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Arup Access and Inclusive Environments

Inclusive Design

Our Team

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What does inclusive design mean to you?

What is inclusive design?

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Inclusive design

British Standards Institute: "the design of products or services that are usable by as many people as reasonably possible".

Social model of disability

The environment disables people, not the personal circumstances of the individual, are what creates inequality.

We consider

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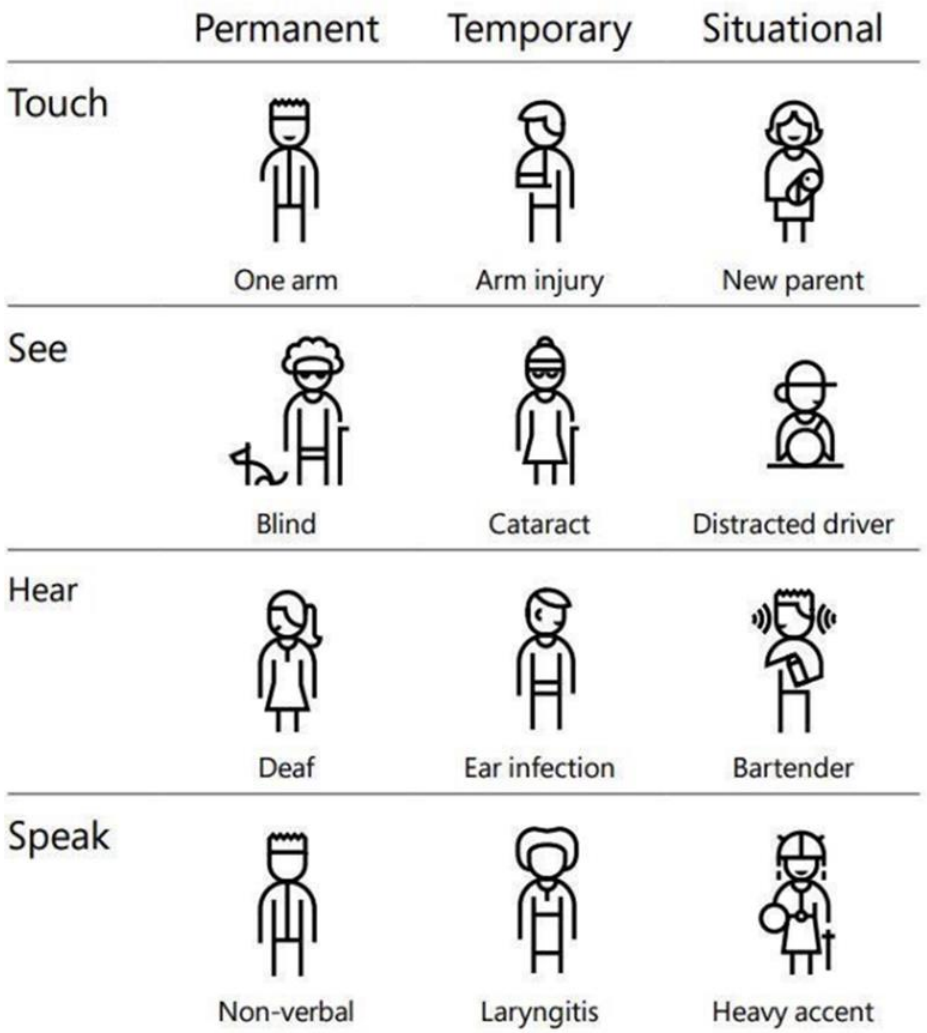
- Disability
- Culture / race / religion
- Gender identity
- Mental health and wellbeing
- Age
- Families
- And others...



Designing to minimum requirements

Long travel distance
Visually confusing
Tiring
Large level change
Poor use of space

Accessibility vs inclusivity

Accessible design is:

- Usable
- Safe
- Functional

Inclusive design:

- Is an equal experience for everyone
- Provides the same level of quality and dignity to everyone
- Thinks beyond physical access

What is Inclusive design ?

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Design should:

Be equitable in use

Be legible and intuitive to use

Offer choice and flexibility

Design to code only ?

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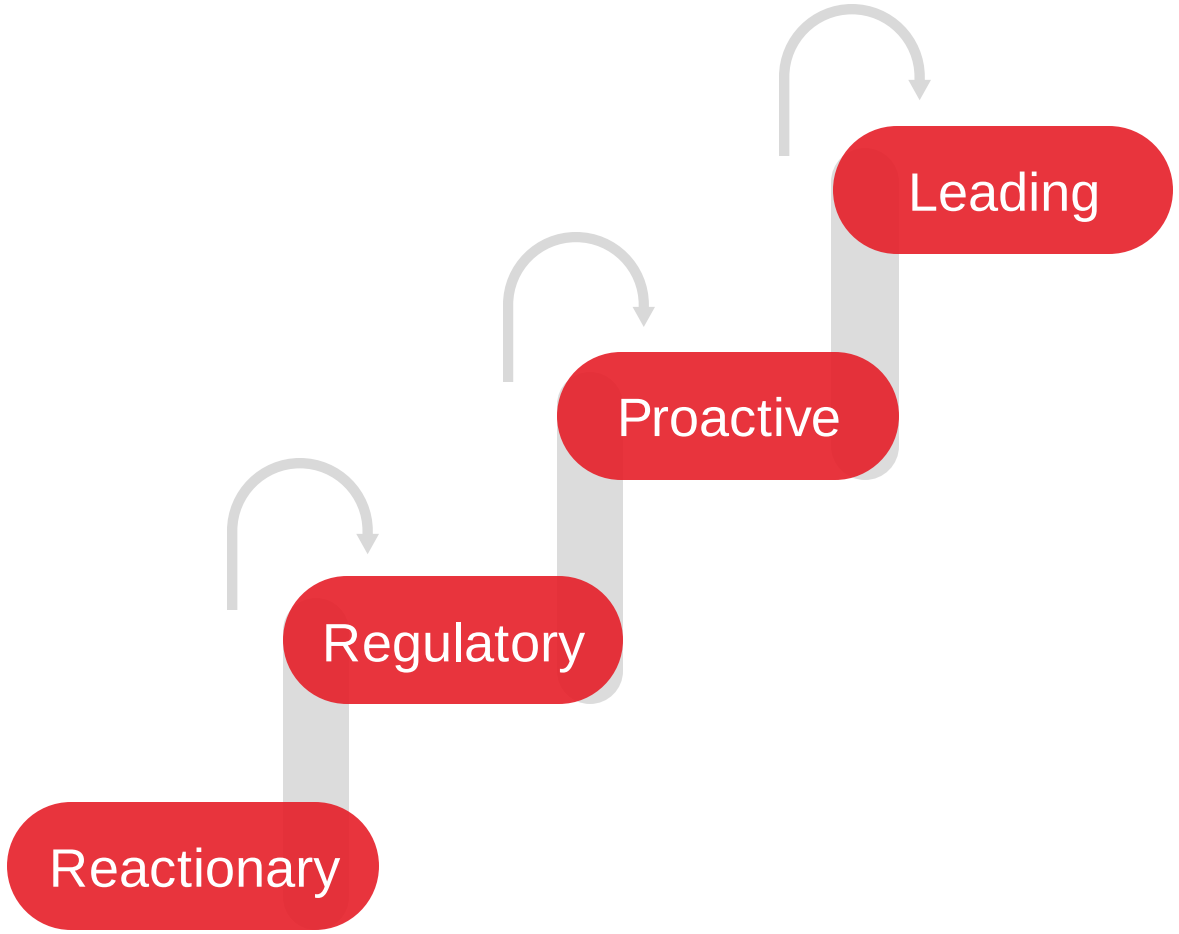
- It is a myth that designing to code and providing the legal minimum makes designs inclusive.
- Minimum requirements are based on code guidance, which is based on an average.
- Averages are often outdated, and do not reflect the diversity of the communities we are designing for.



What we do – A typical project

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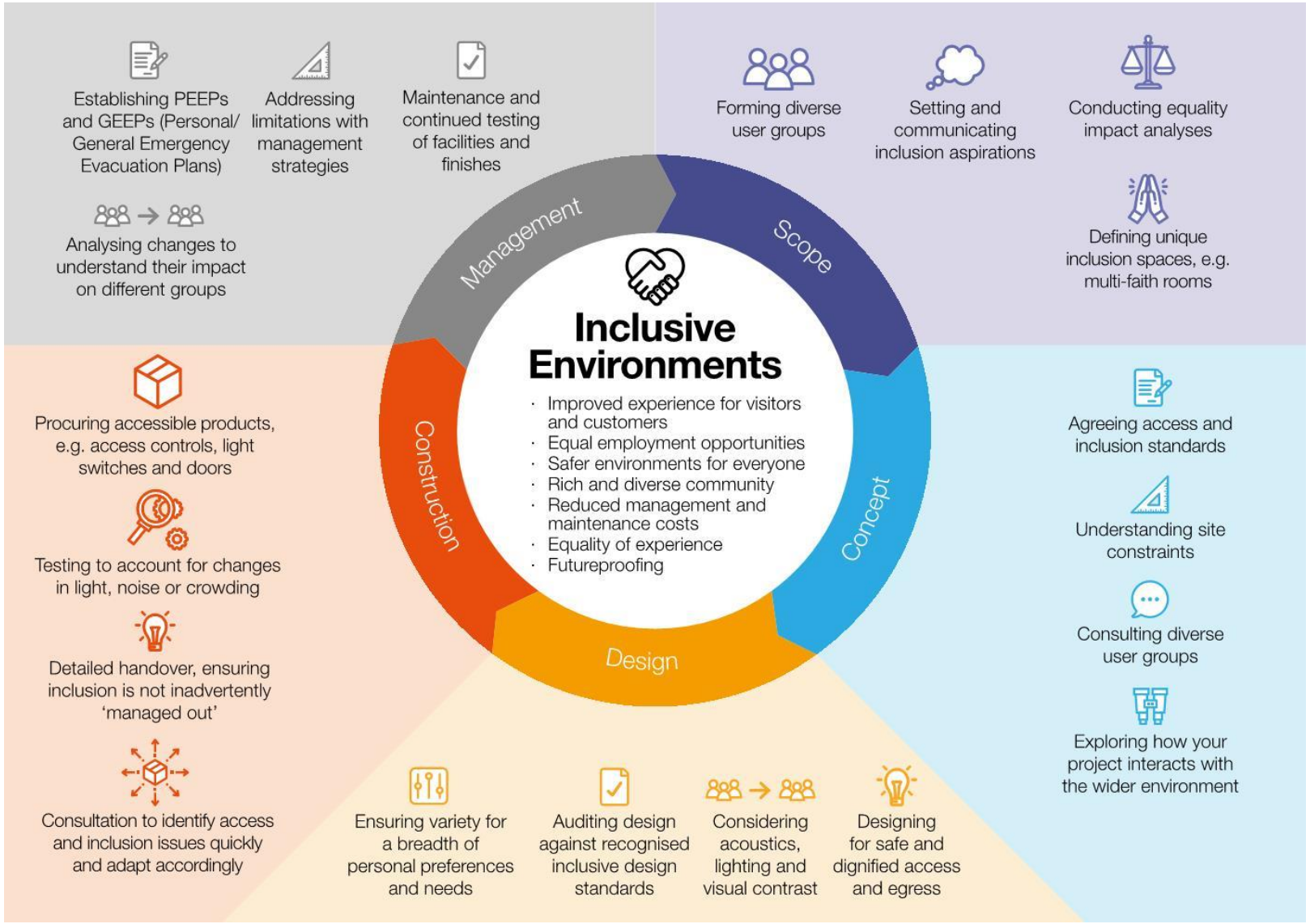

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Future trends

Future trends

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1. Ageing populations

2. Changing physiological requirements

3. Accessibility

4. Personal and cultural identity

5. Mental health and wellbeing

Future trends

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6. User centred design

7. Stakeholder engagement

Future trends

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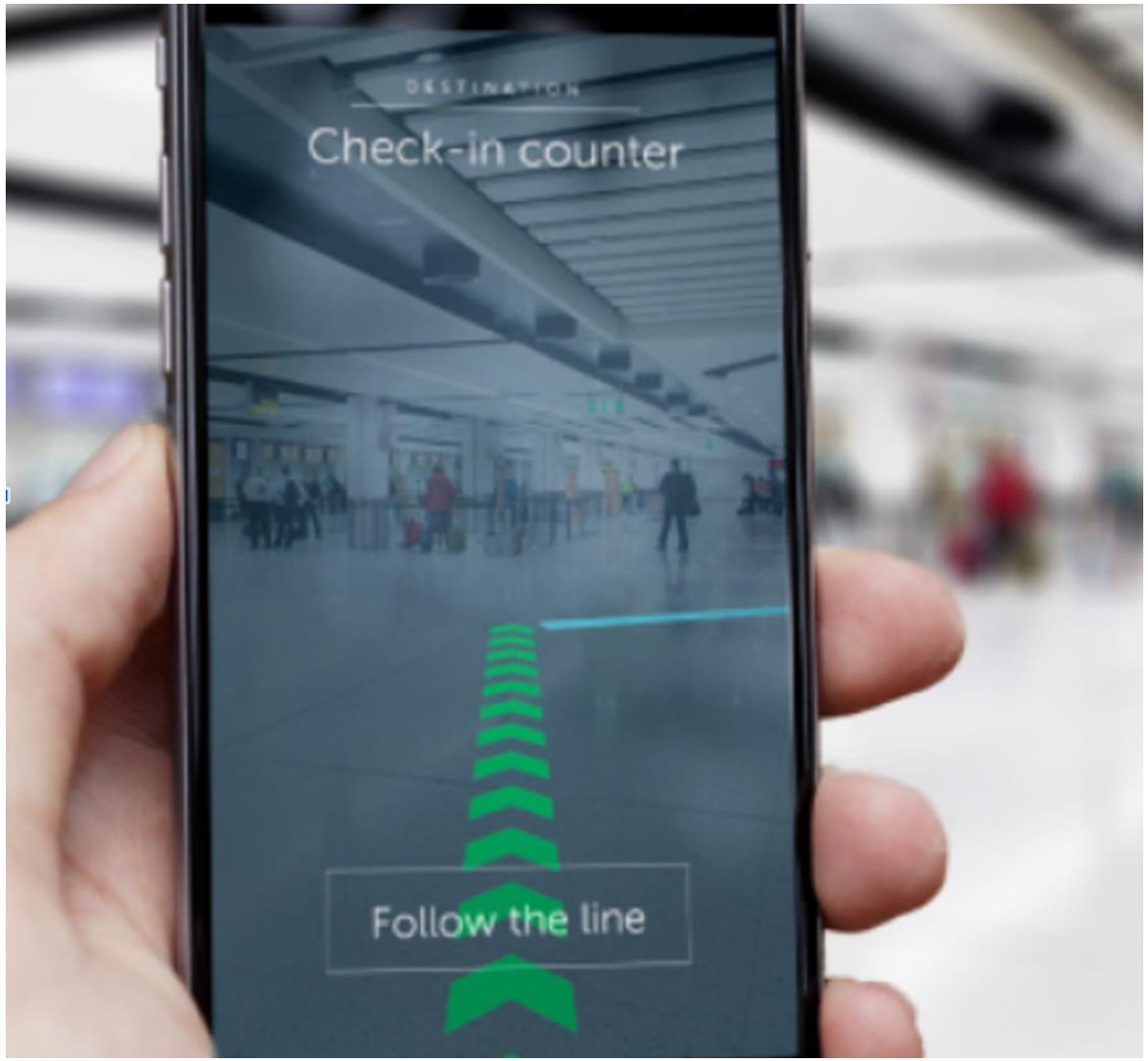
8. Intelligent environments

9. Assistive technology

10. Technological inclusion



Future trends

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Addressing demographic and design trends means developing inclusive environments that support the needs of all users both now, and in the future.

Research

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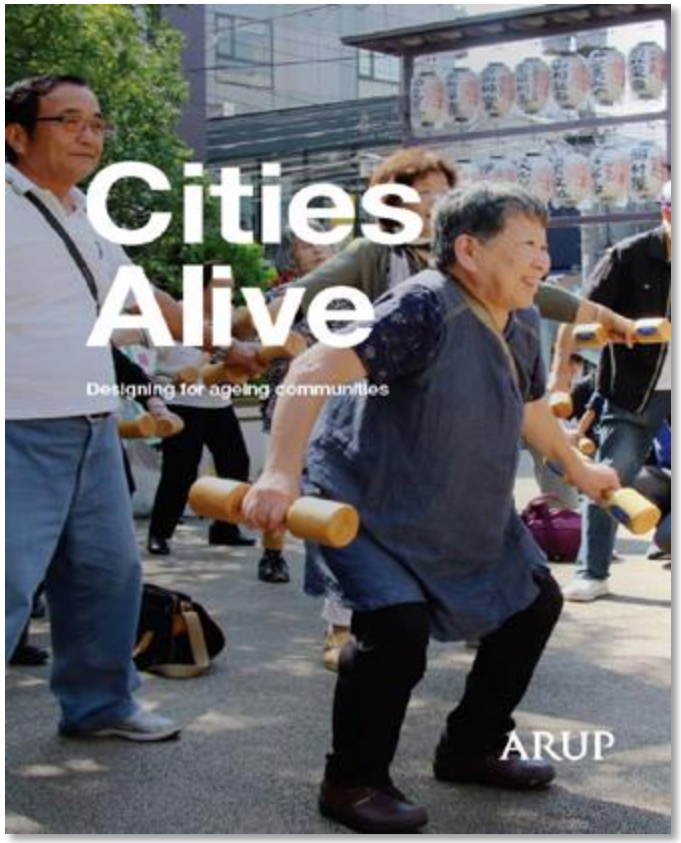

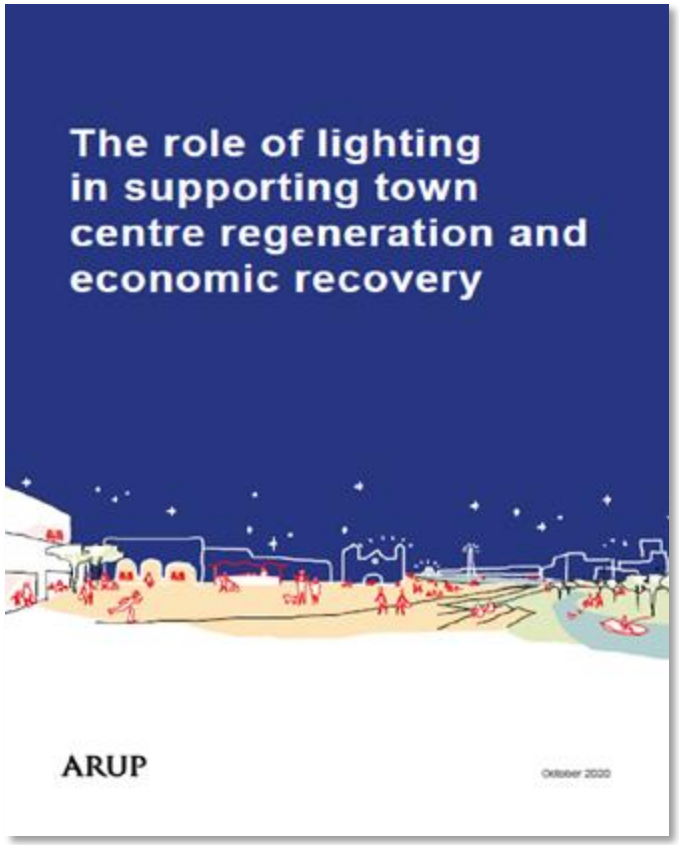

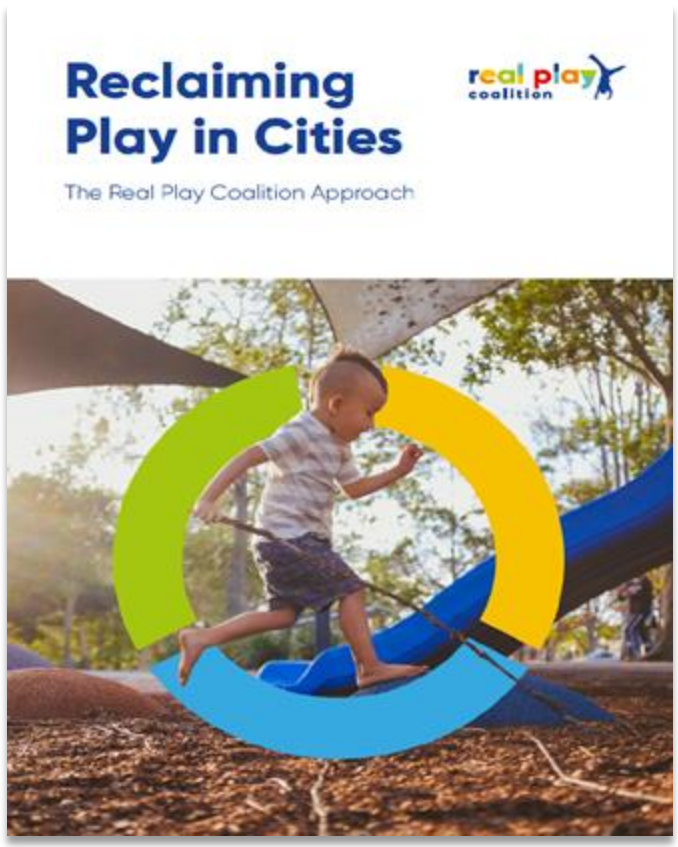

https://www.arup.com/perspectives/publications

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Neurodiversity in Design

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Autism

Key facts

- Autism – also referred to as autism spectrum disorder– constitutes a diverse group of conditions related to development of the brain.
- About 1 in 100 children has autism.
- Characteristics may be detected in early childhood, but autism is often not diagnosed until much later.

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Ageing - dementia

Key facts

- 55 million people have dementia worldwide
- Alzheimer disease is the most common form of dementia and may contribute to 60–70% of cases
- Dementia is currently the seventh leading cause of death and one of the major causes of disability and dependency among older people globally.
- $1.3 trillion US costs.
- Women are disproportionately affected by dementia, both directly and indirectly.

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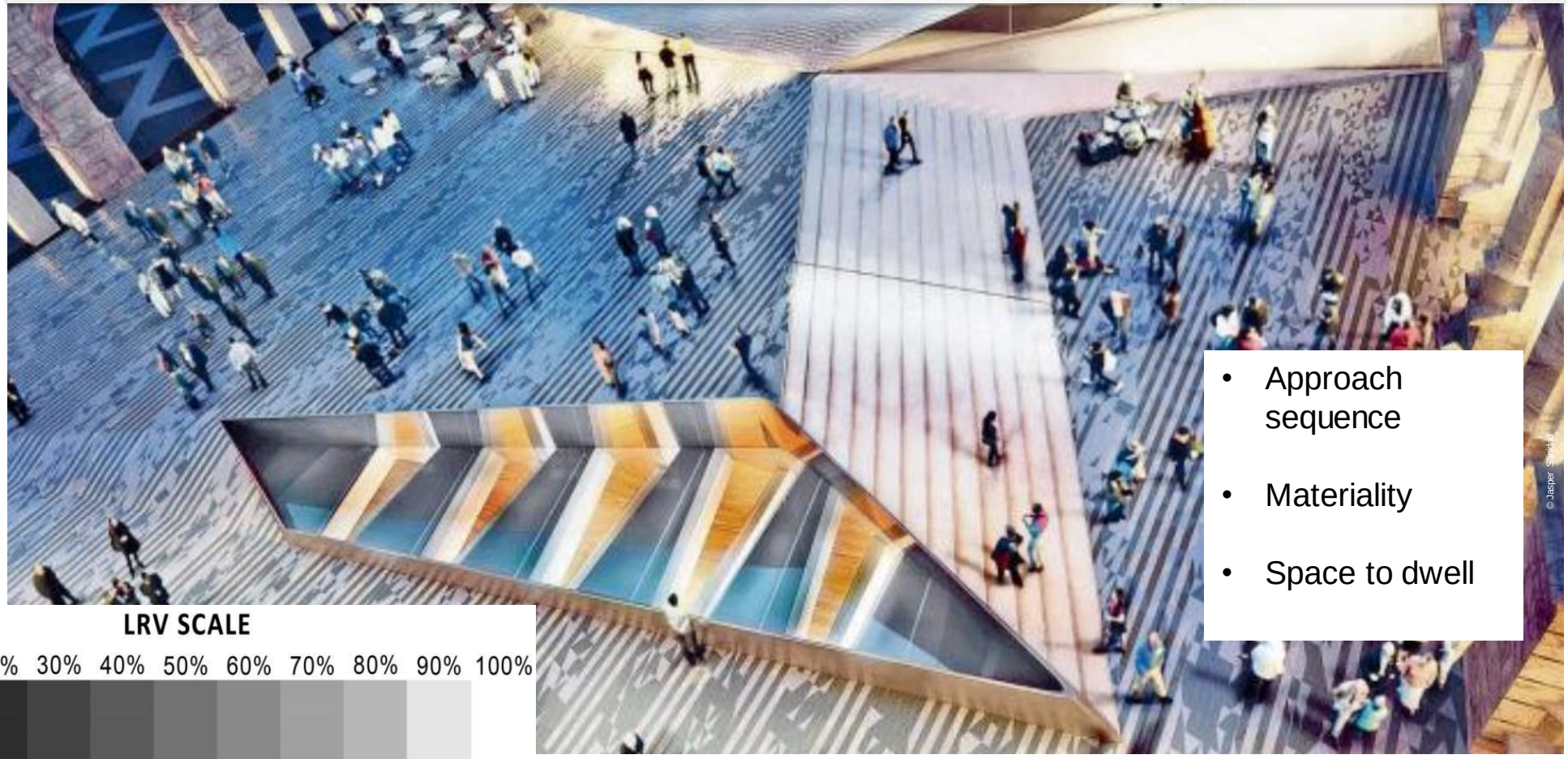
Dyslexia

Key facts

- It is estimated that 1 out of 10 people have dyslexia.
- Children that grow up in poverty are 40% more likely to have reading and language learning difficulties.
- Children with ADHD account for 30% of those that are also dyslexic.

Legibility: Patterns and contrast

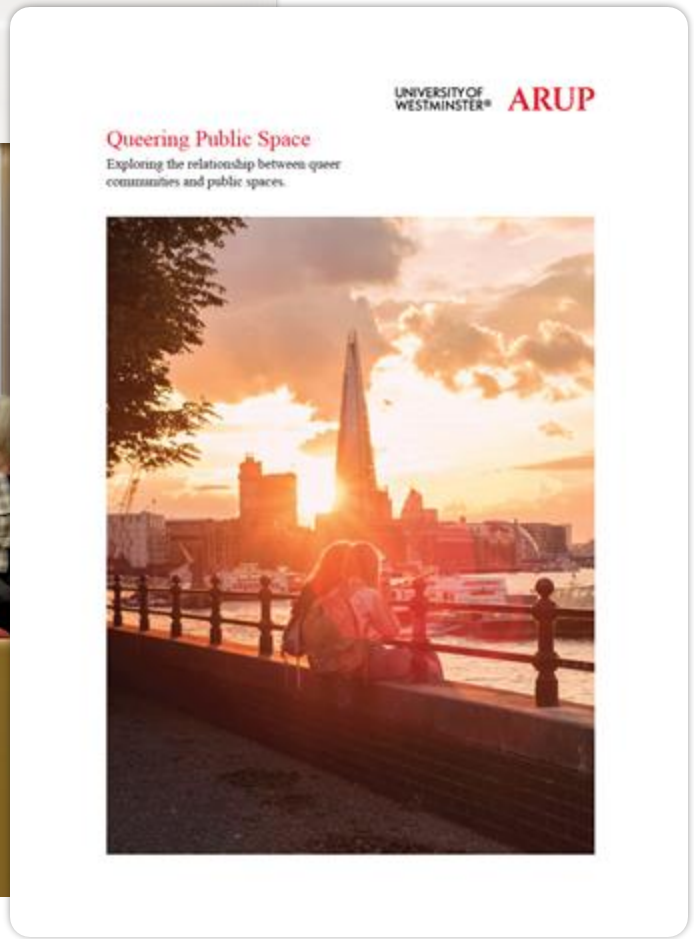


- Approach sequence
- Materiality
- Space to dwell

Legibility: Contrast

- Legibility
- Contrast where needed
- Reduce risk of falls and trips

Legibility: Sightlines and materials



Legibility: Signage and information - dyslexia

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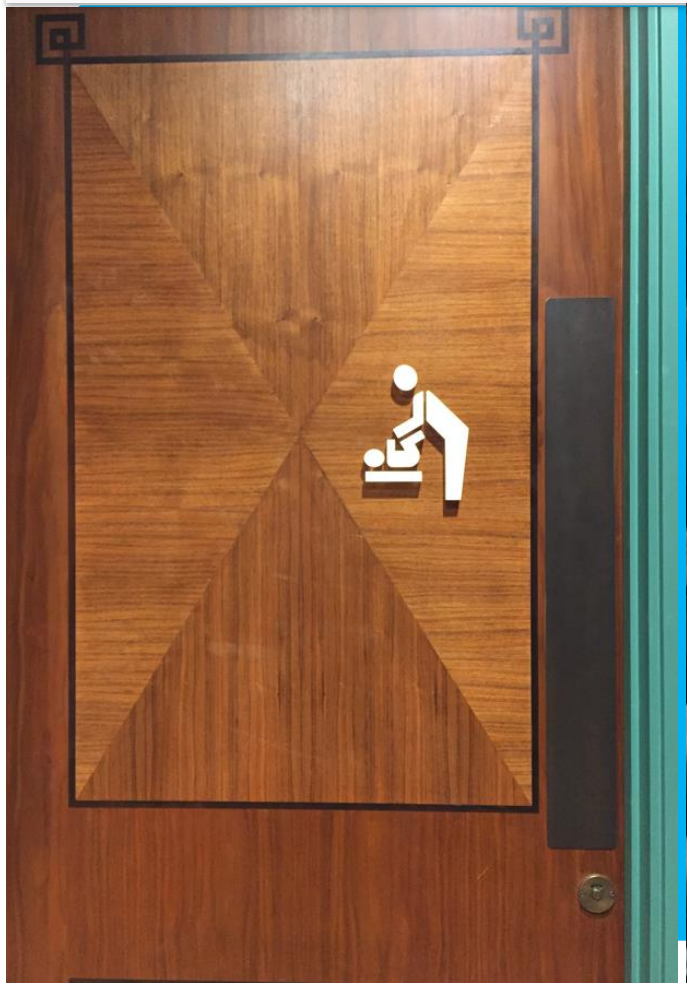

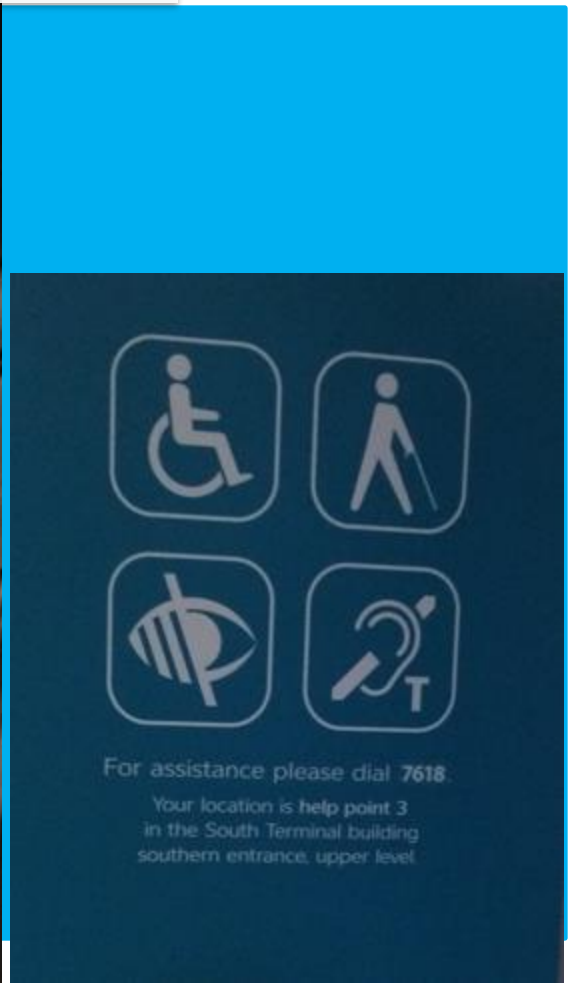

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Project example: Retail

Retail experience

Stakeholder engagement	Inclusive Design	Information/ technology
• Personas to give high level of needs of certain user groups • Benchmarking task of international local codes to provide best inclusion and accessibility recommendations • Lived experience study • Staff and customer experience	• Wider circulation routes to accommodate all body types • Assessments of acoustic and lighting for general comfort in an environment • Quiet areas for staff interactions • Furniture and materiality	• Use of QR codes and tactile information on packaging and displays as an alternative presentation of information • Stylus based tablet communication or apps to alert staff that assistance or information is required

Cognition

Name: Leah
Work: Human centered design expert
Location: Boston, USA

Bio

Leah works in human centered design, predominantly with people with disabilities. Leah has ADHD and issues with sensory processing which can make it difficult to block out background and environmental noise. Leah's work means she is experienced with the principles of inclusive design.

"Having places where I don't feel like I'm being watched by everyone around me, not being distracted by all the noises and visual stimuli around me, makes me feel more confident in what I'm looking at. And are more likely to lead to me actually purchasing that object."

Calm, clarity, quiet space and alleviation of sensory overload / pressure

Main user needs

- Calm environments which are not socially overwhelming or extremely busy
- Clarity about what to do and where to go to reduce anxiety
- Lots of noise or sensory input makes processing difficult
- No feeling of pressure in staff interactions, as Leah can struggle with impulse control

Goals

- Acquire technology that is interesting and makes my life easier
- Maintain a positive emotional state and avoid stress and anxiety
- Attend events which are useful and impart lots of knowledge

Capabilities

- Competence with technology
- No issues with mobility or sensory perception
- Familiarity and comfort with products

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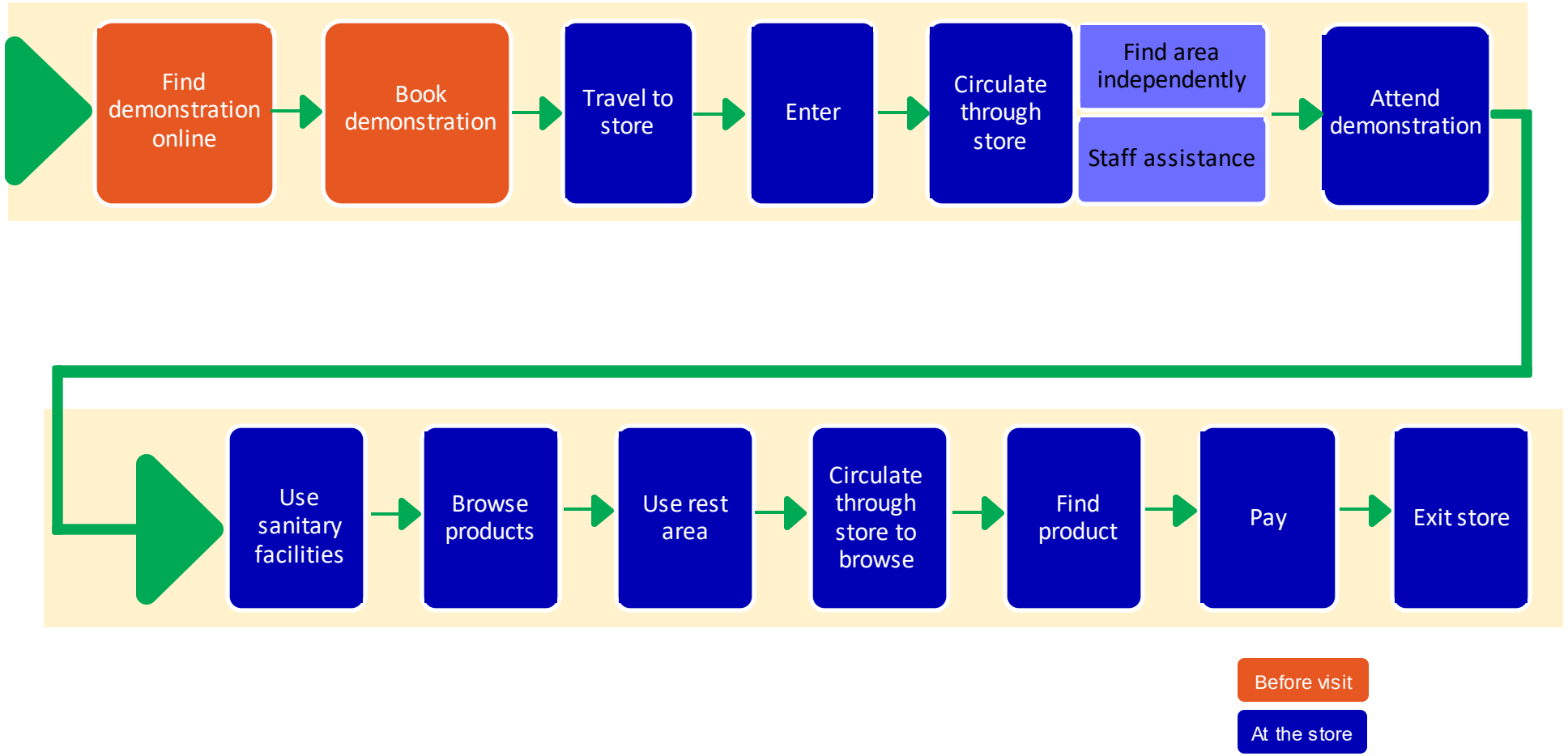
Process Mapping: Attend a demonstration



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Cognition

Clarity, prior knowledge and information, signage, right amount of staff interaction, physical and visual separation of spaces, comfort

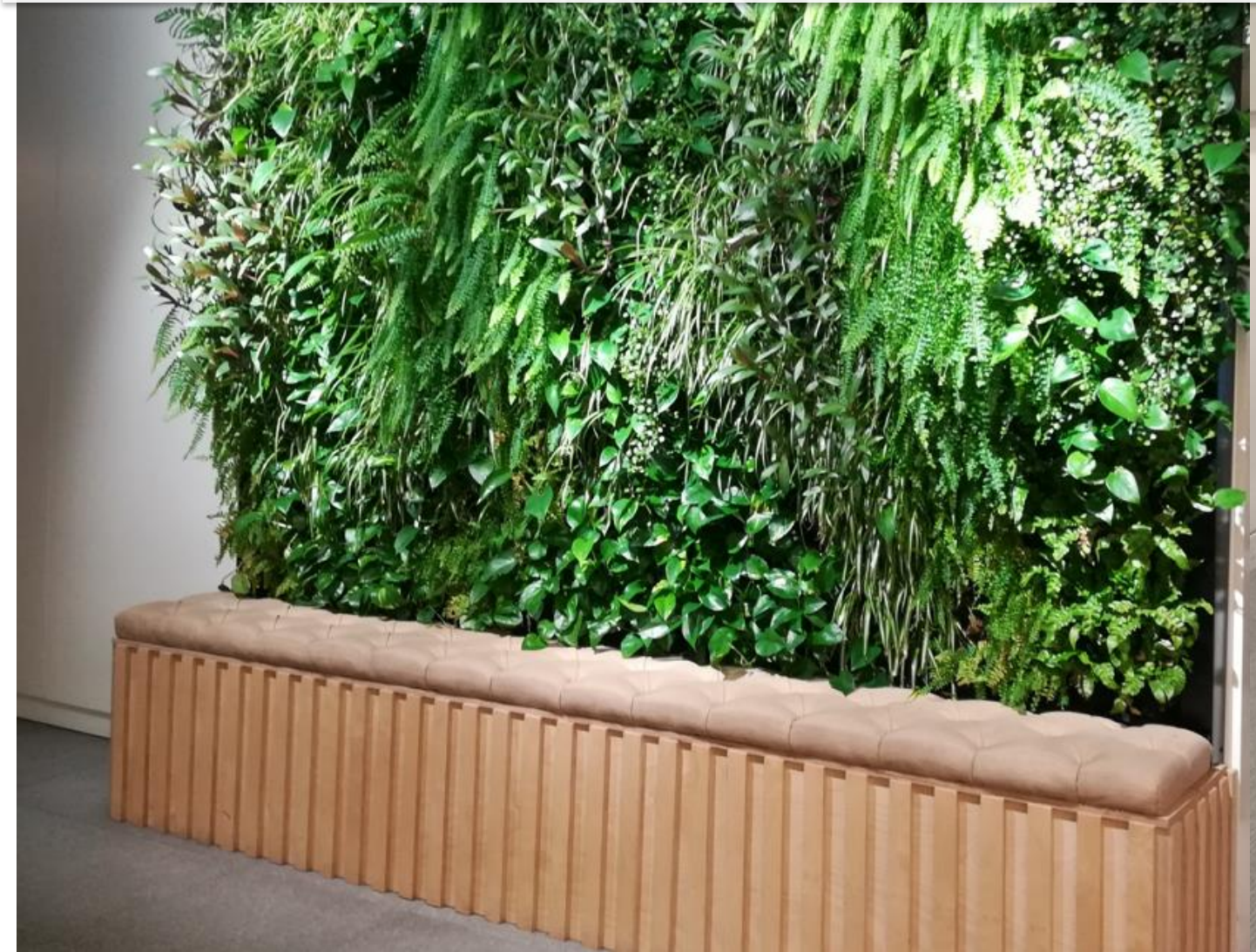
Leah

Main user needs

- Calm environments which are not socially overwhelming or extremely busy
- Clarity about what to do and where to go to reduce anxiety
- Lots of noise or sensory input makes processing difficult
- No feeling of pressure in staff interactions, as Leah can struggle with impulse control

	Before visit		At the store				
User Journey	1 Find demonstration online	2 Book demonstration	3 Travel to store	4 Enter store	5 Circulate through store	6 Attend demonstration	7 Use sanitary facilities
Challenges and Needs	• Clear website navigation • Easy to find the right information, e.g. clear headings and a search bar available	• Knowing how many people will attend. • Not too busy (information hard to take in) or too quiet (pressure to answer questions, inability to blend in)	• Prefers to walk • May drive or use metro system • Knowing how to approach store if routes have changed (e.g. due to physical distancing requirements)	• Crowds can be overwhelming • Difficulty blocking out background noise can make staff conversations hard to process • Distracting sensory stimuli, such as flickering lights	• Having to approach staff to get help • Environmental cues not sufficient for wayfinding • Hard surfaces and reverberant sounds are distracting • Distraction increases stress, which makes her more likely to leave	• Paying attention for long time periods • Visual or aural distractions • Other distracting stimuli, such as an uncomfortable seat	• Finding restroom without asking for help, as it is more personal • Knowing if stalls are occupied, to avoid anxiety about walking in on someone
Opportunities	• Easy navigation and cues on webpage, including search bar	• Booking system could provide information about number of demonstration attendants • Ideal number: 10-20 people	• Clear information in advance about store approaches and entry process • Clear signage outside store that identifies where to go for events • Signage provided above head height in case of crowding	• Immediate staff assistance and being led to demonstration area would help • Control over environmental conditions: such as being able to quickly pass through a noisy place to a quiet place	• Clear signage and navigational cues, regularly repeated at each decision point on journey • Decreased background noise, acoustically treated surfaces and low classical music or no music • Clear physical and visual separation between different areas (store and demonstration space)	• A physically separated environment with walls blocking off distracting exterior movement • Dimmer lighting aids focus • Clear instructor who gives time to process and repeats if necessary • Tactile component to activities, not just sitting and listening • Comfortable seat with back rest, and a material that isn't affected by temperature and humidity (e.g. wood or fabric rather than plastic or metal	• Clear signage and navigational cues repeated regularly at each decision point • Indication of vacant/occupied status of restrooms

Project example: 80CS



Project example: Sky Studios

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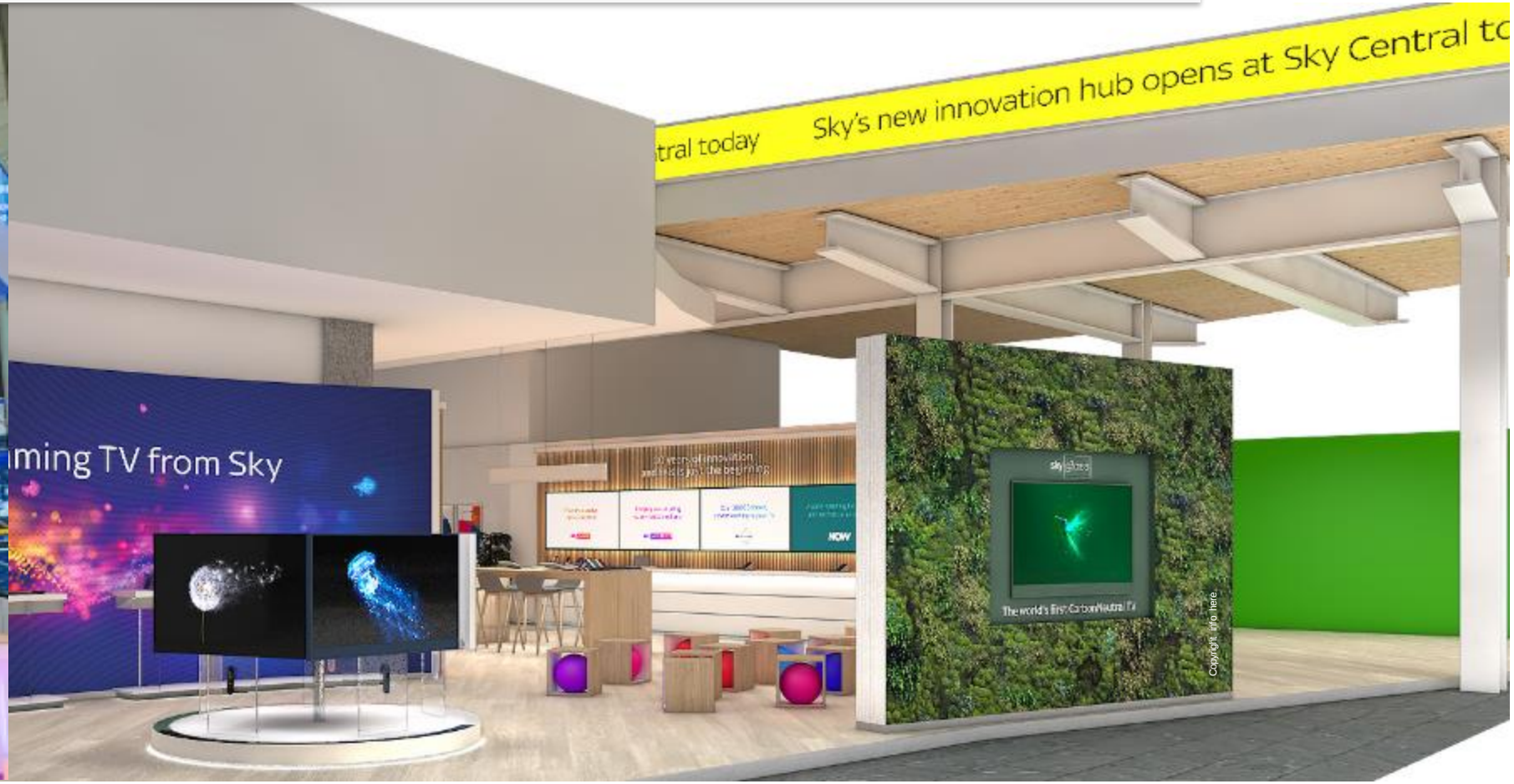

Project example: Newcombe House

- Public square
- Community
- Healthcare and wellbeing
- Transport improvements

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Final thoughts

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