Exploare

The future belongs to the curious.

A magazine from Hoare Lea

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The future belongs to the curious.

“To know ahead of time what you’re looking for means you’re then only photographing your own preconceptions.”

Dorothea Lange, American photojournalist

Photo by James Haworth on Unsplash

Designing the built environment puts us at a unique intersection. We span technology, economics, local and global regulation, environmentalism, and the health and wellbeing of society. We craft the stage where lives – billions of them – play out every day.

The privilege, magnitude, complexity, and responsibility of this role can sometimes feel daunting. With every innovation, every development in how we work, and each impactful project, the need for more, better, newer seems to follow. The world feels fast, vast, and often out of control. Despite the pioneering developments they may feature, when projects take years to come to fruition, it can feel as though there's always more that could be done.

So how do we combat that overwhelming feeling? How do we even begin to make changes that keep pace?

We explore.

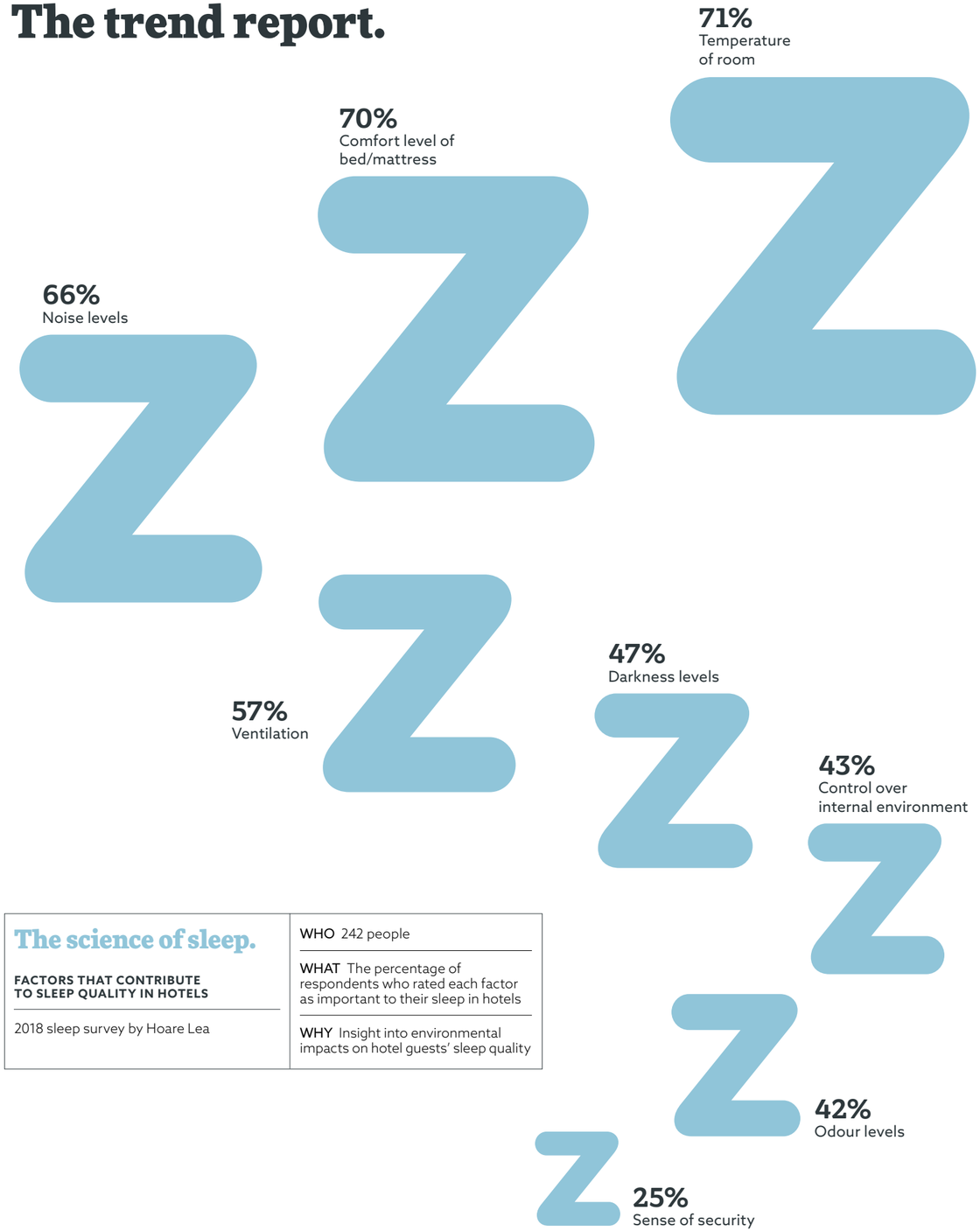
...and to explore in the most effective way? We have to connect. Connectivity has become like oxygen – utterly essential to change. We are in a world where most of us are never without a person to talk to; where an answer to a question is delivered in the blink of an eye; where we can collaborate in ways that time and distance barred us from in the past.

Whether aspirational, physical, or digital – our connections tap in to our desire to be useful, to share stories, and to progress. We've been doing this since our distant ancestors sat around a savanna campfire each evening. Now, that campfire circle has grown; our global gathering is bigger than ever.

It's when we come together that our individual insights become more than the sum of their parts.

Collision, connection, and community are powerful tools at our disposal – tools we need to protect. In these pages, we explore just some of the countless connections that run through society: whether man-made or natural, we are a planet teeming with patterns, networks, and relationships. Let's make the most of them.

The trend report.



The science of sleep.

FACTORS THAT CONTRIBUTE TO SLEEP QUALITY IN HOTELS

2018 sleep survey by Hoare Lea

WHO 242 people

WHAT The percentage of respondents who rated each factor as important to their sleep in hotels

WHY Insight into environmental impacts on hotel guests' sleep quality

On the radar.

1.

SMART METER KNOWLEDGE
A BEIS-funded R&D-led project, SMETER, is exploring the Heat Loss Coefficient of homes, using Smart Meter data. This will help homeowners make informed energy investment decisions and enable businesses to guarantee energy efficient products/services.
Talk to – RogerMacklin@hoarelea.com

2.

HEALTH, WELLBEING, AND PRODUCTIVITY
A recent BRE event helped to raise further awareness of how building design and environmental conditions impact on the health and productivity of people.
Talk to – AshleyBateson@hoarelea.com

3.

MODULAR MOMENTUM
As part of the Advanced Manufacturing Supply Chain Initiative, Laing O'Rourke's new manufacturing facility will soon be complete. The aim is to build 10,000 new homes, annually.
Talk to – NickCullen@hoarelea.com

4.

INTERACTIVE OUTDOOR ARTS
The 'Fantastic Feats' programme, part of the London Festival of Architecture, kicks off in May. Liminal, a major artwork on the Thames, will use sonar to capture the life of the river.
Talk to – PaulieRoche@hoarelea.com

Conversation kickstarter.

"How do we overcome our own entrenched attitudes towards our roles as designers, engineers, and contractors?"

Jude Harris, Director, Jestico + Whiles

"Complex briefs are rarely solved with textbook answers. Can you look beyond your existing experience?"

Adrian Forget, Director – MEP, Battersea Power Station Development Company

Join the discussion at
hoarelea.com/insights

Kaizen corner.

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"Change for better: one-time or continuous, large or small."

Should you treat the technology you use at work almost like a colleague? A recent Ted Talk champions the value of mapping the relationships that team members have with technology. The aim? To establish how it contributes to overall team goals.

Hoare Lea is...

Thinking about.
Enabling visual empathy.

Understanding how elderly and sight-impaired people experience spaces is hard for those with no sight issues. Did you know the 'oranging' of the cornea means elderly people need four times more light to see than a young person does? We're contemplating whether a 3D mock-up might allow people to experience the impact of age and eye conditions on vision, and therefore better influence lighting design.
Talk to – JonathanRush@hoarelea.com

Talking about.
Psychoacoustics.

Performance and rehearsal halls come with complex acoustic requirements, and sometimes the spaces allocated for them just don't allow for the quality of sound required. We're discussing how under-explored psychoacoustic techniques can enable environments that deliver exceptional sound quality despite the constraints of space.
Talk to – MichaelWhitcroft@hoarelea.com

Caring about.
Dementia research.

The Dementia Research Institute was created to find solutions to one of society's biggest health challenges: dementia. More than one million UK people are expected to be living with the disease by 2025. The institute's new facility at UCL will enable a multidisciplinary approach to tackle the knowledge gap around neurodegenerative diseases.
Talk to – MatthewChambers@hoarelea.com

Unleash the chains.

Building the case for blockchain.

LET'S TALK
DimitriAvakian@hoarelea.com

PEOPLE

Fresh perspectives
New voices of the built environment

Every year, Google publishes its 'year in search'. It's a list of the UK's most searched-for topics, and offers a small glimpse into the public consciousness.

Surprisingly, last year "What is Bitcoin?" was searched more than questions about Brexit, GDPR, and the UEFA Nations league... cementing its position as the UK's number-one topic of confusion.

Is it any wonder we are confused? The last 12 months has seen the collapse of the crypto-bubble, ads for bitcoin at the Super Bowl, and rapper Akon releasing his own currency, the AKoin.

However, among all the madness, there are some real possibilities emerging for the construction industry. This is because Bitcoin's fundamental technology, blockchain (recognised by Gartner as one of the top strategic cross-industry technologies for 2019), unlocks promising potential approaches for tackling some of our industry's most pressing issues.

4 steps to 'get' blockchain.

The challenge with defining blockchain is that there are numerous ways to design a system, giving rise to different performance capabilities. This is the definition in relation to cryptocurrency.

1. Blockchain is the digital equivalent of an accounting ledger; a file that records, tracks and verifies transactions.

2. What makes most blockchain ledgers different from the one on your accountant's desk is that they are usually decentralised. This means they aren't controlled by one person or entity (e.g. accountant or bank) but by many individual nodes. These nodes are just individual parts of a larger data structure: the network.

3. Each node holds a copy of the ledger, and each node must agree on the updates of that ledger. To randomise who gets to publish the update, each 'block' of transactions takes the form of an incentivised race to solve a cryptographic puzzle.

4. Because each verified new block of transactions is cryptographically linked to all previous blocks, it is practically impossible to go back and change past transactions. This is what makes blockchain so secure and transactions fully auditable and (so far) immutable.

Blockchain is just one type of Distributed Ledger Technology, a system that enables consensus regarding the state of a shared ledger of transactions between an unknown number of parties who don't necessarily know or trust each other.

Blockchain and the built environment

Blockchain is likened to the internet of the 90s; the technology isn't all that sexy and it largely operates in the background, but the potential capabilities it facilitates are truly exiting. For the built environment industry, imagine a future where questions like: "is this the latest version?" or "is this approved or compliant?" are a thing of the past.

Smart contracts.

Smart contracts (pre-defined transactional procedures programmed into code) could one day be used to automatically execute the multiple agreements encountered throughout a project's lifecycle. The consequence would be the automated and traceable transfer of assets and payments during a project's construction, automatic commissioning, and handover, as well as into operation and maintenance.

Sustainable supply chain.

The supply chain could soon develop smart contracts that are used to automatically transfer ownership for payment. We could also see transactions that represent both digital and real-life assets, which can be tracked, audited, and managed from manufacture through to handover – facilitating a circular economy of those assets.

Real-time digital twin.

In the utopian blockchain future, there is no disconnect between what we see and what we store digitally. A digital twin of a building can act as a live representation of its real-life counterpart. This unprecedented flow of data offers huge benefits to our industry, from monitoring performance and energy-use in real time, to predicting and automating the maintenance of building parts.

Back to business (with a dose of reality)

Like the internet of the 90s, the exciting possibilities above are akin to pitching broadband-enabled streaming when most people aren't even connected to dial-up yet. There are many challenges to be overcome. Businesses are struggling with the challenges of blockchain, especially when it comes to demonstrating a business case. This is partly because there can be too much focus on 'doing something with blockchain' rather than on how it might be leveraged to contribute to a business's vision.

One of the first key steps (much like the internet of the early 90s) is establishing the network first; that's where the value lies. A single entity cannot develop a solution alone and can't fully benefit alone either. We need partners across the industry supply chain to collaborate on establishing such a network.

So, regardless of what we're Googling in 2019, let's make sure it's the year we no longer think of blockchain technology as confined to the finance industry. It's a key element of a new future in engineering. □

Sporting a bandaged hand and a big bundle of folders, **Jenny Radcliffe** heads towards the reception's secure-access doors. The high-rise office is guarded by a cutting-edge security system with bio-technology fingerprint recognition. With one finger half pressed on the entry pad, she swears loudly at the sound of the negative beep: access-denied. After numerous failed attempts, she swears even louder – enough for the security guard to hurry over. Accepting Jenny's explanation ("here to provide a training seminar", "injured hand"), he helps press her finger on the pad. She yelps in pain, the bundle of folders crashing to the floor. Irate and flustered, he instinctively says: "Oh just go on up".

Just like that, Jenny was ushered into the London HQ of one of the world's most influential finance companies. The problem? She wasn't who she said she was, and she certainly wasn't there to deliver a seminar.

PEOPLE

The people hacker.

She's been called a 'social engineer', 'human lie detector', and 'security Jedi Knight'...

...and she can definitely break into your company's office without you even realising.

Background photo by Marius Masalar on Unsplash

Jenny has appeared as one of the experts on Channel 4's *Hunted*, where members of the public try to evade capture. Photo: Channel 4 Television

Jenny Radcliffe.

"The people hacker"

Expert in social engineering, speaker, consultant, and trainer.

Works with corporations, law enforcement, poker players, politicians, and the global security industry.

"For all intents and purposes, I'm a pretty average person," claims Jenny Radcliffe. "I don't arouse suspicion, attract attention, or cause people to feel threatened. When you're taking advantage of our human instinct to trust or ignore typical behaviour, appearing average is a great quality to cultivate. In the case of the company with finger-print recognition security, I got in because of two main factors: seeming like a harmless woman struggling with technology, and creating a scene that the security guard wanted to resolve quickly."

The irony of Jenny being so good at going unnoticed is that her ability has resulted in world-wide exposure. In recent years, she has shaken up – or perhaps more appropriately, broken into – the corporate security industry. You may have seen her putting her skills to the test on Channel 4's Bafta-nominated show *Hunted*, where security and tracking experts try to catch members of the public who voluntarily go on the run. By day, as a 'social engineer', she works with major global companies, law enforcement, politicians, and even poker players, educating them on the art of 'people hacking'.

So, what is people hacking? In the security world, it's also known as social engineering: the manipulation of people through psychological or non-technical means to access data, information, or premises/goods. When it comes to the prevention of attacks, scams, and cons of all kinds, understanding the psychological and situational methods used is just as vital as security systems.

We are all at risk from malicious social engineers; however, company employees are especially vulnerable as they provide a good route to accessing an organisation's information and data.

"Most big organisations now spend a lot of money on 'online hacker' security," Jenny explains. "But they often forget the importance of human error, or of people overriding security systems. Any good security strategy will prioritise the human factor, and an even better one will design the technology around that."

Liverpool to London

The heady mix of psychology, persuasion, influence, distraction, and acting techniques needed for her job is something Jenny honed as a teenager.

"I have a big extended family, and my cousins and I used to love exploring some of the empty houses and buildings that were dotted around Liverpool in the early 80s. It was just curiosity, but we actually got really good at breaking into them, and people started to acknowledge the skillset required. Eventually, while I was studying for my degree, I got asked by a local business owner to test the security of some buildings. I'd point out how we'd try to get in, where the weak spots were, and which people we needed to watch etc. Eventually, businesses started asking me to attempt a break in at their offices and see if I could take files or do certain things – and it escalated from there. It was always just something I did and, though it started as a sideline, it gradually became the biggest part of what I do. Yet, it wasn't until seven or eight years ago that I felt I could talk about it in public."

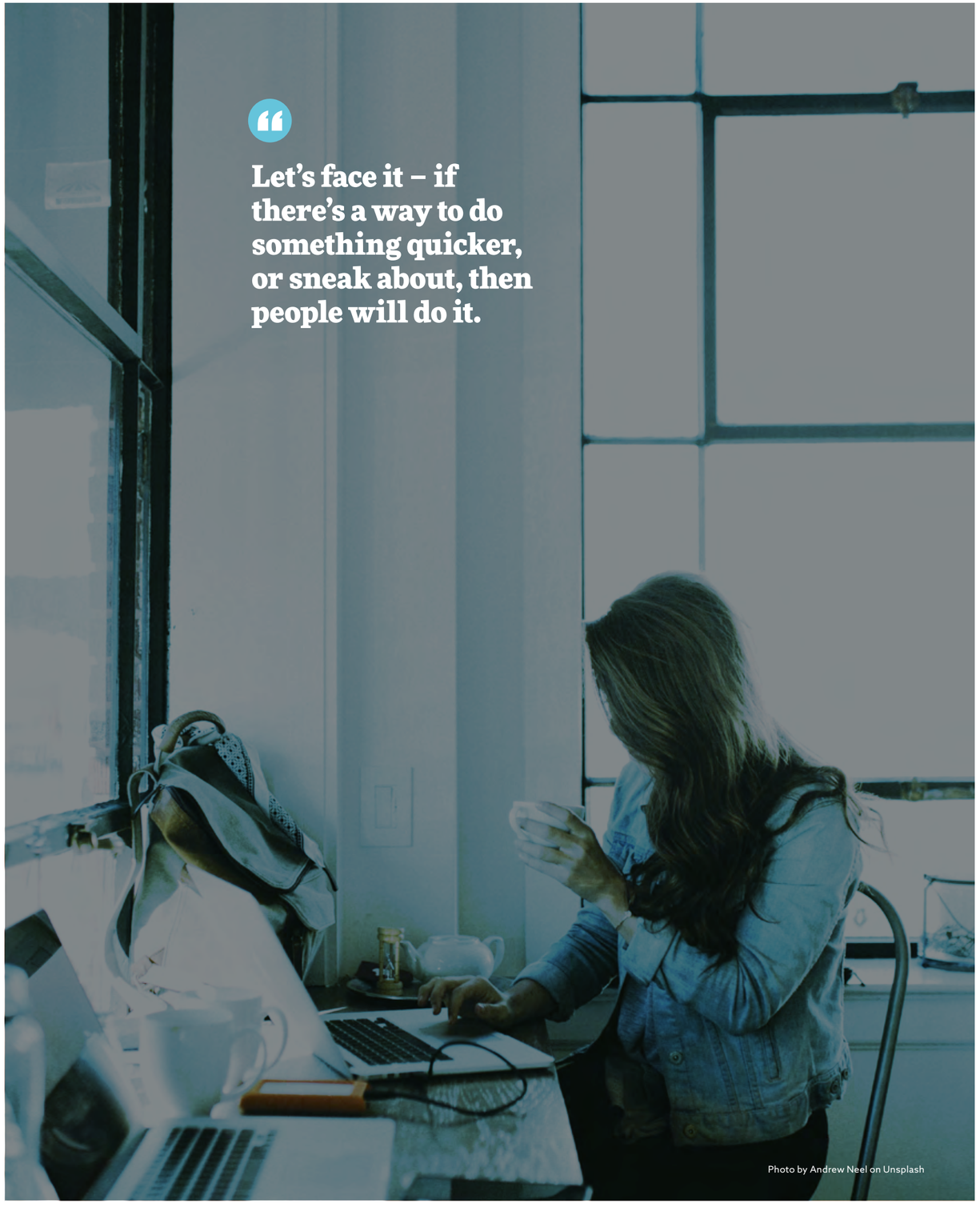
> **Any good security strategy will prioritise the human factor, and an even better one will design the technology around that.**

This unusual career trajectory taught Jenny to quickly adapt to new ways of profiling the people she targets. "It used to be so much more time-consuming doing it the traditional way – following people on their commute, seeing what doors they use for their cigarette break, finding out who is drinking with who in the pub. Nowadays, we still check out the building and follow the people who work there, because – let's face it – if there's a way to do something quicker or sneak about, they'll be doing it. However, the people-information gathering is now so much easier. Almost everybody has a rich online profile, so we can construct a really clear picture of people by quickly pulling what's on social media platforms. The increasing ways our society communicates and shares information provide new tools for an old con."

Psychology lessons

It's not just social media where advancements have taken place. When Jenny began what would become her career, there were just a few books on the psychology of the con, which she devoured in her spare time. Now there's an ever-growing pool of neurological, psychological, and social studies that shed light on how people can be manipulated. >>

Photo by Alexandra Debieve on Unsplash



"Despite all my experience, even I could fall for many of the techniques that are used," Jenny says. "For example, any tactic related to raising our human emotions is widely effective. It doesn't matter whether it's fear, frustration, happiness, or hopefulness... as soon as we feel a strong emotion, our decision-making capacity lowers and logic often goes out the window. We're programmed to feel the need to impulsively act rather than think, either to get out of the negative state or maintain a positive one.

"Additionally, the need to be polite, to follow rules, to reciprocate, to be helpful, to be professional – all of these are examples of automatic behaviour that we, as human beings, can find really hard to override. That's why, when I've succeeded in breaking in somewhere, we make sure the people who fell for the techniques aren't blamed. They are thoroughly debriefed, informed that it was a professional who did it, and that the company isn't going to single them out. All employees are then taught about the psychological weaknesses and external social factors that allowed me to break in. The truth is, you can be professional, polite, helpful etc... and still not be naïve. I often say to people that we tell children not to trust strangers, yet we forget to apply that to ourselves as adults. It's about teaching people to take the time to think before they make what often seem like insignificant decisions.

"I also think the technology side of things is something that a lot of people feel very detached from, but the concept of people hacking is easy to connect with. The idea that they are at the heart of security resonates with employees; it makes them feel more empowered and, in turn, gives the business a more secure mindset. The employees come away with a better understanding of how a similar situation could be avoided, equipped with skills that allow them to still feel like a good person but also better protect the company."

In the moment

It's clear Jenny has an incredible track record when it comes to people hacking. But humans are pretty unpredictable... How does she deal with situations where her targets react in an unusual way?

"A massive part of what I do is improvising in the moment. There's the strategic side – the planning for A, B, and even C scenarios – but then everything can change instantly once you start interacting with people. There's a dual skill of knowing how to communicate with people to get what you need,

It always cracks me up when I see people suddenly thinking like a criminal... any ideas I can come up with are nothing compared to what they suggest!

but also to get them to leave you alone really quickly. Most people are – quite rightly – happy to help you if you ask, but there are some who are super keen whether you've asked or not! There's a particular job that stands out, where I was tasked with getting into an office, going to the break room to make and drink a cup of tea, then grab some files off a computer. As I'm making my brew, a lady comes over, commenting that she hadn't seen me before, and proceeds to help me make my tea. She was asking me all these questions and telling me about her dog and grandchildren... Now, if that was a real situation where I was an actual criminal, she would remember me really well. Ideally, criminals will try and be in and out of the building in under 90 minutes. After that, people start to notice and remember things about their appearance or actions."

Good and bad

It's clear that Jenny loves what she does, and it's probably one of the truest examples of 'every day is different'. So what are the good and bad things about her work?

"I do see or hear about the worst of humanity in this job, and it can make you an overly suspicious person sometimes. However, I also see some of the best of people – how they can learn, adapt their thinking, and help each other. It always cracks me up when I see people suddenly thinking like a criminal. If I ask employees in an organisation to put themselves in my position (being paid money to try and hack into the company), any ideas I have are nothing compared to what they suggest! It's hilarious to see that the loveliest, most innocent looking people often have the most evil ideas."

But perhaps the biggest negative of the job, according to Jenny, is the stairs: "I spend a lot of my time on top of roofs, locked inside cleaning cupboards, and running up and down stairwells (there's loads of security cameras in lifts). There was one job I did in London at an office on the 24th floor and – believe me – after 42 flights of stairs, I was ready to retire!" □

LET'S TALK
JohnTaylor@hoarelea.com

An exploration in creating a wellness workplace of the future.

1 New Street Square.	
The client	Deloitte
The architect	Sheppard Robson
The expertise	Acoustics, Air Quality, Building Physics, Intelligent Buildings, Lighting Design, MEP, Performance, Security, Sustainability, Vertical Transportation
The challenge	To become the world's first workplace fit-out to achieve both BREEAM Outstanding and WELL Certified Gold.
The sector	Workplace

Photo: ©Deloitte

Urban forests, co-living, and skyscrapers on a diet. Welcome to the future of city living.

Whether you get your thrills from pulsing urban energy, prefer the calm of countryside life, or the practicality of suburbia... cities are where new ways of living take root.

Our cities are where ideas grow, frustrations arise, and communities collide. It's been this way since we first began to come together in tribes. Where human beings gather, growth and progress accelerates. But cities are also clusters of constraints: size and space, the cost of living, transport infrastructure, historic building stock, not to mention environmental and health considerations.

Yet we human beings are a funny bunch. For it's often in constraints that our most creative thinking takes place. Tell us to think of a great idea, and we'd likely be paralysed by possibilities, but when working with restrictions, our brains kick in to gear. In the words of world-renowned architect Frank Gehry: "It's better to have some problem to work on... to turn those constraints into action."

So it's no wonder that these epicentres of constraint – our cities – are where we can look for insight into the future of urban living; where the problems we face are being turned into possibilities...

Main: Co-living project, Manhattan, by WeWork
Inset: 3D concrete printed smart house by Houben / Van Mierlo architects. Artist impression by Backbone Visuals

The challenge: combatting the cost of housing.

As desirable business-centric places to live, cities draw a disproportionate share of a country's wealth and of the world's richest people. This almost always results in diverse communities (along with young, old, and vulnerable people) being driven out by the rising price of renting, buying, and living... and, subsequently, cities being 'suffocated by their own success'. The coming decades need a new approach to housing – one that ensures cities remain as places that support and enable all of society to thrive.

The possibilities:

Co-living is a trend that's set to boom in the next 20 to 30 years. It's certainly a more cost-effective living option that will be open to city residents and beyond. While many might reel in horror at the thought of sharing spaces with more than 100 others, people throughout Europe are proving that the next generation feel a little differently. Berlin-based Quarters, a major European co-living company, has seen success with its model of pre-furnished bedrooms, shared common spaces, and amenities such as 24/7 laundry access, cleaning services, and community events. The benefits? People have more affordable access to cities and the flexibility to move between them, rather than being 'tied down' by one house purchase.

By comparison, WeWork, drawing on the principles of its global co-working spaces, recently unveiled a co-living project in Manhattan, where residents use a mobile app to agree flexible leases; book fitness classes, pay for cleaning/laundry, and organise potluck dinners.

Seema Mistry, Design and Technical Manager of Apartments for London, explains: "Urban design is all about the connections that you make for people, creating homes that are as friendly, engaging and interactive as possible. I often talk to young people and students – those who should want to move to cities in the coming years – about what they want from a home. They put less emphasis on the individual apartment and more on all the other amenities: the socialising, working, and lifestyle that an entire complex offers."

Ian Gow, Partner at Hoare Lea specialising in the Build-to-Rent market, adds: "In Germany and many other European countries, the majority of people rent long-term. The Build-to-Rent market is something that's been strong both there and in the U.S. and, based on some current projections, it's showing signs of significant growth over the next five years. For future generations who are already indicating a trend towards rejecting traditional home ownership – whether that be through necessity or lifestyle choice – the community and convenience aspects of this way of living are really attractive."

Adding to the hype around different ways of living, Airbnb co-founder Joe Gebbia recently launched an initiative to prototype new ways that homes can be designed and built. The aim is for those homes to be shared by multiple people at different times and thoughtfully respond to changing owner or occupant needs. He explains: "Airbnb helped people activate underutilised space. We're using the same lens – the potential of space – and applying it more broadly to architecture and construction to ask, what does a home that is designed and built for sharing actually look and feel like?

How can a home respond to the needs of many inhabitants over a long period of time? Can it support and reflect the tremendous diversity of human experience? Can we accomplish this without filling landfills with waste?"

A completely different route to cheaper housing could come via 3D printing. The world's first 3D-printed concrete smart houses are soon to be available for rent in Eindhoven. Called Project Milestone, the homes fulfil the criteria of the strict Dutch building code that spans everything from comfort and layout to sustainability requirements. With an exceptional rate of production possible for 3D-printed housing (both on and offsite), construction costs should fall dramatically and – in theory – translate into affordable on-demand quality housing for future generations.

The challenge: "There's just not enough space."

According to the United Nations, the world population is expected to reach 9.8 billion people by 2050, 70 percent of which is likely to live in urban areas and cities. With reports that there are a total of 1.3 million people moving into cities across the globe every week, even if the housing market could keep up, is there enough space to accommodate the required rate of growth?

The possibilities:

"It's possible that future city residents will have grown accustomed to more compact living," says Ian Gow. "There's a lot that can be learned from residences in cities such as New York and Hong Kong, where compact living has been embraced. Flexible co-living spaces will help with this, but I also think smaller homes will be designed to stricter guidelines than we have now around daylight, outdoor access, biophilic design, and other wellbeing measures."

One thing is also clear; single-use buildings are dead. Or, if you prefer a less sensationalist statement, let's say they're in the process of dying. Single-use buildings are being replaced with hybrid destinations and multi-use districts. Already, the annual Design Forecast from the Gensler Research Institute has shown that the mixed-use living environments we're seeing "unlock the possibilities of a diverse, urban lifestyle and breathe new life into cities".

Will future city-centre homes become blended spaces where hotel guests come and go, where people work flexibly, eat, drink, socialise, study, shop, and even receive healthcare? Seema Mistry believes this will be the case: "We'll start to see more housing developments that can provide student living, flexible workplace and residential spaces, retirement living, and even co-living. From a developer's point of view, it will be about de-risking the lifecycle of the building by making sure it can flex with different demands."

Of course, high-rises are likely to get slimmer and taller. In fact, one of New York's newest skyscrapers, dubbed "the world's skinniest skyscraper" is set to complete this year. However, it's worth noting that often it's dense and mid-rise buildings that are held up as leading examples of good city planning.

We're also already seeing innovative solutions that could create homes in more unusual places. The recent *Out of Thin Air – One Year On* study identified the area of land associated with all exposed rail tracks in London's 1-6 fare zone. If a conservative 10 percent of the space had 12-storey-high buildings, 280,000 new homes could be created. There are serious noise, vibration, ventilation and associated air quality issues to resolve with this, but it's a distinct possibility for our future cities. >>


111 West 57th St Design: SHoP Architects Photo: Hayes Davidson

Meanwhile, Apartments for London is already attempting to tackle the city's current housing crisis by unlocking opportunities in existing structures: carparks. The offsite-manufactured fully-fitted apartments can be developed above existing carparking sites. Seema explains: "Our CEO found that, when his kids moved to London, they were spending the vast majority of their income on rent and weren't left with what they needed to go out and enjoy what London has to offer. So for us, unlocking under-used space is all about creating affordable housing to keep the city sustainable – it won't grow if young people can't afford to move here.

"It's not hard to build above a carpark; there are plenty of shopping centres etc that already do that, but we wanted to do it as quickly and efficiently as possible. In turn, we then leave that carpark in operation – delivering a better facility back to the public sector. Private companies collaborating with the public sector in this way could be key to unlocking city-wide development at scale and providing a win-win for all."

And what if there's eventually no land left in our cities? In Nassauhaven, a neighbourhood of floating homes in unused harbours is currently being designed. Lightweight aluminium-framed and timber-clad homes will float on a platform of 'unsinkable' concrete and polystyrene, which rises and falls with the tide by about two metres each day. It seems expanding onto water – whether rivers, harbours, or newly-created bays – is a distinct possibility.

The challenge: mitigating and adapting to a changing climate.

The world's cities occupy just three percent of the earth's land, yet account for 75 percent of carbon emissions and 60-80 percent of energy consumption. Based on current projections from the UN, 2.5 trillion square feet of new buildings will be constructed worldwide by 2060 – the equivalent of adding another Paris to the planet every single week. If we continue with a 'business as usual' mentality, sea levels are predicted to rise by approximately one metre, along with a predicted average temperature increase of 4°C by the end of the century. While global initiatives (such as the Paris Agreement and the move to a circular economy) should help mitigate these figures to less extremes, the associated impacts of the inevitable change in climate have to be planned for.

The possibilities:

Climate change is the ultimate incentive for innovative urban design – and when it's viewed not just as a problem but as driving force for creativity, it can provide a fast-track route to better ways of living. Across the globe, there are investigations into how urban living needs to adapt in the face of an uncertain future.

A new Global Centre of Excellence on Climate Adaptation based in Rotterdam is looking at how cities can be reimagined. As a collaborative project between the Netherlands, the UN, and Japan, it's leading a shift in thinking: instead of working against a changing climate, why not re-engineer cities to work with it?

Rotterdam, for example, now has five water plazas dotted throughout the city. These plazas act as community hubs in dry weather and, in heavy rain, hold up to 1.7 million litres of excess water. This adaptive approach was made possible by combining budgets for storm water infrastructures and liveable public spaces.

Probably the most reaffirming view of future urban living is that sustainable buildings are becoming 'sexy' – stunning even. The practicalities of net-zero homes that can adapt to a changing climate won't mean compromises on style and quality of space. In fact, the trend towards biophilic design and Blue-Green infrastructure (BGI) offers a people-centric, feasible and valuable solution for urban areas facing the challenges of flooding, overheating, and other extreme weather.

Taking this further, our homes might even be designed to meet collective climate rights of future generations.

There are intrinsic links between climate change and human rights, and there is an increasing argument for human rights to play a leading role in guiding global responses to climate change. This is likely to result in policy created around the rights of future generations: for anything from a hospitable indoor/outdoor environment, to a planet that provides a full quality of life. >>

Biophilic design at 1 New Street Square. Photo: ©Deloitte

Visualisation of a flooded Manhattan. Image: Surging Seas by Climate Central / Google

One of Rotterdam's five water plazas. Designer: De Urbanisten Image: by Jeroen Musch

"Climate change is the ultimate incentive for innovative urban design – and when it's viewed not just as a problem but as driving force for creativity, it can provide a fast-track route to better ways of living.

The Smart City.

In 2018, people from around the world gathered for the Smart City Congress and Expo in Barcelona. Attended by representatives from more than 700 cities, it shows how the global movement towards Smart Cities is gathering momentum.

The Smart City is all about using digitalisation to respond to the needs of the population in the most environmentally, economically, and socially conscientious way. This is technology to integrate and improve the living experiences of people; where urban planning is conceived with the ultimate goal of connecting everything using state-of-the-art technology. In essence, a Smart City is one that operates as one big data-driven ecosystem – an ecosystem of information that's used to improve services and infrastructure, as well as people's environment and quality of life.

The move to Smart Cities will be able to drive greater energy efficiency, thanks to the Internet of Things providing continual real-time data collection. This smart data, which will also come from the population, from vehicles, and building infrastructure, can be analysed in order to evolve and improve environments, based on real-time feedback. As a resident, your home could be optimised for you based on previous data, you could get notifications on the best and safest times to travel, information about your own personal energy usage, and even how to improve your eating habits! There's also the potential to prevent public health issues, such as stopping airborne illnesses or water contaminations before they even happen. Ultimately, digital intelligence will be the route to us all living smarter – in more efficient, happier, and healthier ways.

The challenge: ensuring human health and happiness.

A recent World Health Organisation study that found that 80-90 percent of our health outcomes are intimately tied to where and how we live. As spaces shrink, buildings get higher, and city dwellers' lives become more digitised, the health and wellbeing argument only grows. As of 2016, 90 percent of urban dwellers have been breathing unsafe air, while more than half of the global urban population was exposed to air pollution levels at least 2.5 times higher than the safety standard. And our needs don't stop at better air quality: useable green spaces, comfortable environments, biophilic design, daylight exposure, reduced noise pollution, sustainable commuting choices, access to community spaces, and the desire for human connection all need to be considered in the context of our future cities.

Visualisation of Quayside, Toronto, by Heatherwick Studio
Image: Picture Plane

The possibilities:

An interesting view on where the future of living might take us in terms of design comes from Adrian Lahoud, dean of the school of architecture at the Royal College of Art in London. He says: "I think there's going to be an attempt to rethink architecture beyond a Western European framework. Shelter, for example, assumes that there is a distinction between ourselves and the environment; that the environment is a threat and we have to be protected from it, but not all societies see their relationship to the environment in the same way."

The rapid urban development in China certainly gives the West an example when it comes to living. The British Council's Li Ying believes collaboration between the UK and China could benefit both sides:

"Chinese architecture is defined by diversity. It takes inspiration from home and abroad, and embraces both traditional and contemporary elements. Due to the scale and speed of urban development, it also increasingly embodies technological innovation, most notably digital influences and green architecture for energy savings."

This green architecture will likely extend to us having 'living breathing' homes as standard. The explosion of biophilic design into the workplace will no doubt reach the residential sector soon, as the evidence for its benefits becomes more mainstream. When research by the Harvard T.H. Chan School of Public Health shows that cleaner, fresher air created through indoor plants can nearly double people's cognitive performance and relieve stress, then it's only a matter of time before this extends to our homes.

Taking this further, we could even see 'wellness neighbourhoods' dotted across cities. The wellness village concept, which is currently springing up in rural neighbourhoods, has already become a billion-dollar industry worldwide, expected to grow to $180 billion by 2022. In cities, the concept could result in mixed-use centres dedicated to holistic health and wellness – where spaces are designed to support residents' physical and emotional wellbeing.

Meanwhile, for nature lovers, the countryside might no longer be the only option. In our future cities many of us could be living close to, or even inside, newly planted urban forests – allowing us to take in the wellbeing benefits of daily 'forest bathing' (aka absorbing the calming effects of trees), which is now one of the cornerstones of Japanese healthcare. Cities have also woken up to the extensive advantages that tree planting can provide on a practical level – from protecting against flooding and the overheating effects of heat waves, to reduced air pollution. Even by the end of the century, it's unlikely we'll ever have found a structure with benefits that match those of the humble tree.

Ultimately, our cities have the potential to usher in a new era of wellbeing, resource efficiency, and economic growth. It's no coincidence that almost all of the possibilities explored here will provide a stronger community connection and interaction between people. Whether it's co-living, wellness neighbourhoods, or climate-adaptive homes – they all embrace a way of life centred around a diverse, multi-generational community. The future of urban living, it seems, is all about connection to our natural environment and closer connection to one another. □

Great Ormond Street Hospital: Zayed Centre for Research.

The client	Great Ormond Street Children's Charity
The architect	Stanton Williams
The expertise	Acoustics, Digital Engineering, Fire Engineering, Lighting Design, MEP
The challenge	Bringing together design standards from three worlds - NHS, laboratory, and office - to accelerate the bench-to-bedside process of developing new treatments for rare diseases in children.
The sectors	Healthcare and Science & Research

Image courtesy of Stanton Williams

PEOPLE

Compelled by curiosity.

As one of TV's most captivating travel presenters, Simon Reeve brings us face-to-face with the world's most diverse places and people. We sat down with him to discover what they've taught him about community, the key to happiness, and the mindset of an explorer.

Photos courtesy of Simon Reeve

Q In your programmes, you seem to get a balance between experiencing the situation you're in and also remaining conscious of the viewer. How do you navigate that?

SR I suppose I'm very aware of what the camera is doing and seeing, and that helps me shape my behaviour. It's about knowing you have to connect with the viewers at home. There is a balance to be found between jumping straight into situations feet first, and stepping back to try to observe what's going on as impartially as you can. For instance, if we turn up to film a ceremony welcoming a new tribal chief in a remote village, because we're a TV crew and I'm a presenter, I often get pushed to accept the honoured position next to the chief, which would instantly mean I'm less of an observer. So, often in those situations – partly for shyness and partly because I think it's right – I'll say no, and instead stay in the crowd of people.

You get a completely different take on the experience; sometimes it's a subtle difference and sometimes it's a really profound one. We want to be involved, but generally that will mean me digging with a farmer, for example – getting properly involved with 'ordinary' people's lives... And to be honest, I'm happier doing that. I'm always keen to get the perspective of the masses rather than the elite.

However, I do often use it as an excuse to avoid the one thing I really don't want to do – dancing in public! I remember being at a wedding near Chechnya, and the people were trying to push me into doing the first dance. Can you imagine? It takes quite a lot of willpower to stop yourself from being forced into doing that by a large group of people, especially when they're probably heavily armed. But such is my terror of dancing that I insisted on just observing...!

I don't claim to have many skills and I think it's made me interested in everything... curiosity is a muscle that needs to be exercised endlessly, but carefully.

Q What do you think makes an explorer's mindset?

SR I certainly think I'm a very curious person, probably in every sense of the word. I try to maintain and cultivate my own interest in the world. I don't claim to have many skills – I certainly don't have many specialisms – and I think that's been a benefit to me because it's made me interested in everything... I'm never going to think I know enough about the world! The job requires curiosity, but it also feeds it. In turn, it makes you open to being more empathetic as well: you have to care about the people you meet, their stories and situations.

I think curiosity is a muscle that needs to be exercised endlessly, but carefully. It isn't everything of course, but it is the foundation on which other interests and skills develop from.

Q Would you say your extreme experiences have affected your outlook or approach to life?

SR Absolutely. I relish the idea that any experience changes us, not just travel. We're all shaped and moulded by the adventures and encounters that we have. I've been deeply affected, moved, and transformed by my travels – and that's how it should be. The privilege of the journeys I've had is that they've given me a different outlook on life, making me feel much more thankful for being a resident of our cold wet island! I know in my very core how lucky we are to live here and to be alive now, because I've seen what many of our brothers and sisters on this planet have to put up with.

It's also made me more confident and less frightened of experiences that worry other people – the more experiences you have, the more you can say 'what's the worst that can happen', and know that you'll be able to connect with people.

Q Yes, you're never going to be short of an anecdote...

SR Absolutely, to be honest I drive my son mad – the poor boy is just like: "Yeah, OK Dad, I don't need to hear about that time you were in the Congo again."

Q As a viewer of your programmes, it feels like you're travelling to meet the people more than anything. Is that a conscious decision you've made?

SR Yes, definitely – it began like that because I'm generally more interested in speaking to people. Then, as we did more programmes, it became a conscious decision. It's about the encounters and interactions with strange, familiar, foreign, exotic, incredible human beings around this world. So yes, if I'm not meeting people, I'm not on a proper journey; after all, that's what people respond to more than anything else. It's the characters who give us – and gift us – the best telly and memories! That's something people can easily forget about when planning their own travels, because we're often sold an idea that we need to go somewhere sunny, sit by a swimming pool, or lie on a lounger by the sea and top up the tan... Of course that's relaxing, but it's never going to be as rich an experience as getting up, meeting people, and being a bit more adventurous.

Q So have you ever been caught lying on a beach drinking a cocktail?!

SR Ha! I have willingly submitted to it every now and then. On occasion, the idea of being the luxury hotel correspondent for an international broadcaster has definitely appealed to me! But life is very rarely delivered in a package, and sometimes you've got to reach out and work hard for new experiences that will stay with you forever – I think it's how you become a more rounded human being. >>

Q Have your travels revealed any common themes, in terms of what brings people together?
SR What unites us more than anything is a collective need for purpose and meaning. It's maybe viewed as something quite old fashioned now, but I think it's really profound. Most of us need a feeling of purpose that's found in a passion, a hobby, or love, in a belief or an obsession even – they support us and guide us, and give us a reason to exist on this rock.

I still think we're the luckiest humans that have ever lived, but the biggest thing we've lost is purpose and meaning – and we're seeing that playing out in the bitterness of our current tribal politics. Spaces are the threads that help bind communities together through purpose: it's the post office, the football club, the theatre, the church, the town centre that's warm and welcoming. It's all these different elements – and a thousand more – that contribute to people's sense of identity, culture, and roots.

Q Your interactions on screen often include a joke or camaraderie – it seems humour is something that universally unites us...
SR I'm not sure anyone who knows me well would attribute me with an ability to crack a joke; I've got very dad-joke levels of humour! Luckily, the editing process makes me seem better at it than I actually am. But you're absolutely right, most people on this planet delight in a warm encounter or a mutual joke shared with another human. It was something that staggered me from the very beginning of my journeys – that there's almost nowhere in the world where you can't find people who are warm and welcoming... and that's a beautiful, beautiful thing.

Q Where are the happiest communities you've encountered, and what do you think facilitates that?
SR The happiest people are generally held to be the Danes. Denmark regularly comes top of the Global Happiness Index... The reasons are many, of course – some are complicated, some are boring, some are amusing – but ultimately it's because they have a very equal society; a slim gap between rich and poor. Having met many of them, I've also realised that they often take the view that the sky might fall on their heads at any moment and when it doesn't they're delighted! What's curious about this happiness though, is the fact that Denmark is a cold place in the winter where people don't venture out – instead they're snuggling up. But the benefits they get from that cosy feeling of literal warmth is similar to the more soulful warmth that, say, the Greeks get from a outdoor village celebration.

Actually, speaking of the Greeks, in terms of my personal encounters, I think the people in that area of the Med are some of the happiest societies in the world. I've travelled there a lot and, even in these times of economic hardship, they're very good at maintaining local spaces that bring families and communities together.

I've also met some very happy and contented remote indigenous communities whose built environment is defined by long houses at the core of their village, where almost 20 to 30 families sometimes sleep inside together... in a way that would terrify many Western onlookers! I've seen that it gives you an extended family; it's easy to romanticise communities like that and forget about the fundamental basic issues they're contending with, but at the same time, it's a beautiful thing to see people bedded down every evening, sleeping in their huddles in the same room together. Any rows have to be resolved by bedtime because the others are not going put up with it! I've slept in such spaces a few times and, all I can say is, it's great but you need your ear plugs. >>

Buildings are the threads that help bind communities together: the post office, the football club, the town centre that's warm and welcoming... It's all these different elements that contribute to people's sense of identity, culture, and roots.

When it works well, there is nothing more beautiful than living in close proximity to your fellow human beings.

> **To alleviate and reduce the poverty many people are living with, the design and construction of the environment they live in is absolutely fundamental.**

Q What do you think more developed countries can learn from these close communities?

SR When it works well, there is nothing more beautiful than living in close proximity to your fellow human beings. I understand, for lots of people, it could become oppressive, but there are ways around that now in terms of the sensible construction of a community, like having private routes in and out of a space for instance. You don't have to be living cheek by jowl. One thing I've also noticed in cities new and old is that there's something really important about having organic spaces rather than grid construction – an area that flows into a central community heart is utterly essentially. The key is also to not just leave them blank – they need a purpose: the celebrations, the festivals, the youth clubs, the bands and choirs – they all make places that people love and want to stay in and maintain. I think these are the foundations of happy communities in a very literal sense.

Q It seems your travels have given you an insight into how the built environment can shape, or fail, societies?

SR I've spent a lot of time in shanty towns and slum areas around the world, and it's interesting to see how some governments just let them sprawl out and don't understand how to make the situation better. To alleviate and reduce the poverty many people are living with, the design and construction of the environment they live in is absolutely fundamental to their long-term development, health and wealth. It starts below ground; it starts with the sewers, the sanitation – the fundamentals. Nothing is more important for maintaining a society than putting in some bloody sewers! You get more return on your investment from building sewers in developing slums than from anything else. For every pound that's invested in sanitation, you get at least ten pounds back in health savings in the long term. It's not sexy, it's not cool, it's certainly not beautiful – but the sheer practicality of the situation has to be at the heart of any plan. It's the groundworks that protect the community and enable more bearable spaces to emerge in the future.

There's also the long-term profita bility of doing things right, and this applies to us in the West too. I think, ultimately, any construction will be taxed and judged on its sustainability. We're seeing the vehicle emissions fee in London now, which is essentially a retrospective tax on cars that impact on the environment. I think we'll soon see elements of this process applied to homes and buildings that don't meet our future adequate green credentials.

I imagine there will be expensive retrofitting required for places that aren't ticking those boxes – so for me, sustainable design just feels like a no brainer.

I'm also acutely aware that my carbon footprint from my travels is big, but I try to counteract that as much as I can. I guess all we can do is aim to reduce our own footprint, and I'm trying to do that at my home in the UK.

Q ...and what does home mean to you?

SR Home, to me, means the people rather than the place. I can survive being away from home a lot longer than I can being away from my family. But I'm starting to feel properly grounded in Dartmoor, Devon, where we moved to just over five years ago. I come from the city – I'm a London lad (although less of the lad and more middle aged now!) but my spirits really lift as I head home. It's not just because it's a beautiful environment, but because it feels like I'm heading back to the community I'm part of: it's the place where my son goes to school, it's where I walk my dog – and those are the things that matter to me. ☐

During 2019, Simon Reeve is appearing at theatres around the UK on his first live tour, extended due to huge popular demand and culminating in a night at the London Palladium. More details: www.simonreeve.co.uk

Regeneration at King's Cross, London. Photo John Sturrock

> **There's something really important about having organic spaces... areas that flow into a central community heart. I've found this to be the foundation of happy communities in a very literal sense.**

An exploration in creating capacity for 30 million passengers.

Heathrow Airport, Terminal 2.	
The client	HAL (Heathrow Airport Ltd)
The architect	Foster + Partners / Luis Vidal Architects / Pascal & Watson
The expertise	Acoustics, Fire Engineering, Lighting Design, MEP, Sustainability, Vertical Transportation
The challenge	Crafting a welcoming passenger experience while working within the constraints of an active airport environment.
The sector	Transport

Photo: Redshift Media

Partner David Armstrong shares his take on the developments that have transformed Manchester, and those that are set to evolve it even further.

LET'S TALK
DavidArmstrong@hoarelea.com

Shaping my city.

Manchester.

HOARE LEA & MANCHESTER
We set up our Manchester office more than 60 years ago and have been lucky to watch the city go through many changes in this time. From our central offices in the historic Royal Exchange building, we're privileged to work on some of the city's most significant projects, whether past, present, or future.

From the outskirts...

1

The Hut Group at Manchester Airport City: planned completion 2022.

There's been a massive amount of buzz around this project, and it's clear why. The Hut Group is a technology-led ecommerce business that's investing in a $1bn development near Manchester Airport. It's the North West's biggest ever office project by a company, is the largest office development deal outside London for more than 20 years, and will help bring more than 10 thousand new jobs to our region. It's a brilliant project to be part of, not least due to the integrated approach that's being taken across the architecture, landscape, and interior design to support the company culture and workplace strategy.

2

Adelphi Building: 2016.

The University of Salford's brand-new arts and media building was definitely a challenge but ultimately very rewarding. We worked alongside architect Stride Treglown to deliver a striking new entrance to the university's campus. The new theatre, studios, specialist workshops and recording spaces have gifted the city with a great new venue. It's been really satisfying to see students, staff, and the public enjoying the array of events held there in the few years since opening.

3

Royal Horticultural Society, Worsley: phase 1 due 2019.

Considered the 'lost' grounds of Worsley New Hall in Salford, this is the site of what will become the largest gardening project in Europe. It's going to be a brand-new Royal Horticultural Society (RHS) garden facility for the North, complemented by a contemporary new visitor centre. We've relished working on the overall masterplan, which will turn the 156-acre site into a major new tourism destination for RHS, a charity that does a brilliant job of promoting horticulture to the masses.

4

Manchester Airport: planned completion 2022.

The Manchester Airport Transformation Programme is one of the biggest projects ever undertaken for Manchester Airport. As you'd imagine it has a challenging fast-track programme, but we are enjoying working closely with Laing O'Rourke and Crown House Technologies to support the focus on Design for Manufacture and Assembly, which makes the whole project much more efficient and effective. It is incredible to see the seamless transition from our technical design to the construction drawings and then installation on site. The first pier is now finished; I've visited the site a few times and I have to say I'm so excited to see it in all its glory once complete.

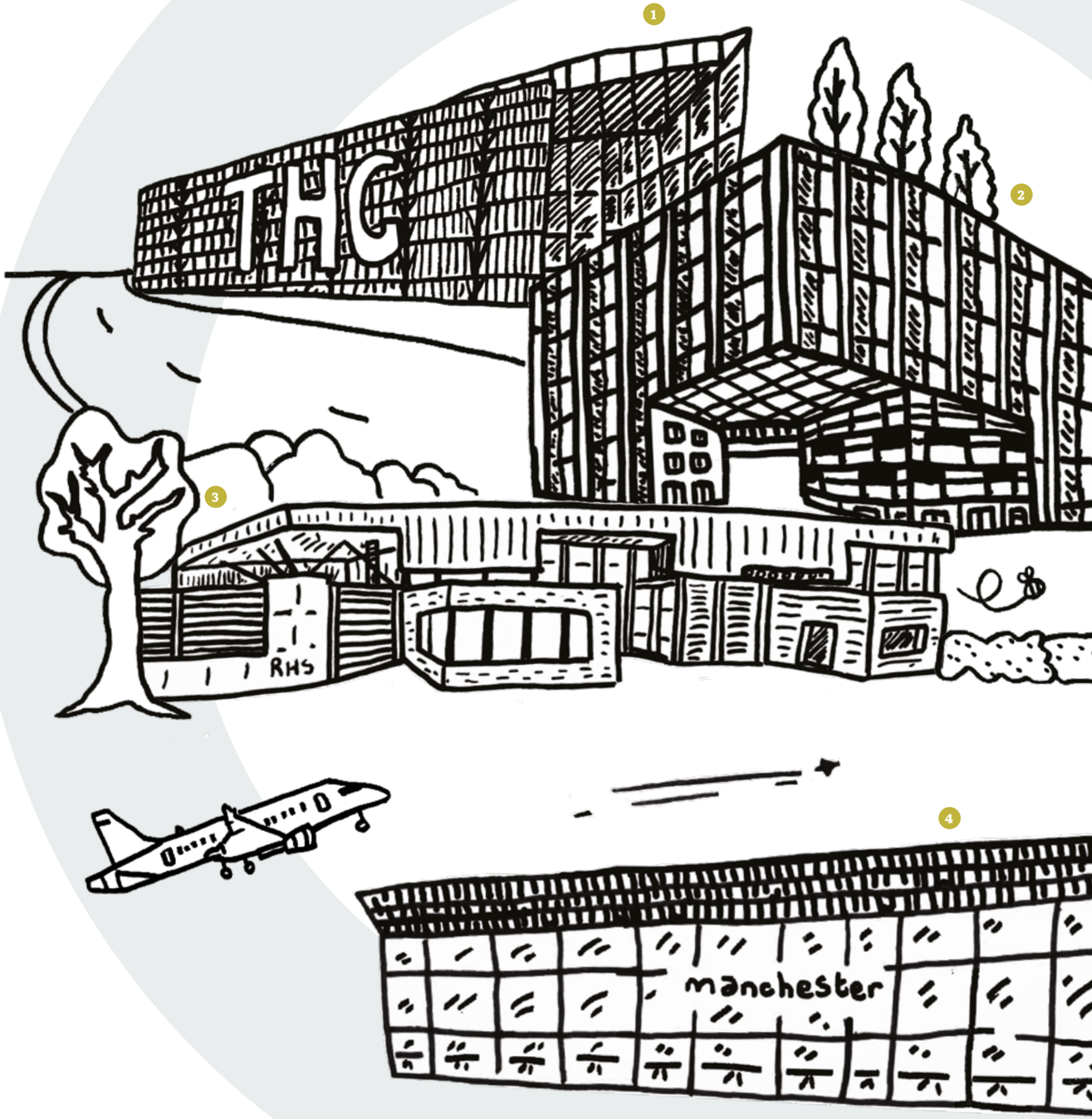


Illustration: Dave Draws Limited, Manchester

Shaping my city. Manchester.

...to the heart of the city.

5

Manchester Transport Interchange: 2007.

At the time, this project made such a difference to the city, and it's certainly become a recognisable landmark. It was a new development that brought together bus services, the city's Metrolink tram system, and a multi-storey car park. The whole place is really user friendly and it was great to see it recognised with both a RIBA Regional Award and a RICS Innovation Award.

6

Halle Place, Arndale: 2018.

This was previously a pretty much redundant space within Manchester's Arndale Centre, so it was great to get stuck in on the full refurbishment project. Our Lighting Design team also did a great job of creating a casual contemporary atmosphere.

Insider tip: Drop in to enjoy a bite to eat in the sunny atrium.

7

Manchester Crown Court. 2010.

We were able to support the creation of three new Magistrates Courts, three new Crown Courts, plus Judiciary and Jury space for this key city-centre building. The working courts actually stayed occupied throughout the construction period; but by taking on construction monitoring duties, we were able to ensure not one hour of court operation was lost.

8

125 Deansgate: due 2019.

One the future developments we're most excited about in Manchester is this prominent project. It's shooting up at the moment and, when complete, will be a gamechanger for the city and Deansgate in particular. We were tasked with ensuring the building could be as sustainable as possible (BREEAM Excellent), and there are many other features that are going to make a really desirable workspace. Personally, I'm most excited about checking out the stunning tenth-floor terrace that will have some epic views over the city.

9

40 Spring Gardens. 2007.

This was a real landmark development in the old business district. It was all about transforming a rather unattractive building into a contemporary offering designed to the highest standards. An interesting aspect for us, in terms of design, was the focus on achieving exceptional levels of natural light. In response to this, one of the design decisions was to create a unique tapered central atrium; it very cleverly lets in as much daylight as possible, which makes a massive difference to the space.

10

One St Peter's Square: 2015.

This project was a step change for the city as it was the largest speculative office development outside of London at the time. The site is right in the heart of the Civic Quarter and we worked hard to ensure the design was sympathetic to neighbouring buildings, such as the Town Hall, Midland Hotel, and the Central Library. We were involved in the scheme from the first pen sketches by Glenn Howells right through to design development and construction monitoring – so it was a particularly proud moment when the building won the 2015 BCO National Award for Best Commercial Workplace.

11

Piccadilly Place: 2009.

We worked on four of the buildings at this fantastic site close to Piccadilly Station. At the time it was a really significant area of regeneration for the city, injecting some much-needed vibrancy into an unloved area with three office buildings and one residential space. What's interesting is that it was almost too ahead of its time – but it's gaining massive momentum as employers now understand the benefits of this kind of mini-community hub.

TWO EXPERTS: ONE BELIEVER – ONE SCEPTIC

The X files:
Will we all soon be driving electric-only vehicles?

The believer.
TOM WIGG
TomWigg@hoarelea.com

The *Future Energy Scenarios 2018* report makes projections for how many electric vehicles (EVs) will be on UK roads in the coming years. In all scenarios, this number is expected to surpass 18 million by 2038 and could even be as high as 32 million.

It's no secret that this will present challenges – mostly in terms of electricity demand – but they are challenges I believe will be overcome. National Grid predicts that, by 2038, EVs will represent between 10 percent and 15 percent of the peak-time usage. However, the good news is, the magnitude of this could be lessened by consumer engagement with smart or managed charging, which would take demand away from peak times.

Charging power

The current charging infrastructure for EVs varies by location and application. At the moment, the fastest 50kW chargers are confined to motorway service stations and other locations where rapid charging is necessary.

In homes, single-phase chargers with up to a 7kW output are most typical, but even these can significantly increase the peak demand of a residential development. This is why the rollout of smart charging technology is so vital – by managing the times at which we would all charge our EVs, this demand would be more evenly spread. Added to this, there is the potential to not only manage when our electric vehicles would draw power, but to also use the cars themselves as distributed battery storage to actually improve the resilience of the grid.

Research suggests that, between 2023 and 2035, the cost of purchasing and using an EV will become lower than an equivalent new car with an internal combustion engine. This is likely to mean that, in 20 years' time, none of us will be buying a new car with an internal combustion engine. It's a prediction roughly in line with the government target for the majority of new cars and vans to be electric by 2030 – and it's one that I believe we can handle with the right approach to smart-charging infrastructure.

The sceptic.
NICOLE TOOLSERAM
NicoleToolseram@hoarelea.com

While most projections indicate that the market will shift to EVs, hydrogen fuel cell vehicles actually present an attractive alternative. These vehicles combine hydrogen and oxygen to produce electricity, and the by-product of this reaction is water.

Hydrogen used in fuel cells has an energy-to-weight ratio that's 10 times greater than lithium-ion batteries. Consequently, it offers much greater range while being lighter and occupying smaller volumes. It can also be recharged in a few minutes similar to conventional gasoline vehicles. However, it's worth noting they are considerably more expensive than even battery EVs and there are currently fewer than 10 active hydrogen filling stations in the UK.

Unfortunately, the latest technology for producing sustainable hydrogen fuel, such as electrolysis and proton-exchange membrane (PEM), has huge losses in efficiency. Japan, the biggest supporter for hydrogen fuel technology, is obtaining its supply of hydrogen from Australia, where high volumes of hydrogen are produced via steam reforming.

Potential disruption

In truth, looking at current trajectories and considering the existing obstacles to adoption, battery EVs do seem set to eclipse these hydrogen fuel cell vehicles. However, I remain quietly sceptical... we have to remember that these are industries that are prone to disruption, and the future of the sector is highly sensitive to any technological advancements in both battery and fuel cell technology.

In light of this, I believe it's impossible to make truly firm predictions of which technology will dominate the future private vehicle sector. The likelihood is that a combination of hydrogen and electric technologies will emerge to suit society's requirements.

Creating a conversation.

The impact of an interactive installation.

Head Above Water was an installation created in support of Time to Change's campaign to end the stigma surrounding mental health issues, and to open up conversations. The nine-metre-high wooden sculpture sat on the South Bank, London for just 10 days, but its legacy will last for far longer.

Artist & designer Steuart Padwick:

"When I was offered the opportunity to exhibit on Gabriel's Pier as part of Design Junction, I knew immediately that this location demanded something very special. The installation needed to be big, powerful and engaging in order to have an impact.

"Very rapidly, there was an incredible swell of support from so many companies and individuals who wanted to play their part in making the project happen.

"Once the lighting experts got involved, it was clearly going to be something much more than mere illumination! Dominic Meyrick and Juan Ferrari, from Hoare Lea, ran with the idea of using coloured lights to represent emotions and came up with the incredible interactive side.
It added another dimension and we were now creating a piece of art that engaged in a two-way conversation with the city about how it was feeling. This is the brilliance of collaborating with like-minded creative, generous and enthusiastic people.

"Making the head interactive had other benefits, too. King's College London came on board early on and making the sculpture interactive gave them a new level of involvement. Scientists need information to work with and it is often very hard to get good data about mental health. By tweeting hashtags to reflect their feelings/ emotions, people could change the colour of the sculpture within a couple of seconds. This was valuable data for psychologists and mental health professionals.

"While it was initially designed as a temporary installation, Head Above Water is now being given a new life at Thames Tideway's trans-shipment centre in Northfleet on the Thames. It will soon sit among greenery that will grow through and around it: becoming a symbol of regeneration as well as hope.

"The whole process has been an extraordinary journey – one that's been made possible by collaboration." ◻

LET'S TALK
JuanFerrari@hoarelea.com

Head Above Water had just 15 weeks from concept to completion, took 10 tons of cross-laminated timber and 48 metres of LED lighting to produce. More than 30 companies and 100 people came together to make it happen.

HOARE LEA

Engineers of human experiences
Hoare Lea is an award-winning engineering consultancy with a creative team of engineers, designers, and technical specialists. We provide innovative solutions to complex engineering and design challenges for buildings.

Irrespective of the scale or complexity of a project, we provide a full range of MEP, environmental, and sustainability services, bringing buildings to life and ensuring that they perform in operation as well as they look.

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Sectors
Arts, Culture & Heritage. Courts. Data Centre & Mission Critical. Defence. Distribution. Healthcare. Higher Education. Hotels. Manufacturing & Process. Prisons. Residential. Retail. Schools. Science & Research. Sport. Transport. Workplace.

Designed and produced by Hoare Lea

Exploare.
The future belongs to the curious.
Challenge accepted.

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Juan Ferrari, Lighting Designer at Hoare Lea, under the Head Above Water sculpture

Exploare.