

Cities to the rescue

Why our planet needs them to survive

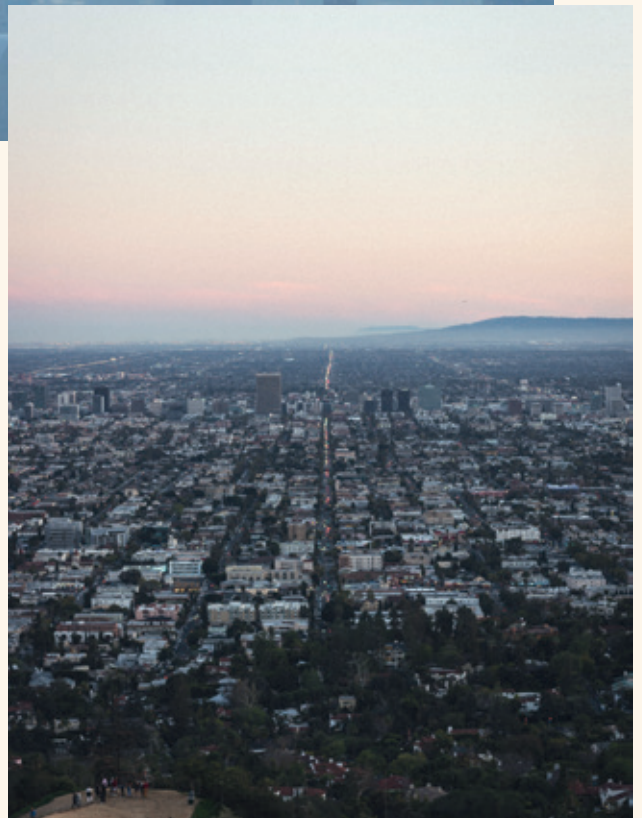


Rathbones
Look forward



We need
to reduce
our energy
consumption...
cities and towns
can again drive
progress

Cover illustration:
Michael Driver, Folio Art



Foreword



Though it may not seem like it, given the urgent and incessant news bombardment of the internet age, the world has lived through an extraordinary run of abundance in the past few decades. The rapid modernisation of developing nations, increasing globalisation and a brisk pace of technological progress led to a surge in the productive capacity of the world. In short, more stuff could be made quicker and cheaper than ever before. Fewer trade barriers allowed these cheaper toys, tools and appliances to be sold all over the world, boosting the buying power of hundreds of millions of people.

Urbanisation has been a pivotal driver of this progress. Cities and towns are where people meet to live, laugh and hatch plans for future greatness. Yet there is another, equally important, factor that has supported this boon: cheap and plentiful energy. And it has dramatically altered how we design our towns and cities, making them more diffuse, less dynamic and more energy inefficient.

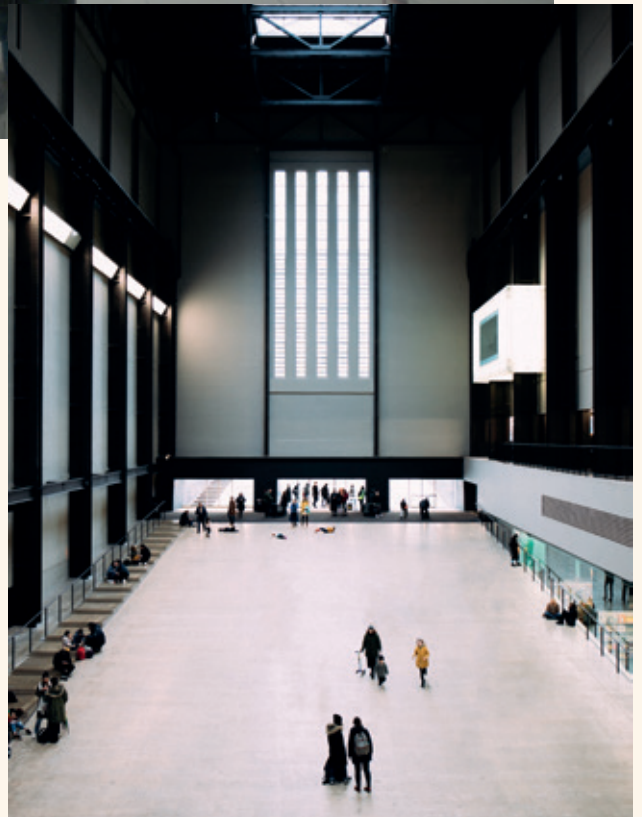
It is as much a shame as it is a truth: crude oil is the bedrock of our modern society. Without it, our economies and our societies would disintegrate. Oil is in virtually everything manmade that we touch. It is used to grease the machines that make our goods, if not in the goods themselves (plastics). It is especially ubiquitous in transportation: the 20th century was the age of the motor car. And not much has yet changed in the 21st century either. Technological breakthroughs made petrol and diesel ever cheaper to extract and refine, and more efficient to convert into energy. But while that has lowered oil usage per head, the world is using 50% more oil now than we were in 1980 and 25% more than in 2000. This is unsustainable.

We've managed to harness different, more sustainable technologies and use them to reduce our reliance on finite and damaging carbon-based energy. But to complete this journey, we need to significantly reduce our energy consumption as well. That's where we believe cities and towns can again drive progress. Smarter urban planning that allows for more walking, cycling and better public transport could massively reduce energy usage and rejuvenate our centres into the bargain. It could make us happier too.

Matt Crossman
Stewardship director



Urban centres
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endeavours



Why cities matter

Cities are strange beasts. Majestic and squalid, vibrant and overbearing, safe and dangerous. They are poems of opposites and contradictions. They are the complexity of humanity made form. Some people love them, some people hate them, everyone benefits from them.

The greater economic activity created by large centres encourages more opportunities for life, the exchange of ideas and commerce in great snowballing effects. This in turn throws off huge tax revenues that governments can use for the national good, in terms of infrastructure, welfare and other projects all over the country. A typical gripe is that cities soak up a lot of spending in huge projects, but in reality they tend to give much more than they receive.

Over the past couple of hundred years, one of the powerful forces improving living standards around the world has been a great, persistent migration from the countryside to towns and cities. Productivity and GDP growth are strongly linked to urbanisation.

China is the prime example. Back in 1960, just less than a fifth of Chinese people lived in urban areas. Now, more than 60% of the nation is housed in

towns and cities. We tend to think that most of the urbanisation in developed nations like the UK happened years ago, but even here the movement of people from rural abodes to urban centres has steadily continued. More than 80% of US and UK households now live in urban areas and the trend is for that to increase further. The same is true for the European Union, albeit slightly less urbanised. Meanwhile, about 60% of South Asia and 65% of Sub-Saharan Africa are still rural, which gives a hint to how much latent economic development is lurking in these regions.

Come together

A big reason for urban centres' higher productivity is that they are magnets for knowledge and skills. Even better than simply attracting skilled workers, they tend to create more knowledge and skills simply by virtue of bringing people together and allowing them a space to clash and collaborate. This spills over into new engineering processes, slicker technology and helpful new products. And it also helps inspire arts, theatre and other creative endeavours that in turn stimulate more creativity. It's for this reason that, globally, knowledge-based industries tend to cluster in larger urban areas.

But the productivity benefits (and wage bumps) created by these clusters

tend to be heavily concentrated in those centres. They rapidly fall away to virtually nothing just 25 minutes' drive away. At least, that's shown by research on US cities conducted by the James Hutton Institute in partnership with professors from Imperial College and the University of Minnesota. So the more of these skilled clusters we can create, the greater and wider improvement we can make to the wealth of our nation.

The lessons of planning sustainable cities are not only for huge cities like London, New York, Seoul and Mexico City. Perhaps more urgently, they need to be incorporated into the design and improvement of smaller cities and towns as well. That may be harder for local authorities and communities to fund. Bigger cities have more people and more people per square mile, offering both more tax revenue and greater bang for each buck spent on services, transportation, community resources and redesign. Yet, especially in the UK, central government appetite for 'levelling up' regional centres could mean towns and cities get the help they need. This would be extremely welcome. Yet politicians are innately attracted to big-ticket, splashy projects that look good on front pages. In reality, a raft of smaller easier-to-accomplish projects may be much better value for money. They tend to have a greater impact on the lives of more people too.

Smarter urban planning is probably one of the cheapest projects that authorities could embark on.

UK productivity has been depressed since the global financial crisis. This has been particularly acute in the regions and second-tier cities. Compared with other large nations, the UK's cities (excluding London) lag significantly in terms of economic performance. The average second-tier UK city's output is just 87% of the national average, the worst of all OECD nations. They don't score well in absolute terms either, beating only Poland and Mexico for economic output. This isn't meant to rubbish our smaller cities, but to highlight just how much good can be gained by investing in them and getting them humming again.

Now that many people are commuting less – and likely to continue working at or closer to their home towns – the opportunity is there for greater foot traffic, boosts to local commerce and a new lease of life for our smaller centres.

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Cities need nurturing

The rise of cities, both individually and as a concept, is not inexorable. In cities there are two opposing forces, constantly in tension, which shape them. The first is centripetal: the agglomeration of people, ideas, jobs and fun that attracts people in the first place. It's the reason cities exist. The second is centrifugal: the more successful the place, the higher-paying the jobs, the cooler the lifestyles, the more people want to join and the greater the cost of living there. Competition sends rents and property prices higher, demand makes services more expensive and overloaded resources make living there less bearable. The ebbs and flows of this great conflict have been playing out all over the world for millennia. It's why cities grow and fade, decline and rise again.

Arguably, the invention of cars has lent on the scales somewhat. By making it quicker and easier to cover large distances, it has made it more convenient to let towns and cities expand outwards in low-density homes served by roads, avoiding the potential intricacies of increasing density at the centre. But as our urban centres sprawl ever wider, choke points for road users – and trains – proliferate. That must be having some impact on productivity. It is definitely leading to more hours wasted on commutes each year.

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Not all urban development is equally urban. Much of the new housing stock, especially across the western world, tends to be suburban. Most new homes are large detached or semi-detached dwellings on big plots in sprawling commuter developments. Put simply, for much of the world, towns and cities were rebuilt in the 20th century for cars, not for people.









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The road to a sustainable future

In the 1988 quasi-animated film *Who Framed Roger Rabbit*, the baddy played by Christopher Lloyd waxes lyrical about a future where people will spend their lives getting on and off great ribbons of road all day and all night: "The freeway... my God, it will be beautiful". The film pokes fun at the idea that building more roads and bigger roads eases congestion and makes life easier for people. The evidence is overwhelmingly the opposite: roads are one of those paradoxical things that simply increase demand when you add supply. And that is exactly what has happened in the decades since.

Atlanta, Georgia is a case in point. The city's planners doubled down on building highways in the late 20th century, but that simply hollowed out the urban core and drove most inhabitants to decamp to new developments of suburban sprawl. With 90% of the population flung to the extremities, it meant more and more cars were having to commute each day. The average time spent stuck in Atlantan traffic each year soared from six hours in 1990 to 34 hours by

2000. As of 2017, that time had shot up to 70 hours a year. And Atlanta isn't even the worst city in the US! Los Angeles wins that battle, with a whopping 102 hours wasted in jams.

These congestion measures are a bit subjective, which makes them difficult to compare with other nations. However, the number of hours lost to bumper-to-bumper traffic in the UK is apparently even worse. Global analytics company Inrix put it at 115 hours in 2019. Those of us who have to brave our nations' motorways, A-roads and even local roads will no doubt be aware of this time spent fuming.

It's important to note that while the problem of bad traffic tends to be focused on cities and motorways, over the past couple of decades it has become a universal problem. Roads around smaller towns and in between centres have also filled with ever more congestion, particularly around box mall shopping set-ups that attract people from miles around, but which are accessible only by car.

Pushing back on suburban pull

After decades of road-focused development in the late 20th century, the problems with urban sprawl began to be acknowledged. Planning laws, processes and people's habits are slow in changing, but city living was again



in the ascendancy for the past 20 years. Mixed-use developments and denser neighbourhoods closer to urban centres became the buzzwords in planning circles and neglected inner-city sites filled up with new homes and businesses. Examples of these rejuvenations include King's Cross in London and Salford, Manchester. The digital revolution no doubt also helped, with good jobs being created in vibrant centres that fed off creativity and a mixture of ideas.

Then COVID hit. During the lost year of 2020, purchases of suburban homes offering more space and private gardens soared wherever lockdowns were implemented. Has the pandemic sent the densification trend into reverse?

There's a serious lobby effort to resist that suburban pull. The '15-minute city' is the catchphrase of the moment. The idea has been around for a while, but it was rebooted during the pandemic. It's a design principle that focuses on ensuring residents can find everything they may need or want within a 15-minute walk or cycle from home. That's work, shopping, entertainment, schools, restaurants and amenities. Obviously, this is pretty hard to retrofit across the world. And it is plagued with all sorts of inconvenient realities, like whether you want your kids to go to the school down the road or if you work in a factory on the other side of

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town. But the ideas make sense both in terms of resource efficiency and how people feel. Where these principles have been implemented, estate agent Knight Frank has measured a general increase in property values.

These more compact, mixed environments have been shown to make people happier as well. In December, a sustainable development report by The Prince's Foundation found the quality of life was greater in places where people could walk and cycle more. The report also showed residents had better physical and mental health too. These findings are backed up by a wealth of older research, much of it collated in the 2013 book *Happy City*, by Charles Montgomery. Mr Montgomery toured the globe looking at how improvements to city design can make our societies happier, less energy intensive and more connected.

Suburban development tends to clump people of similar means together, which can prevent people from meeting and getting to know people of different backgrounds, who hold

different views and have different economic realities. Not only that, but many people are less likely to feel neighbourly after long commutes. This can have a civic consequence, with the Social Capital Community Benchmark Survey showing that people living in sprawling areas of America are less likely to know the name of their elected representative or their neighbours, less likely to sign petitions, go to rallies or join advocacy groups. It may be that self-selection is at play: that people who are less inclined to engage with society live in homes that are more isolated, while more social people seek to live in denser areas. But the environment must have some impact on this.

Less is more

Of course, for these urban design ideas to really make headway, enough people need to buy into the idea that less personal space is a reasonable trade-off for more vibrant public space and better, cheaper amenities

and transport. That certainly hasn't been the choice made by most people for many decades now. Yet as traffic congestion gets steadily worse each year and the cold realities of climate change sinks in with more people, perhaps the pandemic will turn out to be a shock of change. If not, we could have a problem.

Suburban families pump out roughly twice the amount of greenhouse gas that's emitted by those living in denser centres. This is mainly down to the greater energy needed to heat bigger, detached homes and greater use of cars to get around. And there are myriad other things that wouldn't immediately occur to anyone who isn't a sustainability nerd: one case in point, petrol lawnmowers are about 11 times less fuel efficient than modern cars, so keeping the lawn trim can actually be highly polluting!

Our car-heavy transport system in particular is unsustainable. Even if all the petrol and diesel vehicles could be replaced tomorrow with electric alternatives, it still wouldn't be sustainable. Each new Tesla Model 3 costs 11 tonnes of carbon to manufacture, compared with 6.7 tonnes for a petrol-fuelled Toyota RAV4, because of the need to dig up and refine the metals needed for its lithium-ion battery. Shifting our existing electricity production to

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solely renewable sources will be no mean feat. Adding the capacity to completely offset the millions of litres of petrol and diesel used every day in cars, lorries and planes will be nigh on impossible. In the UK, transport burns between 10 and 15 million tonnes of oil each quarter, making it the greatest single usage of energy (household energy demand comes a close second). The numbers are stark: we must significantly reduce the amount of energy we consume in transportation.

The transportation revolution: make bussing cool again

All of this isn't to say we need to ban cars. They are extremely useful and they will continue to have an important place in the transport mix. But reducing their required use could have profoundly positive effects on our health, our happiness and our environment.

For many people, their car is the only option every time they leave the house. Shops, work, schools, gyms and parks often tend to be miles from where people live. That's because, for decades, the go-to design for home development has been low-density plots on cul-de-sac developments that make the economics of public transport unviable. According to the Department for Transport, half of English people never use a bus.

And because of declining riders (for buses outside of London), bus companies have had to hike prices to stay profitable, discouraging yet more people from hopping aboard. It's even worse in the US: 45% of Americans have no access to public transport at all, according to the American Public Transportation Association (APTA). There's also culture. For a very long time, in very many areas, public transport has been derided as an inferior option for poorer people. But younger generations seem to view public transport differently. They see time spent driving as time that could be spent on social media or connecting with communities, which means they are more likely to use public transport, according to research by APTA.

All around the world governments are planning large investments in green infrastructure: better transport solutions, cleaner energy and more efficient buildings in order to reduce

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our energy needs and clean up our emissions. Hydrogen-fuelled or electric buses, new carbon-light commuter rail and subsidies and infrastructure for electric cars are on the cards. The UK government has announced a £3 billion expansion of bus infrastructure across England. The strategy aims to build more bus lanes, simplify fares and transfers, and cap prices to encourage greater take-up. Yet for these to make a difference, they must be used.

Critical mass

Encouraging widespread take-up of public transport is a complicated calculation, but it can be broadly split into three main requirements. First, it has to be frequent and reliable enough that users don't need to check a timetable (every 15 minutes is the rule of thumb). Second, it has to be cheaper than and as quick as other options, especially driving. Third, it has to be easy and seamless to use.

Technology has really come to the party in recent years, with the rise of mobiles, contactless payments, quick and powerful wifi networks. This has enabled real-time routing information for customers and transport operators, contactless payment for quick and easy usage and fare calculation, and more comfortable and efficient vehicles. Urban planning

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must now pitch in by creating more sustainable towns and cities that can better support public transport. That means smarter development of housing, commercial space and public amenities. But it could also be as simple as dedicated bus lanes that allow public transport to escape the congestion of private cars and lorries. That could tip the balance of convenience from cars to buses, and wider take-up could bring economies of scale that make buses cheaper.

One very simple solution – that can be implemented quickly – is building and extending cycleways and bike-sharing schemes. Somewhere in the region of €1 billion has been spent across Europe on these sorts of projects during the pandemic. Bikes, whether shared or owned, really help tie urban transport systems together as they greatly increase the distance that people can travel from their homes to do what it is they need to do or access other types of transport. The trick is to make cycling feel safe, enjoyable and hassle-free for the majority of people.

Obviously not everyone can or wants to cycle, but by diversifying the options enough it reduces congestion in other areas. In other words, if cycling becomes feasible for many, then it will free up the roads for those who have no other option. The mathematics works aggressively in favour of reducing cars. A single-occupant car travelling at 30 miles an hour needs 1,500 square feet (sq ft) of road space. A bus with 40–60 passengers takes up just 75 sq ft per person; a moving cyclist just 50 sq ft. These numbers show that we don't need more roads, we need fewer cars.

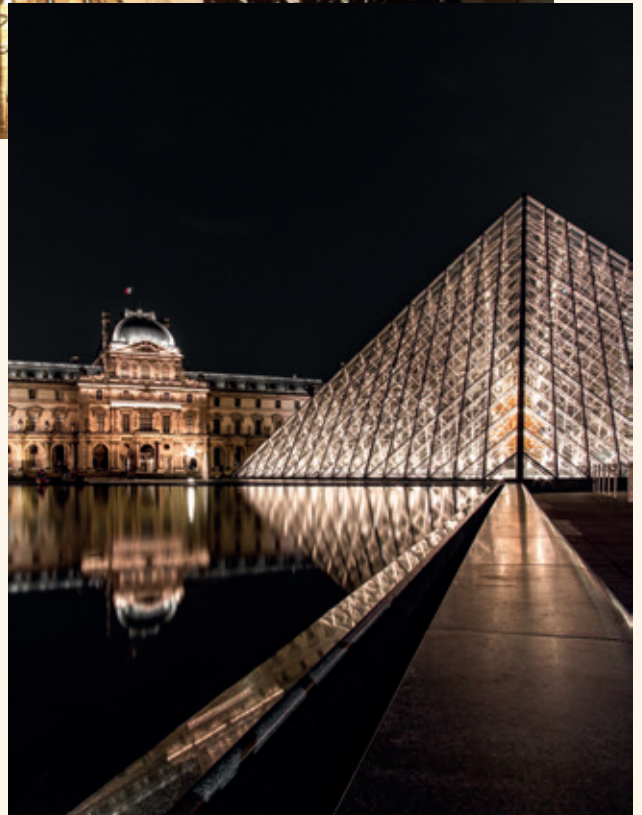
Cycleways have other benefits too. They are often linked with new and existing parks, and they can expand car-free areas and bring them to life. This can drive motorists up the wall of course. London councils' use of pandemic emergency powers to close many streets to traffic led to a pretty spicy backlash. Yet it also boosted the take-up of cycling considerably.

All around the country, bikes flew off the shelves creating a national shortage. In the first lockdown, London cycling journeys were between three and four times as high as pre-pandemic levels and they have remained significantly elevated since. If towns and cities can continue to support the use of these bikes, we could make significant cuts to our emissions, take the strain off our roads and improve our health into the bargain.

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The suburban 'waste' land

The interesting paradox is that many western nations are struggling with a homes shortage at the same time as many towns and cities are wondering whether they need all the commercial space they currently have.

If workers do continue with flexible working after the pandemic, the need for offices and retail should fall, simply because fewer seats will be needed each day. This should regulate itself as long as local authorities are flexible and developers are bold. If the value of office space falls, it should encourage new uses. That may be retrofitting large empty stores or offices into flats, food markets, schools, art spaces or, even better, a mixture. It may be best to demolish and build something new.

The sprawling creep of housing on the outer fringes of centres is eating up farmland on the edge of towns and cities. Reducing the amount of food that can be produced locally makes us more dependent on supplies from far away. While large, concentrated growing operations tend to offer greater yields for less cost, there needs to be a balance struck with the energy and emissions required in transport, especially if food must be shipped in from the other side of the world. The key could be simply making better use of renovation and

brownfield sites in centres, rather than spreading ever wider on greenfields.

Meanwhile, as centres grow wider and more sparsely populated, the strain on public amenities grows. It means more and longer water and waste pipes, more power lines and cables, and many more miles of fibre optic cables for internet. It's not just installing them either – they have to be monitored and maintained.

Something crazy like 3 billion litres of water are believed to be wasted each day in England alone because of poor pipes, according to the UK government's Environment Agency. That's the equivalent of the daily usage for roughly 20 million people, or almost a third of the UK population. Fewer pipes helps reduce the scale of this problem – as does technology. Digitisation and the internet of things has dramatically improved remote sensors and automated systems, making it cheaper, more accurate and easier to assess networks in real time. These dynamics are the same for cabling and power networks, too. With fewer, better-assessed conduits for water, power and the internet, we should be able to reduce costs and waste.

Breathing new life into the high street

As an area becomes less dense, it also becomes harder to gather the necessary demand to make things like libraries, swimming pools, schools



and clubs viable. The same arithmetic grinds on shops and other services too. Developing more homes closer to centres boosts the potential demand for all sorts of activities, both jobs and fun, that can create positive feedback loops throughout a community.

Greater ecommerce and changing habits have driven a steady decline in many retail high streets for many years now. Yet the key to rejuvenating these areas should lie in a similar path of renovation and rejuvenation. Shoppers have spoken: they don't want the type of shops that were there before. But by replacing them with spaces for things that people do want, by making towns nicer and more inviting, by drawing people into the towns to live or simply to shop, towns and cities could create healthier commercial ecosystems.

Physical shopping is not dead. The most memorable purchases tend not to be those made where the last thing you do is dutifully type in your CVV number. They are when you found that nice little store on the street near the sea, and the lady explained what was in it, how it was made and asked where you were from. They are when you took the train into the city to hand-test that gadget you'd had your eye on for a while, and the guy at the flashy flagship store gave you the pivotal advice you hadn't thought about and dropped in an unexpected discount for good measure. They are when you

head down to *your* hardware store, the one where they know your name, exactly where you're up to with the renovation, and are full of advice to help you get the job done.

Put simply, there is a time and a place for both online and in-person shopping. If every grocery shop is memorable, that's probably a bad thing. But no one wants to buy forgettable gifts. And when you're after advice or making a big purchase, you typically want to be there in person. Businesses need to recognise these dynamics and reassess how much property they need and the best way to use it. Cities and towns have to adjust as well, to ensure that these changes can be implemented.

The complexity of cities, the chaotic nature of them, should be encouraged where possible. For a long time, urban planning has tried to stamp this out, to impose order and segment our centres: shopping here, offices there, homes way over there. Instead, a jumbled mixture of options and solutions and friction is a feature, not a bug of towns and cities. It also makes them more resilient to crises and responsive to opportunities. Like a forest made up of only one type of tree, a centre that is reliant on only one industry, that has only one mainstream option of housing, that depends on one means of transport, will be lesser for it.





An opportunity too good to ignore

People have a propensity for focusing on the here and now. It's just the way we're wired. When we plan, many times we do so based on the most recent factors that have butted into our lives. The things that are pushing us to do something, to make changes, to react to discomfort. This can cause knee-jerk reactions and sometimes lays the groundwork for mistakes.

The pandemic has been so all-encompassing, for so long, that many of us are struggling to remember what life was like before. The frustrations of the daily commute. The chance encounters with new people, places and things. The joys of travelling – and the nightmares when our trips go bad! At root, we've all adapted to a new reality. One where commuting has vanished, along with the watercooler banter that sometimes inspires solutions to intractable problems. We're accustomed to new habits, like Zoom etiquette, lunchtime runs and home-delivered groceries. We're less attuned to the outside world, really.

The health emergency has soaked up all of our attention, yet there are many pressing problems waiting for us at the other end of lockdown. We are still pumping out way too much

greenhouse gas, spurring climate change to a dangerous tipping point. Our dangerous overuse of plastic – something that was squarely on people's radar in 2019 – has accelerated during the pandemic, driven by soaring home deliveries, takeaways and healthcare consumables like masks, gloves and virus-testing kits. In the five months to August 2020 alone, at least 14,000 tons of plastic COVID tests were used and incinerated worldwide, according to research published by Elsevier. That environmentally harmful waste will be many multiples higher now, given the ramp-up in global testing in the months since.

Once we have fought back the pandemic, we will have to work even harder to hit targets set by climate scientists to keep our planet healthy. We are also in the dark about how the huge changes in our habits will net out in terms of energy usage, carbon emissions and building requirements. At the moment all three are depressed, yet we won't know lasting effects until communities and businesses reopen. All this matters because we

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have to reduce the resources we use to fuel our lifestyles. Thankfully, digital technology and rapid progress in renewable energy and manufacturing make that an achievable goal, not a worrying cliff edge.

Bigger opportunity in smaller centres

When we think of cities, we immediately think of the mega cities: London, Hong Kong, Paris and New York. But the biggest opportunities for changing how we live are actually in smaller cities and in our towns.

By sparking new life in smaller centres, we could make widespread improvements in everything from people's health, to better job opportunities and general happiness.

Success will be improving *all* our cities – and our towns too – to make them better places to live, do business and shop. If this can be achieved, it should moderate the crushing forces of super cities that cement inequality of wealth and opportunity. It could prevent the young having to decamp from large swathes of the country to a big smoke that's miles away to have a better shot at a reasonable job. And it could go some way to defusing some of the antagonism that can exist between regions and pre-eminent cities.

In the midst of the pandemic, as we stand on the cusp of more flexible working patterns, many argue that the

city is dead. That may be the case. But if so, and the development strategy of sprawl accelerates once more, it would have truly horrifying effects on our world and its climate. It could also fuel our increasingly fractious politics, eroding our ability to work together to find the best solutions to the challenges we face. We are more optimistic than most about the fate of our towns and cities because they are where people come together. We believe the post-pandemic recovery offers a chance to invest in improving them.

Fewer long, energy-intensive commutes by car and train in favour of time spent working at home is a good start. But that benefit would be offset if it means people spend more time driving around their local area instead. We need to ensure that more of us are well served by schools, shops, eateries and public spaces and amenities that are all within walking and cycling distance. Meanwhile, we can harness smart sensor technology to ensure we waste less water, rethink land use to be more efficient, and redesign our centres to ensure they are more enjoyable and accessible to people.

This is way too much work to happen overnight, yet we should most definitely make a start. Making our towns and cities more sustainable is an opportunity too good to ignore.

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