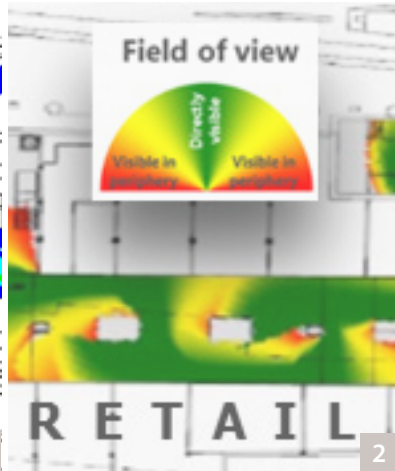
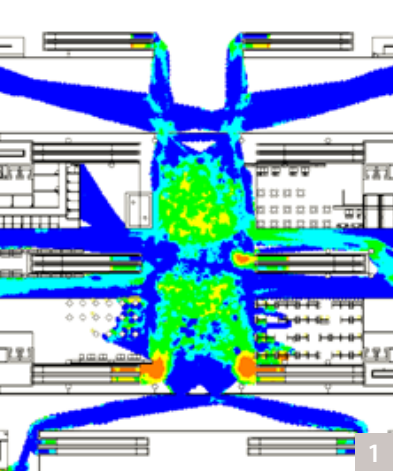


SMART SPACE | RAIL TRANSIT HUBS

Enhancing visitor experience in rail terminals.



1. Legion modelling, Astana station
2. Retail footfall analysis, Gare Du Austerlitz
3. Passenger concourse flow, Union Station, Washington

Historically the rail transport infrastructure design has been led by aesthetics and prescriptive regulations. This can pose problems in passenger intensive operations, where space is premium and terminal performance and passenger comfort are major issues. Efficient processing of passengers affects the operation, security and punctuality of terminal operations where turnaround times are key.

Passenger experience – Our crowd flow consultants have the ability to develop optimised design solutions for the smallest and least complex operations through to international hubs. Our study can look at all aspects of stations design, including platform width, stairs/escalator/lift requirements, ticket barriers, security X-ray units, ticket machines, multi-modal transport links, etc. Design decisions are driven by several ‘what-if’ scenarios and sensitivity analysis against various design, operational, and population parameters.

Integrated expertise – Our team’s major expertise in rail terminal design is derived from over ten years of research including a multi-consortium research project focussing on detailed analysis and modelling of passenger movements at train stations.

We work closely with the architects, terminal developers, and security advisers on micro as well as macro assessments of design for passenger movements.

Bespoke tools – Advanced simulation tools such as Legion Spaceworks and our in-house tools SmartMove and SmartSpaceAnalyser help us assess the functioning of transport hubs in diverse critical scenarios e.g. embarkation, disembarkation, waiting, shopping, transiting to onward

transport modes, and emergency evacuation. Testing of the design against real-world scenarios helps optimise the design by maximising throughput with available space and appropriate management.

SmartMove’s capability for rapid modelling of passenger flow is particularly valuable for early stage assessment and design optioneering. Legion Spaceworks is a sophisticated simulation tool for later stage validations of design against complex movement scenarios. Exodus is particularly suited to the testing of design in emergency evacuation scenarios.

SMART SPACE SERVICES INCLUDE:

- Station design and capacity assessments
- Passenger flow modelling
- Drop-offs and links to multi-modal transport nodes
- Ticketing and validation strategy (turnstiles/gatelines)
- Platform, stairs, escalator, corridors and lift sizing
- Testing of wayfinding strategies
- Retail layout optimisation
- Staffing and operational guidance
- Design compliance review against international design standards