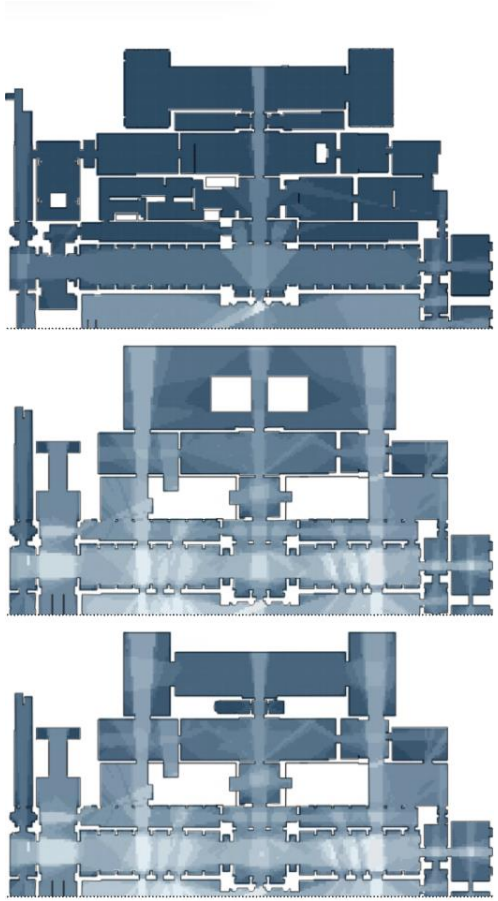
Museum of 20th Century Berlin | Staatliche Museen zu Berlin

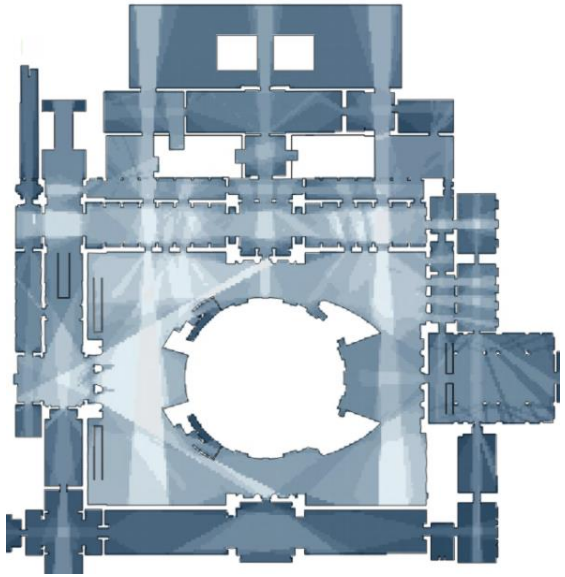
Visitor circulation & design impact study

Space Syntax, used its connectivity, visibility and agent modelling to inform movement patterns and spatial relationships on Berlin's future cultural landmarks.



Case study | **British Museum** London, UK





Reimagining how visitors move through & experience the Western Range with enhanced visibility & improved wayfinding to create an intuitive & sociable experience.

Client
Eric Parry Architects | British Museum

Year
2024

Role
Spatial Strategy and Movement Analysis

Team
Eric Parry Architects | Jamie Fobert Architects
Purcell Heritage Consultants
Max Fordham | Price & Myers

Key Features
Visitor Circulation Design Strategy
Spatial Layout Analysis
Exhibit Visibility Analysis
Design Testing & Optimisation

The opportunity
The Western Range is one of the most architecturally significant but spatially disconnected parts of the British Museum. Despite housing important galleries, the rooms are difficult to navigate, with poor visibility, fragmented circulation and limited access between levels. As a result, visitors are often disoriented or bypass important spaces altogether, leading to uneven footfall and a disrupted museum experience.

The British Museum's competition called for a redesign that would make the Western Range more appealing to a broader audience. Our team responded by focusing on the underlying spatial challenges of intervisibility, legibility, accessibility and inclusion and identified a strategic opportunity to improve connections to both the Great Court and the main entrance, making the Western Range a more integrated part of the museum's primary circulation.

This meant clarifying key routes, enhancing sightlines, reconnecting isolated galleries and making vertical movement more intuitive. We tested multiple design iterations using spatial layout analysis tools to assess and refine proposals. This helped the team identify the most effective strategy for unlocking the potential of the Western Range as a vital, visible and welcoming part of the museum.

Case study | **British Museum** London, UK

Our contribution

As Spatial Strategy Consultants within Eric Parry Architects' competition team, Space Syntax provided advice to support the redesign of the Western Range. Our work focused on improving visibility, accessibility and circulation and helping the design team test and refine ideas through a spatial performance lens.

We used Spatial Layout Analysis to assess how proposed interventions such as new openings, stair relocations and gallery connections would affect sightlines, connectivity and visitor flow. Each option was evaluated against the existing layout and comparatively across scenarios to identify the clearest and most legible outcomes.

We supported a strategy to integrate the Western Range more effectively into the museum's primary circulation by transforming a fragmented space into one that felt intuitive, inclusive and well connected to the rest of the museum.

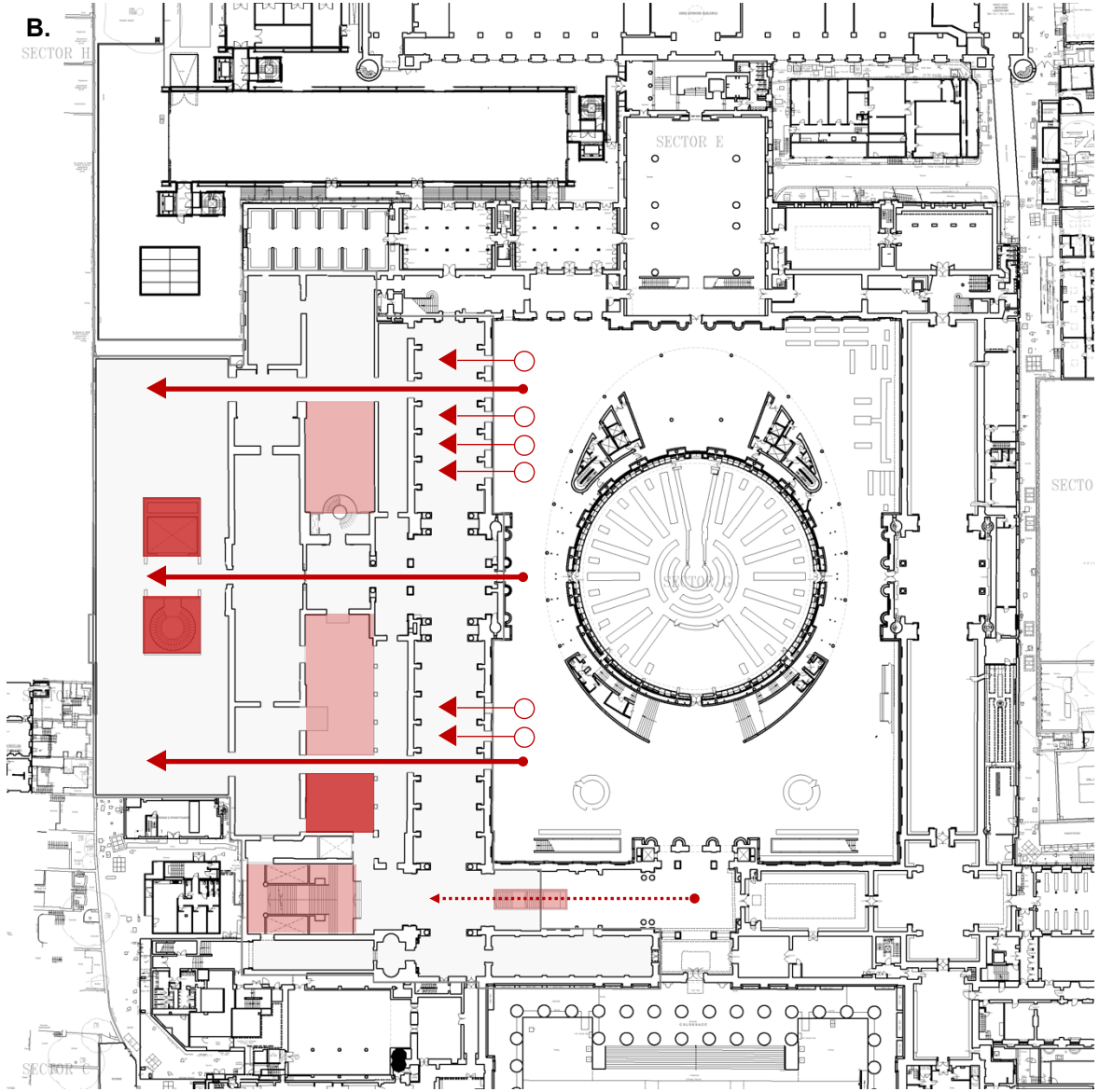
Our analysis also extended to the wider urban context, assessing access from surrounding streets and transport hubs to ensure internal improvements aligned with external arrival patterns. This evidence-led approach helped the team understand the spatial impact of design decisions and strengthened the ultimate competition submission with clear, data-backed insights focused on people and movement.

The outcome

The final competition proposal presents a clear strategy to transform the Western Range into a more legible, accessible and integrated part of the British Museum. Through new connections and improved visibility, the design creates a more intuitive visitor experience and opens up previously disconnected spaces, both horizontally and vertically.

Our spatial analysis helped guide the selection of interventions with the greatest impact on circulation and wayfinding, while remaining sensitive to the building's architectural and operational context. By comparing multiple design scenarios, we helped the team prioritise moves that delivered the most benefit to visitors with the least disruption.

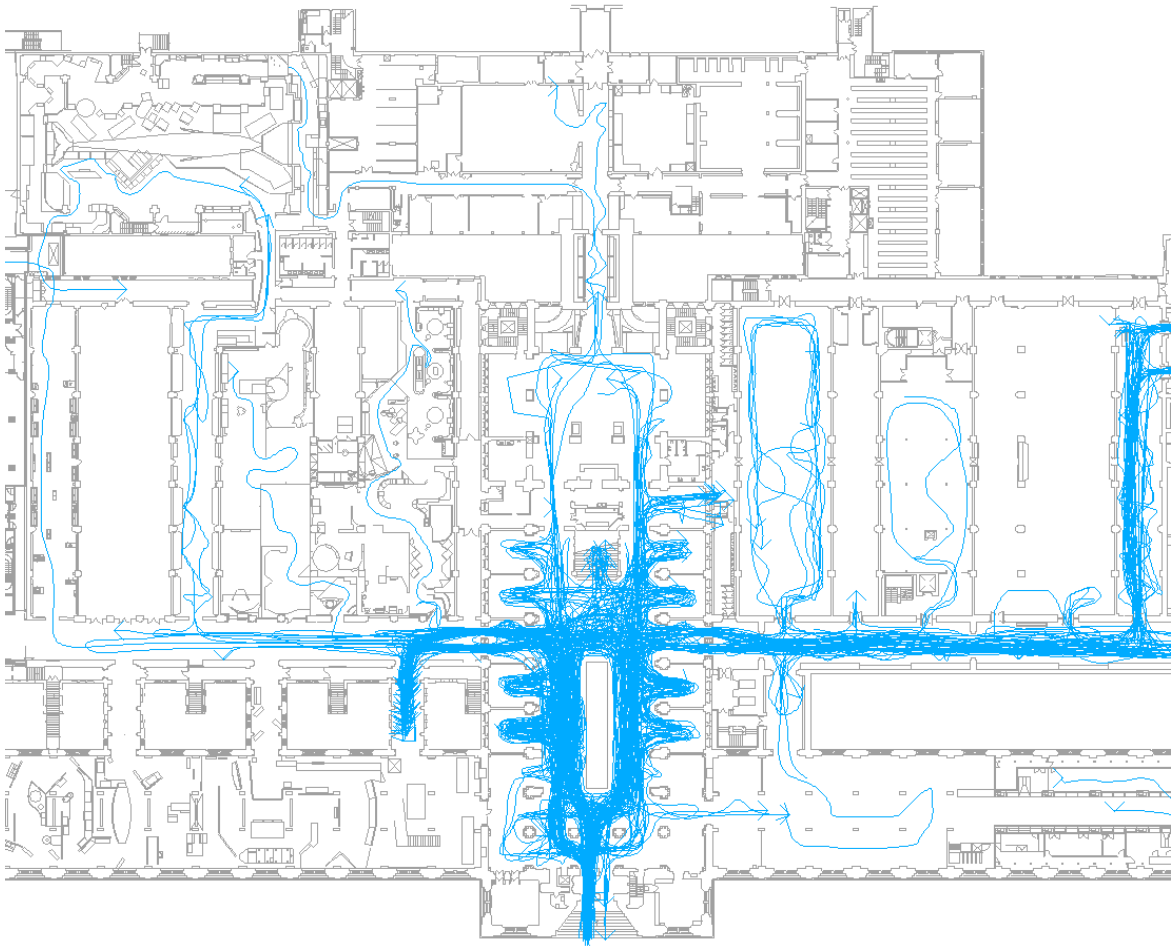
The preferred option allows previously overlooked areas to become part of the visitor journey, helping to distribute footfall more evenly and support a more inclusive, stimulating and coherent museum experience that better reflects the scale and richness of the collection as a whole.



A. *Spatial Layout Analysis of existing & proposed plans for the Western Range.*

B. *Key spatial moves diagram.*

Case study | **Natural History Museum** London, UK



Design & testing of strategic circulation interventions to optimise visitor flow, engagement & experience.

Client
National History Museum

Year
2013

Role
Visitor circulation advisor

Team
The Urban Engineering Studio

Key Features
Urban & building baseline study
Design option development and evaluation

The opportunity

The Natural History Museum is a world-class visitor attraction and a leading science research centre. It attracts over 5 million visitors a year and is expected to grow by 40% in the next ten years. To accommodate a rapid growth, the Museum has implemented a series of capital projects which include the Darwin Centre and the opening of new circulation spaces in recent years.

To inform these projects and its long term masterplanning vision, the NHM has commissioned Space Syntax to provide a robust evidence-base analysis of visitor circulation and design advice.

Case study | **Natural History Museum** London, UK

Our contribution

Space Syntax has applied a two-step scientific approach.

Urban and building baseline studies

A diagnosis of the existing conditions, using world-leading techniques of urban and building evaluation.

Spatial layout design advice

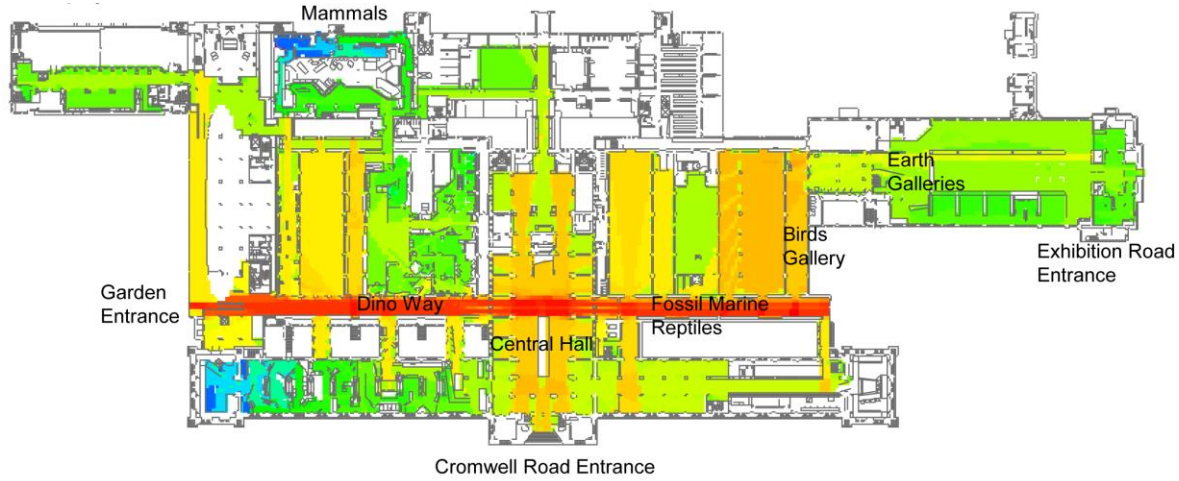
Informed by the baseline studies, we have then developed site-specific

recommendations, which informed a visitor circulation strategy for the Museum.
Intervention options were generated and tested through a close collaboration with the Museum.

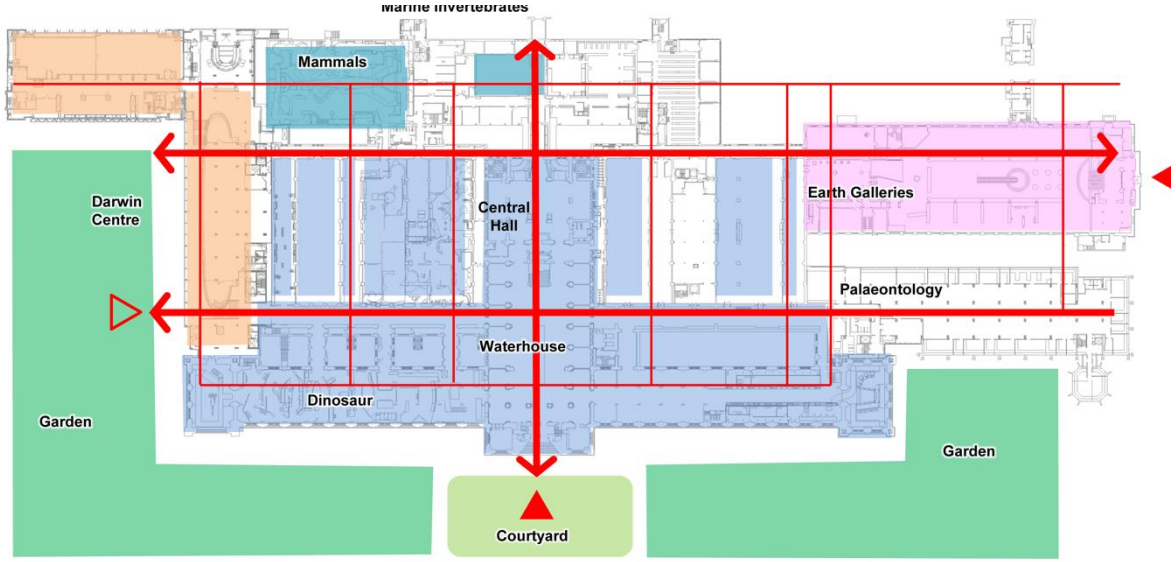
The outcome

The baseline studies, which have revealed various opportunities for the Museum, informed the development of a long-term visitor circulation strategy.

A final outcome was a development strategy that allows phased implementations of individual projects.



B. *Visitor traces from the Cromwell Road Entrance & the Exhibition Road Entrance.*



C. *Visitor circulation strategy.*

A. *Spatial accessibility analysis of the visitor circulation spaces of the Museum, highlighting key structures composed of the Central Hall & Dino Way/Fossil Marine Reptiles & segregation of the Earth Galleries, the North Buildings & the Darwin Centre (previous page).*

Asset class | **Education**

Asset class | **Education**

Enabling informal interaction alongside structured learning.

Our focus

- Interfaces between learning, social and public areas
- Strength and hierarchy of circulation networks
- Public and shared spaces as social infrastructure
- Movement-driven encounters across disciplines

Value

- Enhance informal learning and collaboration
- Support creativity and innovation
- Improve use of shared spaces and campus legibility
- Create learning environments beyond classrooms

Atrium of the Manchester Institute of Biotechnology, an interdisciplinary research institute.

Education | Selected projects

UCL East Masterplan | UCL Estates

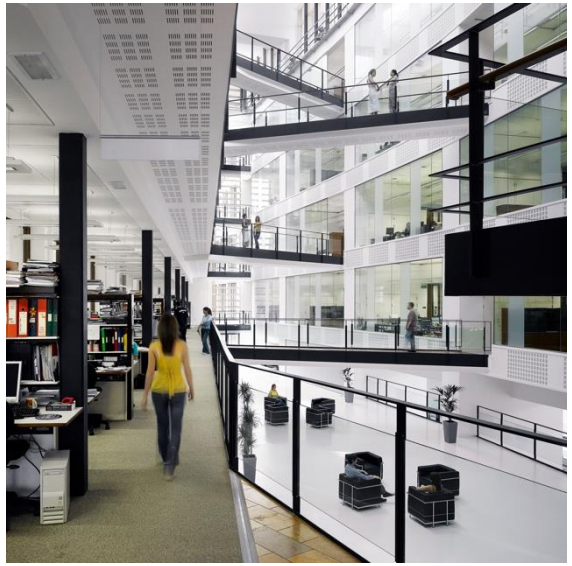
Masterplan & public realm design advice

Urban analysis and design impact modelling, to evaluate and optimise emerging masterplans for a new campus in the Queen Elizabeth Olympic Park.

Manchester Institute of Biotechnology | University of Manchester

Design advice focusing on interaction & communication

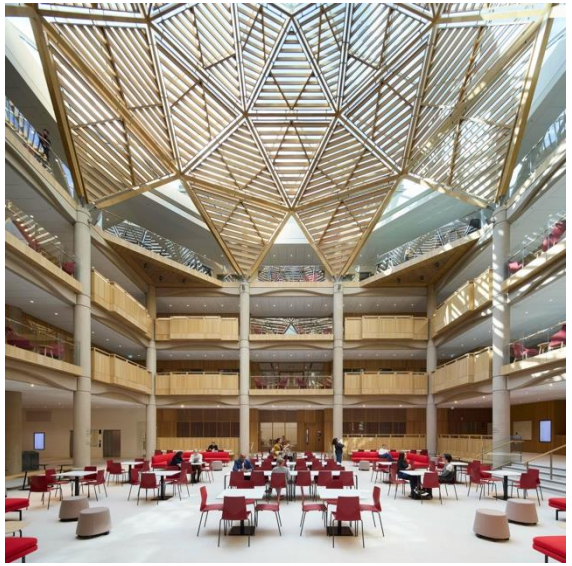
Creation of design principles and spatial models to develop and test emerging proposals that encourage interaction and innovation.



Schwarzman Centre for the Humanities | The University of Oxford

People flow & capacity analysis

People flow analysis for a new building that will include a number of performance spaces (500 concert hall, 250 theatre / lecture, experimental performance lab), seven faculties, teaching space, a library, research and graduate space and café provision.



Blavatnik School of Government | Blavatnik School of Government

Building use analysis & optimisation strategy

Analysis of the school's building culture, movement patterns, programming and capacity of communal areas to support optimisation of building performance, for Blavatnik School of Government.

Asset class | **Government**

Asset class | **Government**

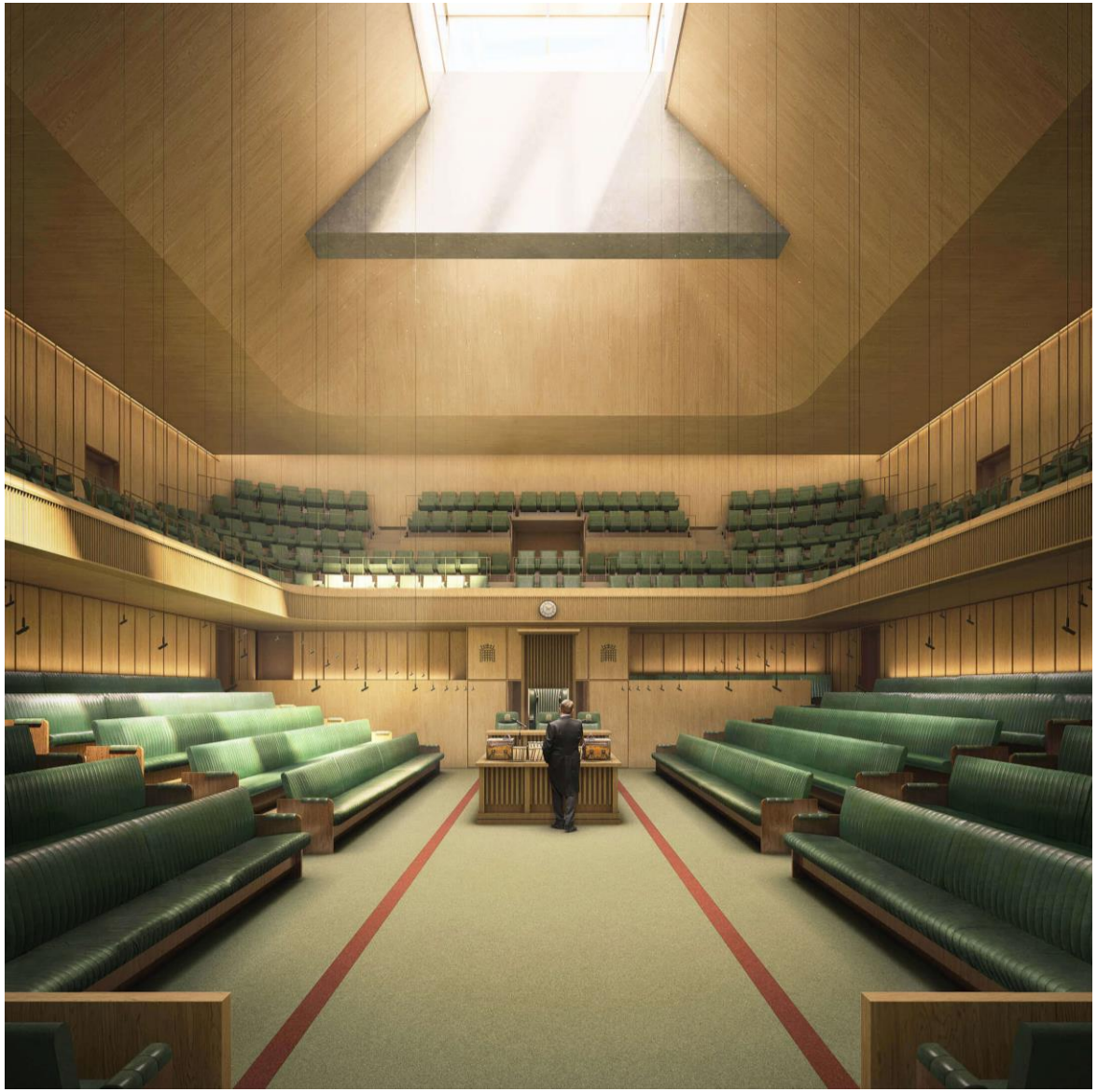
Balancing public access, security & day-to-day institutional operation.

Our focus

- Spatial organisation of public, semi-public and secure domains
- Movement patterns of multiple user groups with different access rights and time profiles
- Legibility and wayfinding as tools for institutional clarity and control
- Hierarchy and sequencing of entrances, reception areas and internal routes

Value

- Enable institutions to operate efficiently while remaining accessible to the public
- Reduce friction between access, control and internal operations
- Support clear, predictable processes and user journeys for staff, officials and visitors
- Reduce operational delays and security-related conflicts
- Reinforce transparency, authority and public trust through spatial clarity



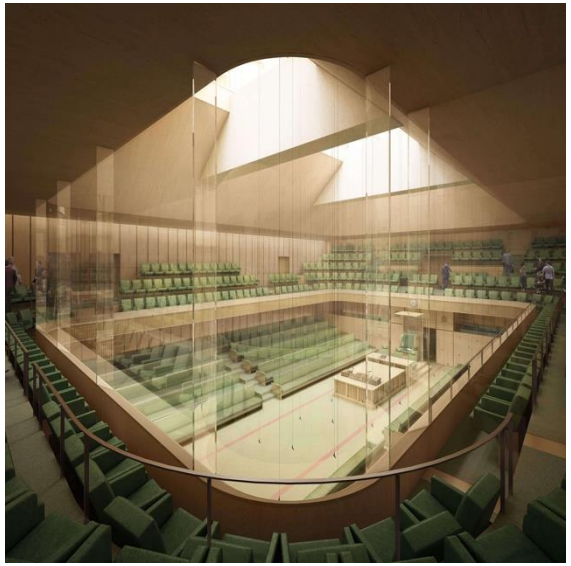
Visualisation of the temporary house of chambers, CGI © AHMM.

Government | Selected projects

Richmond House | Corporate Office of the House of Commons

Evidence-based workplace & masterplan design advice

Movement flow forecast and design advice to support design proposals for Parliament's Northern Estate, including a temporary House of Commons Chamber and associated facilities along workspace for 650 MPs and staff.



Berlin Wilhelmstrasse | Drees & Sommer

Pedestrian flow analysis & circulation strategy study

Circulation strategy development and pedestrian flow analysis for the extension of a government ministry campus across Wilhemstrasse in Berlin, which will include offices and conference facilities, for the German Government.

Palace of Westminster Visitor Access | Houses of Parliament

People flow & capacity analysis

Circulation, Queuing and Capacity assessment to support the development of a new visitor access strategy and the design of related buildings and spaces.