Smart Cities

Future Proof Real Estate:
Is the property sector ready
for the 2020s?

Osborne Clarke

Helping you succeed in tomorrow's world.
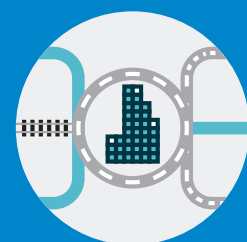
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Introduction from Osborne Clarke

Conrad Davies

Head of Real Estate and Infrastructure

Real estate is one of the oldest and most established asset classes. It has been a dominant source of wealth creation for a millennium and there has been an active market for real estate in Europe for several centuries. By comparison, the technology sector is in its infancy. Look back twenty years and the sector is almost unrecognisable – the speed of innovation in that time has been breath-taking and has had an unimaginable effect on almost every part of people's lives.

Some market sectors have been quick to adapt to this change. Either through consumer demand or sheer necessity they have invested heavily in technology and changed their business models to survive in this new connected world. Other sectors have been slower to respond. Where does the real estate sector fit into this mix? How has the old reacted to the new?

The sector has been criticised in the past as an industry which has failed to embrace technology – one of the last to adopt and innovate. However, this is changing. And it's changing rapidly. The market has woken up to the opportunities technology brings and there has been an explosion of interest in the use of new technology across every aspect of the property lifecycle. This is clearly a good thing for the sector but the pace of change will be disruptive. There will be winners and losers as the property industry grapples with the threats to old business models and the opportunities to capitalise on new income streams and emerging asset classes.

It will be critical for those in the property industry who wish to succeed in this ever-changing market

> As the worlds of property and technology increasingly merge, clients need lawyers with a deep understanding of both. Osborne Clarke has a rich history in these sectors and is committed to using that knowledge and experience to help clients succeed as they come together in tomorrow's world.

to have a deep understanding of technology and how it will impact their businesses. As the worlds of property and technology increasingly merge, it will also be important to work with advisors that have an understanding of both. Osborne Clarke has a rich history in these sectors. We've been involved in the property market for 250 years and have one of the largest real estate sector teams of any City law firm. We also have a market leading Digital Business sector team. Technology underpins everything they do in that sector – it's what they specialise in and what they are known for.

Over the last few years we've been working hard to combine our knowledge of these two sectors. We are very aware that the advice we give our clients today will not be the same advice they will require tomorrow - they will demand future focussed lawyers that can use their technical knowledge across sector boundaries and find creative legal solutions that keep pace with market change. A fascination with what the future holds for our clients is what drives us as a business. It is also what made us want to produce this report.

By researching the views of over 500 technology experts across Europe, this report starts to build a picture of how the technology sector thinks innovation will change the face of the built environment over the next three to five years. Supplemented with interviews from property industry insiders, it also looks at the scale of the challenge and the opportunities that innovation will bring to the sector, not just across the industry as a whole but in specific real estate asset classes.

There are some really interesting findings on the following pages but we're not pretending we have all the answers. That's to be expected. Innovation isn't an isolated event, it's an on-going process. This report represents the start of the journey for us not the end. By staying at the forefront of innovation in our chosen markets, we know we'll be in a great position to help clients succeed with the issues they face today but more importantly be in the best possible position to help them stay ahead of the pack as they face the changing world of tomorrow.

Executive summary

The worlds of property and technology are converging at an ever faster rate.

Demand from fast-growing tech firms has driven new office formats and the growth of co-working to become the dominant factor in the evolution of the workplace.

More recently, their influence has spread into the very workings of the property industry, changing how business operate and bringing greater efficiencies into the planning, execution and management of buildings, cities and neighbourhoods.

The technology world moves at pace and the challenge for property's early adopters will be to invest wisely and employ tech solutions that will deliver long-term benefits and suit today's evolving lifestyles.

But how does the property industry decide where to direct the billions of pounds of investment and ensure that buildings are future-proofed into the 2020s and beyond?

The answer is to gather the views of Europe's leading tech experts who are not only developing the innovations but also have strong views on their applications across every aspect of the built environment.

In the eyes of the technologists, property companies need to be ready to act quickly with most emerging tech trends being ready for wide scale adoption by 2020. Big data, IoT and 3D printing will come first with AI and autonomous vehicles coming on stream shortly after.

The vast majority (83%) think that tech experts should play a key role in how the built environment operates, with a similar number (82%) stating the technology can help alleviate the housing crisis, one of today's most pressing issues.
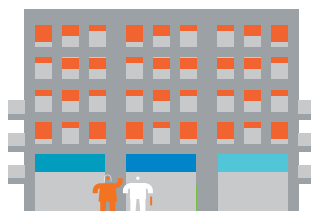
Property companies need to be ready to act quickly with most emerging tech trends being ready for wide scale adoption by 2021.

Technology rich PRS accommodation will boost its appeal and fuel growth by enabling operators to offer new services and increase income. This will particularly appeal to the younger generation choosing this type of accommodation over buying their own home and older generations wanting to downsize into 'homes for life' that can monitor their health and safety.

Unsurprisingly, new technologies that simplify the rental process and deliver cost savings are being prioritised in the student housing market, with 88% stating that tech should help students to optimise their environment to suit their needs. Nearly a third think that VR will have a significant impact on the market which will be particularly helpful with overseas marketing; however most agree that AR/VR will never replace physical viewings.

Whilst the concept of digital cities led by tech giants such as Google and Microsoft is still in its infancy, over three quarters of those polled think that they are likely to become significant landlords in the office market. This is perhaps unsurprising given that consensus (83%) in the tech world is that occupiers will be happy to pay a premium for high-tech workspace.

European technologists see the increasing demand for smart logistics and efficient last mile deliveries as a key focus area. Nearly all (92%) think that autonomous vehicles will shake up the distribution of warehouses, with less attention (72%) given to drones as the answer to the war on space for last mile logistics

Interview

Palmer Capital Partners' whole investment and development approach is geared to future proofing assets for investors in the £860 million of property it has under management.

Chief executive Alex Price says: **"We are preparing our buildings for what we believe will be a technological revolution led by our customers."**

With 82 properties forming the focus for its direct real estate investment management business, and stakes of around 33% in eight regional developers, Palmer Capital Partners certainly has an interest in ensuring that everything it buys and creates is future-proofed.
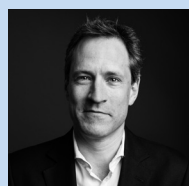
So much so that Price has recruited Palmer Capital Partners' first director of innovation in a completely new role, with 75% of that hire's time to be spent on analysing data for the benefit of investors and tenants.

For example, Palmer Capital is planning to provide data to tenants on how they use the buildings they lease, bringing innovations like the Internet of Things to the fore, so that the property performs better for the people that actually pay to use it.

"We want to put software at the heart of the building experience. People will increasingly expect property to be a service rather than a fixed asset."

"Corporates will start saying over the next five to 10 years that they are prepared to pay more rent per desk, but in return they will want more flexibility, with control over the size and length of that commitment."

"In a world where corporates business models need to adapt at an ever increasing pace, landlords will have to deliver on this otherwise the flexible offices world will do it instead of us."

"The whole property sector needs to get away from thinking about just building and owning buildings, and to start thinking about our customers first."

Palmer Capital Partners has also turned its attention to the nature of those customers themselves, with the reality dawning that an organisation which leases a property for 10 to 15 years in 2017 is likely to have fundamentally changed by the end of that lease.

"All bar one of the top six of the world's biggest companies today didn't exist a generation ago, and in an era where the brand is key, how do you judge the strength of a customer's covenant from old style metrics?"

"Against this backdrop, we want to curate a mix of companies within our multi let assets, so that we create an eco-system within those properties that is perpetually growing – as we have achieved at two R&D facilities we owned – Colworth Park and Discovery Park. It goes back to real estate being a service. Above all we need to develop properties that people want to go to."

Price also foresees urban car parks disappearing within the next 15 years as driverless vehicles negate the need for people to park cars they own, and most of the UKs shopping centres dying, apart from the very biggest with critical mass and the potential for a broader entertainment led offering as well.

Small details matter to Price as well. Palmer Capital development partner Cubex's new Aurora building at Finzels Reach in Bristol has a drone landing pad on its roof in preparation for more and more deliveries being made by air. Future proofing is everything in the world of Alex Price.

Alex Price
**Chief Executive
Palmer Capital Partners**

2020 vision

Q: What sort of impact do you think each tech item will have on the built environment from now up to the year 2022?
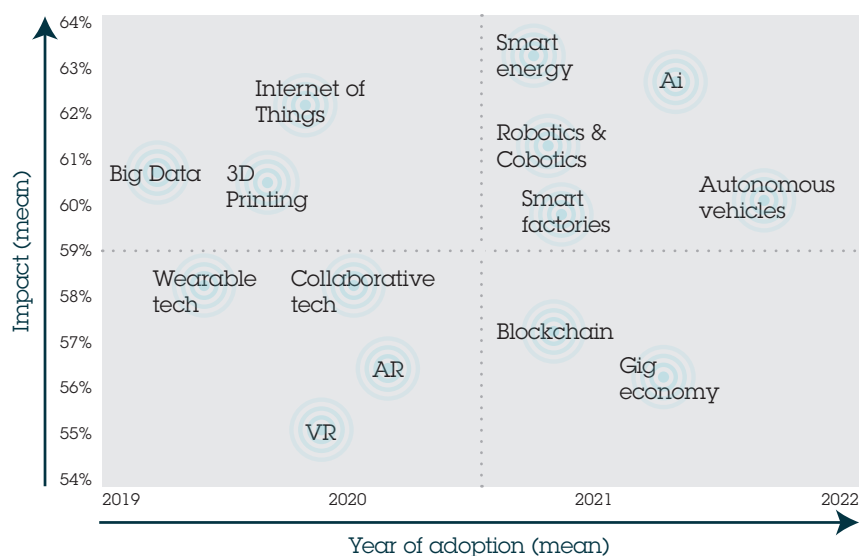
European tech experts think that by 2020, the main areas of technology driving change in the property industry will be commonplace. The top 3 are Big Data (73% believe it will be in common use by 2020), 3D Printing (70%), Wearable devices/ tech (69%).

Interview

Uncommon's name gives a strong hint at their very individual approach to property development.

Managing Director Gal Adir explains: **"People often perceive the future as a world where everything is done by machines and that the premium on human interaction will be lost. This couldn't be further from how we approach our business at Uncommon.**

We are people-centric and everything is focused around the individual and providing a personalised service. This could draw on the latest technology, but also on the latest thinking in terms of understanding the human psyche."

Not only is the company looking at how technology and the co-working trend is changing the face of the workplace, it is exploring co-living concepts as well, tapping into the growing preference for people looking for ways to seamlessly blend their working and living arrangements.

"We are currently investing in live/work hybrid homes which are aimed at a younger demographic. The concept is called 'Nuper' and it aims to create housing in London affordable to young talent who would otherwise not be able to afford to buy in the city. If you marry together the two – co-working and co-living – you can afford to create better, tech-driven services."

Rather than focusing on amenities such as cinemas, gym, pools etc. Uncommon is thinking about ways to support time-strapped young people with services that help them to manage their lives better. For example, all options would be made available via their clients' smartphones through an app, from lighting and maintenance through to laundry and food deliveries.

Adir says: **"What you are basically doing is offering a cost-effective hotel-like service and this in turn has an impact on design and configuration. Flats can be designed differently with no boilers, washing machines etc. But this can only be done at scale and if you combine office and living in the same building – a seamless life solution where you can actually earn your time back.**

"Proptech" is currently a big buzzword in the industry but it is actually the buildings that are changing and it is also have a big impact on the job roles of the people who work in it. The rise of hotel-like operations in residential living is creating significant employment, for the tech community creating the apps and the service providers themselves.

However, it is people's living and working preferences that are driving these changes and it is people-driven ideas that are meeting them; that is why there will always be a premium on human interaction and the feedback loop in the property world."
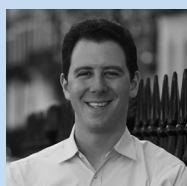
Gal Adir
**Managing Director
Adir Group**

The cost of focusing too heavily on cost

Q: How strongly do you agree or disagree with the following statements about the property industry

The integration of technology is too often removed when development costs are reviewed

| 28% | 52% | 18% | |

They struggle to harness the impact of tech on their industry

| 27% | 53% | 18% | |

They're focusing too hard on the cost of technology and not enough on the benefits

| 26% | 55% | 17% | |

They believe short term construction costs are more important than long term benefits of tech

| 25% | 54% | 18% | |

Property technology struggles to be included in infastructure planning at an early enough stage

| 24% | 56% | 17% | |

They are playing safe bywaiting for the tech sector to show how to best integrate tech and demonstrate the ROI

| 24% | 57% | 18% | |

- ■ Strongly agree
- ■ Slightly agree
- ■ Slightly disagree
- ■ Strongly disagree

Technology adoption is being prevented due to the property industry being too focused on costs over benefits (81% agree), not being included in infrastructure planning (81% agree) and due to a belief that construction costs are more important than the long-term benefits of technology (79%).

Interview

As one of the early entrants into the proptech world, Co-Founder and Chief Executive Christian Faes has a unique insight into the evolution of the sector and the level of adoption.

He believes that given the way that technology is now shaping our cities, it is surprising that it is not a bigger factor when companies develop their investment strategies.

"Momentum is gathering with the Government investing in transformative tech solutions which will greatly impact the built environment and bold companies are investing a lot of money into developing some futuristic concepts that will change how we live in and move around our cities.

The standout example of this is Artificial Intelligence and autonomous vehicles. There is already a flying car prototype, for example, with features such as solar power and vertical take-off. Imagine the changes we would see if mass adoption is achieved; there would be less roads, different parking requirements and a reduced need for people to live so close to their place of work."

Faes predicts that we could see vehicles in our skies as early as the 2020s but there are other areas where the impact is being felt already, citing Internet of Things capabilities in homes and Building Information Modelling in office buildings.

"Technology is helping the property business to become more transparent and data-driven which in turn helps to unlock new development opportunities. From using Land Insights to assess the viability of various sites and planning permission through to Settled and ViewMyChain providing conveyancing and online agency services, new innovations are bringing greater efficiency."

Faes views the multiple proptech acquisitions by some of the biggest names in the industry, one example being Savills investment in YOPA, as evidence that resistance to change is wearing away. He believes that property companies are embracing and learning from this investment, putting money into these companies and financially benefitting from them.

"The level of collaboration is often impressive with senior figures taking seats on the proptech company's Board and a highly structured approach to ensure close team work. The result is a neat way for large firms to become more nimble in spite of their size and complex management processes.

"Put simply, technology companies are helping property companies to innovate and accelerate the pace of change"

Christian Faes

**CEO & Co-Founder
LendInvest**

Tech experts are leading the way

Q: How strongly do you agree or disagree with the following statements about tech experts and their impact on the built environment?

They should play a key role in how the built environment operates

Strongly agree	Slightly agree	Slightly disagree
29%	55%	15%

They struggle to communicate to investors the costs and benefits of tech in the built environment

Strongly agree	Slightly agree	Slightly disagree	
25%	53%	20%	

They're showing the property industry how to integrate tech into the build environment

Strongly agree	Slightly agree	Slightly disagree	
22%	57%	18%	

They underestimate the current impact of tech on the built environment

Strongly agree	Slightly agree	Slightly disagree	
22%	58%	17%	

- ■ Strongly agree
- ■ Slightly agree
- ■ Slightly disagree
- ■ Strongly disagree

The vast majority of respondents (83%) think that tech experts should play a key role in how the built environment operates.

Interview

Built-ID is the digital platform to head for if you want to discover who and what are the biggest agents of change in the built environment. Founder & CEO Savannah de Savary believes that technology's biggest players are right at the forefront.

"The single, greatest impact that technology giants such as Apple, Google and Facebook are having a on the built environment – both in terms of how they are shaping their workspace and local communities and their recent move into creating digital cities – is that property companies are realising that they need to up their game."

De Savary raises the **"Amazon effect"** on Seattle as a prime example. The tech company's headquarters and operations in Seattle has been credited with adding $38 billion to the city's economy, with a commensurate impact on real estate values and employment.

In New York, de Savary points to Samsung's new office and **"digital playground"** retail concept as having a transformative impact on the meatpacking district in NYC, alongside a plethora of other notable tech and cultural lettings.

Closer to home, she sees brands such as Google at King's Cross, Snap at Fitzrovia and Twitter in Soho as perpetrators of "real estate ripple effect."

"Landlords are bending over backwards to woo tech companies and moreover, looking for ways to replicate their approach to real estate. They have observed how these companies approach workspace design and spread their influence into place making, using music, art and culture to attract the best and create destinations."

De Savary also believes that tech companies are influencing building design and sustainability. Her reference point on this is Bloomberg's new European HQ in London has just been voted the world's most sustainable office building with a plethora of innovative operational, power, lighting, water and ventilation systems.

"Founder Michael Bloomberg was very much the visionary for this, working in partnership with architect Norman Foster, and the result is a shining beacon for other companies and city planners to try and emulate."

De Savary hopes that the symbiotic relationship between the worlds of technology and property continues to flourish.

"Technology is now shaping every aspect of our world for the better and the same applies to the built environment!"

Savannah de Savary

Founder & CEO
Built-ID

Pushing and holding Smart Cities

Q: Which groups do you believe are holding back the creation of smart cities?

Q: Which groups do you believe will help encourage the creation of smart cities?

Q: Which groups do you believe has the 'know how' for the creation of smart cities?

Occupiers
- 37%
- 19%
- 11%

Governments
- 33%
- 19%
- 12%

Property developers
- 33%
- 24%
- 19%

Tech giants
- 30%
- 48%
- 54%

Property builders
- 29%
- 22%
- 17%

Property investors / owners
- 26%
- 20%
- 14%

Tech start-ups
- 25%
- 52%
- 54%

Universities / education institutions
- 18%
- 42%
- 40%

None
- 7%
- 3%
- 4%

Other
- 2%
- 1%
- 1%

- ■ Groups holding back the creation of smart cities
- ■ Groups who will encourage creation of smart cities
- ■ Groups that have the 'know how' to create smart cities

'Tech giants', 'Tech start-ups', and 'Universities/ Education centres' are seen as the main groups helping encourage the creation of smart cities and those who have the now-how. On the other hand, 'Occupiers' (37%, 'Governments' (33%), 'Property developers' (33%) are seen as the main groups holding back the creation of smart cities.
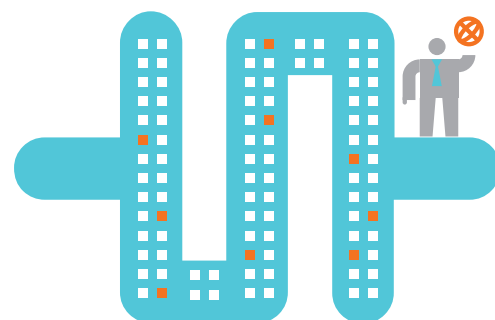
Interview

As Head of Smart Cities at global integrated infrastructure firm AECOM, Alex Tosetti is constantly occupied with divining the future of the built environment.

He has an oversight across every major city in Europe, from London to Paris, Frankfurt to Madrid, as each powerhouse not only competes for business ahead of a post-Brexit world but also seeks to compete on a digital world stage.

The digital battleground focuses on how these ancient cities, with histories often stretching back thousands of years, can adapt themselves to the future without disrupting their heritage and existing infrastructure.
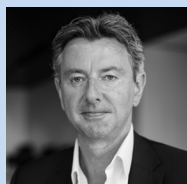
So, for example, AECOM is currently focusing heavily on Dublin's Smart Motorway Network, acting as a master planner and procurement adviser for Ireland's equivalent of Highways England as it wrestles with traffic flows in what has become a highly congested city.

As developers and technology experts are also finding, the key issue on Tosetti's mind right now is future-proofing the built environment.

"Even if we don't know exactly what technology to install today we have to add in future-proofing contingencies," says Tosetti.

"How do we plan for a development like [London's] Old Oak Common, where regeneration will continue for 10 or 20 years ahead? Whatever happens those projects need a `digital overlay', allowing technology to be installed as it develops.

Technology can help not just with efficiency but also with air quality in a city like Dublin. Among other things the idea is that anyone setting off by car for the city centre will know where they are going to park when they get there."

"First, that saves time; second it saves people from driving around aimlessly polluting the atmosphere. That's future proofing in the purest sense."

The biggest issue exercising minds right now is `how do you transition from one technology to another?'.

Tosetti explains that while driverless vehicles are expected to become dominant in western cities in the next 10 years rural areas will still see car use in the ascendant – making for a potentially uneasy mix as two technologies merge on in semi-rural areas.

"In cities young people already don't see the benefits of owning a car, and we foresee 20-30% of the traditional vehicle for car-drivers disappearing fairly quickly. What does that mean for garages, parking spaces and the buildings adjacent to them?"

In common with others interviewed for this report, Tosetti says that the focus of AECOM's work is on changing human behaviours rather than looking back at what has shaped the built environment up until now.

Tosetti sees the growth of build-to-rent as one of the biggest further drivers to ensure that the real estate world is future-proofed.

With build-to-rent customers far more conscious of their surroundings than, say, logistics tenants, Tosetti foresees a world where people take a greater share in the running and organisation of their communities, paying for amenities as they go.

"They all want to be in digital cities", is how Alex Tosetti sums up the mood across the world, as power brokers look to future proof their whole environments.

Alex Tosetti
**Operations Director & Head of Smart Cities
AECOM**

International comparisons

Q: Which EU cities are currently advanced/leading in the usage of tech in the built environment and are expected to be relatively advanced/leading in such usage five years from now?

London
42%
39%

Amsterdam
28%
33%

Berlin
26%
32%

Paris
23%
32%

Stockholm
23%
29%

Munich
15%
22%

Copenhagen
17%
22%

Helsinki
16%
21%

Brussels
13%
17%

Luxembourg
10%
14%

■ Now
■ In 5 years (G4)
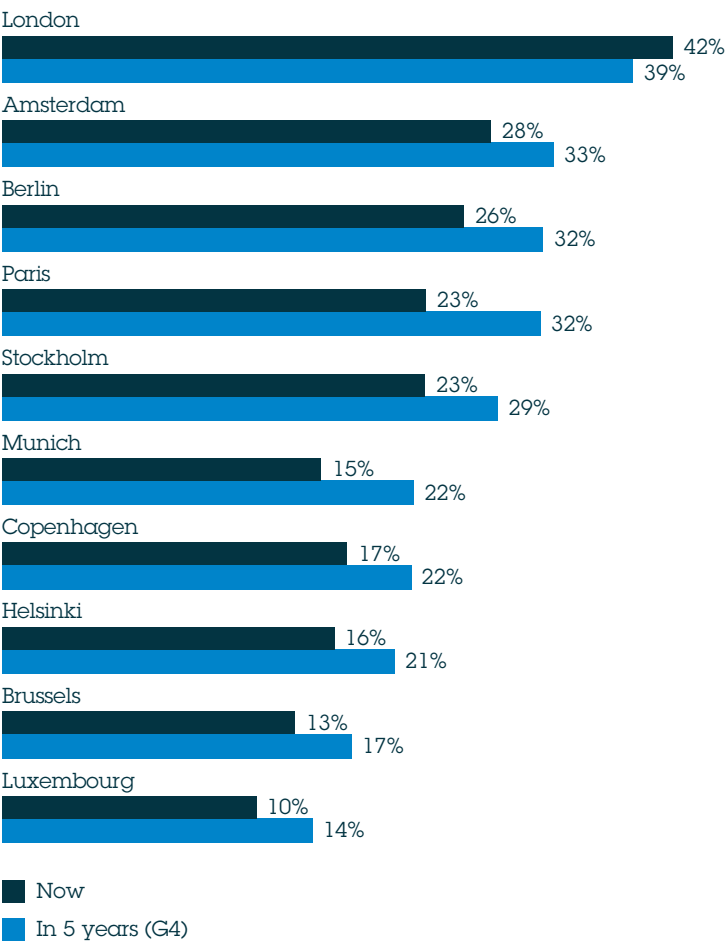
London, Amsterdam, Berlin, Paris and Stockholm were the top 5 cities which are both currently leading in the usage of tech in the built environment and are expected to still be leading 5 years from now.
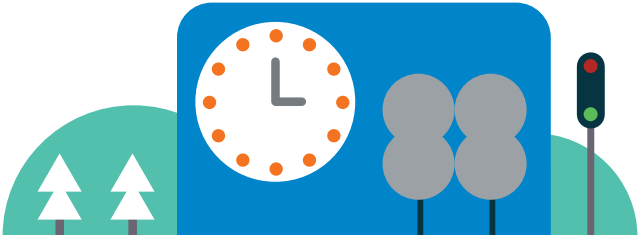
Interview

Frederic Gyon
Syntesia

BIM and data management consultancy is the core product of French company BUILDERS SOLUTIONS (formerly SYNTESIA) which puts it front and centre of the proptech industry, according to Chief Executive Officer Frederic Guyon.

BUILDERS SOLUTIONS has developed SOFYA which brings together data from a buildings entire life cycle on to one web & multi devices platform, enabling a high level of collaboration between all parties involved in the design, construction and management of the site.

Guyon explains: **"Through SOFYA we are able to create a 'digital twin' of a building which holds all construction and operational information, to monitor and make decisions based on a real-time understanding of how a building is being designed, built and used by its inhabitants."**

SOFYA can use IoT and sensor technology to look at how many people are using the building and identify if certain floors are not being used equally. SOFYA can then recommend a cleaning schedule and pre-emptive maintenance checks based on actual usage.

Guyon describes the technology as a **"digital and cultural revolution"** which will enable the sector to adopt a more customer-centric approach and achieve significant cost savings for operators.

"BIM technology is paving the way for buildings to be sold according to the services it provides to occupiers. It is a compelling offer to occupiers that they will be able to run their buildings based on an accurate understanding of how their people like to use their buildings."

"Obviously, developing this kind of technology costs a lot and uses a lot of resources. Therefore the challenge is where to invest your money. In the end, we keep about 30 to 40% of the product for ourselves and the remainder is developed alongside our partners. This enables us to spread the cost as there are often 200 people involved in the mature stage of the technology, to maintain, improve and keep on creating new services."

William Bateman
Round Hill Capital

As a real estate investment and asset management firm with a global footprint, Round Hill Capital is keeping close tabs on the key differentiations between the proptech communities cropping up across the world.

Managing Director, William Bateman explains: **"In the US, better funding is available, so startups are more prominent and consolidated and there are less cultural barriers to wide scale adoption.**

"In general there are smaller markets in Europe like Poland, Austria, Finland, Portugal that have good talent and interesting companies but less depth and certain specialisms are notable. The UK is strong in IoT, the Germans have great hardware and the Swedes are leading the way in telecoms.

Also on a macro level, Bateman believes that autonomous vehicles will change cities for the better but not without some challenges along the way.

"In the near-term, we could actually see more cars on the road as both conventional and autonomous vehicles share space at the same time. Efficiencies will only come in once the shift to driverless options is complete with things like mass transit systems that aggregate people according to demand."

Looking further ahead, Bateman believes that whilst key cities such as London will remain the epicentres for art, culture and business, smart transport and communications systems will allow buildings to spread out further into suburban locations which will lift the strain on urban communities.

"It's basically going to take a lot of tech to shift to this new concept of 'space as a service' where buildings provide people with the tools that they need to optimise their lives, no matter where they are."

Frederic Gyon
CEO
Syntesia
(affiliate of Building and Partners Group)

William Bateman
Managing Director
Round Hill Capital

International comparisons

Q: Which top 4 areas of tech do you consider will have a significant impact on logistics?

Big Data
- 40%
- 39%
- 44%
- 33%
- 43%

Artificial Intelligence (AI)
- 38%
- 41%
- 37%
- 31%
- 43%

Robots & Cobotics
- 35%
- 34%
- 30%
- 41%

Virtual Reality (VR)
- 29%
- 35%
- 31%
- 29%
- 19%

Q: What top 3 areas of tech do you consider will have a significant impact on offices?

Collaborative tech
- 37%
- 32%
- 29%
- 39%
- 48%

Big Data
- 37%
- 34%
- 39%
- 33%
- 41%

Artificial Intelligence (AI)
- 32%
- 31%
- 31%
- 32%
- 32%

Legend:
- All
- UK
- Germany
- France
- Netherlands
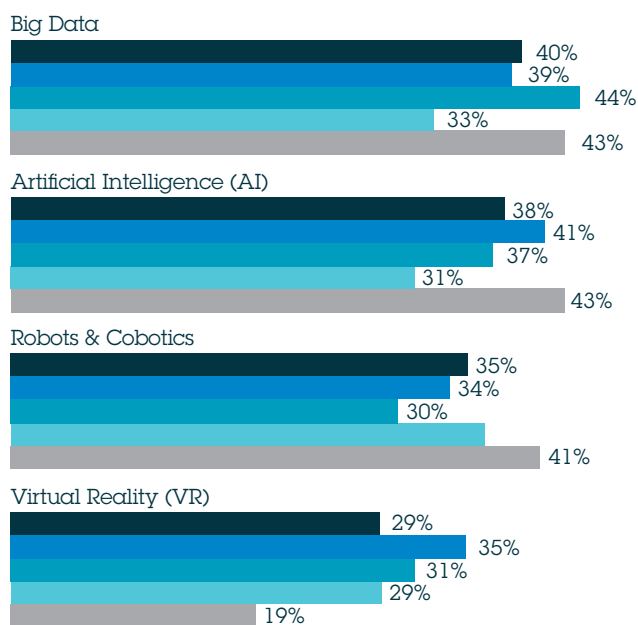
Dutch tech experts are the most receptive to the impact of various technologies on logistics, when compared to their counterparts in France, Germany and the UK, where the expected impact of tech on logistics is much lower.
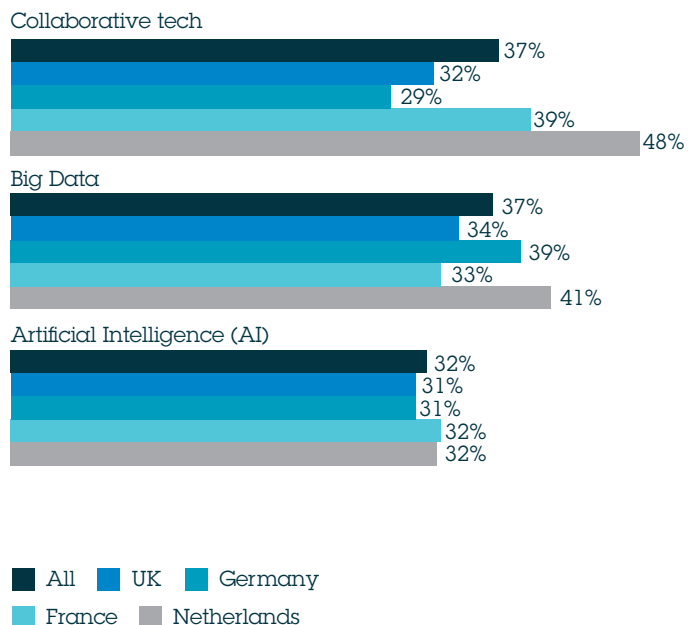
More Dutch and German tech experts seem to predict that these technologies will have an impact on offices than tech experts in the UK and France.

Interview

Mattias Ljungman
Atomico

As an investor in some of the world's most disruptive technology companies, Atomico's activities in the property technology space are unsurprisingly predicted to bring significant change to the built environment.

Partner Mattias Ljungman says: **"I think it is impossible to look at each tech trend – AI, IoT, Big Data – in isolation as what is important is how they interact with one another.**

The most ambitious solutions will draw elements from them all which means that the impact will be felt at a much faster rate.

"Take the concept of digital cities, where multiple solutions will combine to provide a more sustainable and convenient way of life. One example from our portfolio, Lilium Aviation, could have a role to play with their electrically powered commuter plane, capable of taking-off and landing vertically on a patch of land no wider than its own modest wingspan."

According to Ljungman, the commuter plane has the power to fundamentally change the transportation system. Car ownership will no longer be required as the vehicles could be shared as they could drive themselves back to a car pool at the end of each journey. Or they could operate in a similar way to trains or taxis that people can hop in and out of as needed.

"Lilium Aviation is actually more cost effective than people realise and will be easier on the public purse as other transport methods like high speed trains require infrastructure such as tracks and stations.

"In a world of autonomous flying cars, we could see anything from five to five hundred vehicles housed on roofs with customers only paying for what they use."

Atomico is looking for dynamic governments and countries to buy-in to this vision and see Lilium as an easy way for them to make a strong impact in the area of sustainable transport.

"Contrary to what some people might think, managing the skyways is actually much easier than on earth where you have to contend with more conflicting and existing uses."

In the property finance space, Ljungman believes that blockchain could also be quite transformative.

"Transactions could be made far simpler and won't need to be done with the usual host of service providers. Blockchain enterprise solutions would hold data on proof of ownership and proof of work.

As a result the property business will be more lucrative as ease of transaction always attracts liquidity, making investment into the sector more attractive and cost effective.

We are currently seeing fundamental changes across the economy as a result of new technologies and are in a period of acclimatisation. This is a very good period at the moment and we see this level of momentum continuing for at least the next three years".

Mattias Ljungman
Partner
Atomico

Innovate to alleviate housing shortages

How do you believe the following technology will change residential accommodation in the following ways?

A greater variety and convenient services for residences

30%	63%	6%

New income streams from residences

26%	61%	12%

Greater utilisation of limited spaces

24%	60%	14%

Delivering cost effective housing

22%	56%	18%

Help solve the housing shortage by accelerating delivery

22%	60%	17%

Greater density at key locations

22%	60%	16%

- ■ Significantly improve
- ■ Slightly improve
- ■ Slightly decrease
- ■ Significantly decrease

82% of European tech experts believe that innovation can help solve housing shortages by accelerating delivery through greater utilisation of limited spaces (84% agree), delivering cost effective housing (78% agree) and delivering greater density at key locations (82% agree).

Interview

Lee Bishop
Taylor Wimpey

Technological advancements can and are adding significant improvements to the housebuilding industry, however their introduction needs to be planned and executed carefully, says Lee Bishop, Director at Taylor Wimpey Major Developments, a specialist business unit responsible for delivering large scale mixed use residential schemes.

Part of one of the UK's largest residential housebuilding firms, Taylor Wimpey Major Developments are currently trialling a wide range of tech innovations to help meet and exceed the ever-changing expectations of today's homebuyers. Lee explains: **"Our goal is to change expectations of what is standard by reviewing every aspect of the way that living spaces are used. And we are looking to technology to improve our customer experience."**

Acknowledging that in the near future there may be a need for additional infrastructure to support new big data applications, Bishop's team are looking into the potential of 5G-powered developments. The business unit believes that health, fitness and energy consumption management via apps or trackers are just the initial drivers, and that a plethora of other customer-specific, tech-based services will become more mainstream in the housing sector soon.

"We are paving the way for lifestyle customisation. Our team is currently exploring virtual showhouses which will enable our customers to personalise their homes via their smartphones with access to both décor options and a services menu," says Lee.

As a business Taylor Wimpey as a whole is responsive to shifts in the housing market and is always on a lookout for new opportunities in terms of tech innovation to help transform their houses into homes for their customers.

"We take this responsibility seriously and are giving a lot of thought to the sustainability and wellbeing benefits that should come hand in hand with the adoption of new technology when it comes to housebuilding," concludes Lee Bishop.

Lee Bishop

**Major Development Director
Taylor Wimpey**

Smart to rent

Q: How do you consider smart buildings and usage of technology in professionally operated private rented accommodation will impact the following?

Younger generation choosing this type of accommodation instead of buying their first home

26%	47%	24%	

Professionals choosing this type of living to make their lives more simple

24%	49%	22%	4%

Older generations selling their homes to move into this type of rented accommodation

21%	49%	25%	4%

Number choosing this type of accommodation in your country overall

17%	55%	23%	4%

■ Increase a lot
■ Increase a bit
■ No impact
■ Decrease a bit
■ Decrease a lot

Smart buildings will help build-to-rent accommodation become more attractive to: the younger generation who will choose PRS instead of buying their first home (73% agree) and older generations selling their homes to move into private rented accommodation (70% agree).
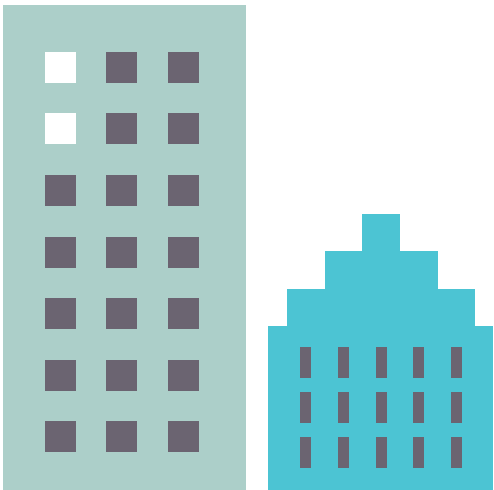
Interview

Whilst traditional factors such as the value of the land and amenity space still drive investment decisions, M&G Fund Manager Alex Greaves foresees a future when tech provision takes centre stage.

"In the residential space, we are increasingly looking at how a home can make an individual feel and technology is playing a big role in that. The wellbeing aspects of the building – temperature, ventilation, comfort, convenience – are increasingly being improved through technology."

M&G are closely watching the imminent arrival of autonomous vehicles is one area of technology that will have a massive impact on the built environment with driverless cars having the potential to reduce road congestion and new parking solutions reducing the need to build parking spaces.

Greaves believes that the retail and logistics sectors will also benefit greatly from their potential to boost efficiency and reduce cost.

"From a design perspective, the industrial sector will also need to start thinking about the inclusion of space for 3D printers. This emerging technology could provide one way of solving the challenges posed by the rise of e-commerce and click and collect with goods made on demand and closer to consumers."

Like many others, M&G are following how the tech sector has been one of the key drivers behind the co-working and co-living trend but are adopting a slightly more cautious approach.

"We see the potential but our view on this is that there is a ceiling for these types of product as they work well for a certain, transient stage in the person or company's life. People still like to have their personal space.

However, one area with more potential is the combination of co-living and co-working all in one space as there is a market for people wanting to move seamlessly between the various elements of their lives."

In Greaves' view, the massive uptake of 'big data' applications across all asset classes is a natural progression from the retail sector's reward cards which were developed to understand consumer behaviours from a property point of view.

Within the company itself, M&G use a variety of software and apps to manage their residential portfolio including Yardi to provide a complete business oversight and an app for residential customers to manage their accounts. M&G have also recently started using Dashflow, a new app that assesses potential investments at a click of a button.

"In the future, big data will play an increasing role in understanding how buildings are used and it will be exciting for the property industry to make decisions based on this level of insight into our customers, ultimately making better places that are in line with our fast-changing world."
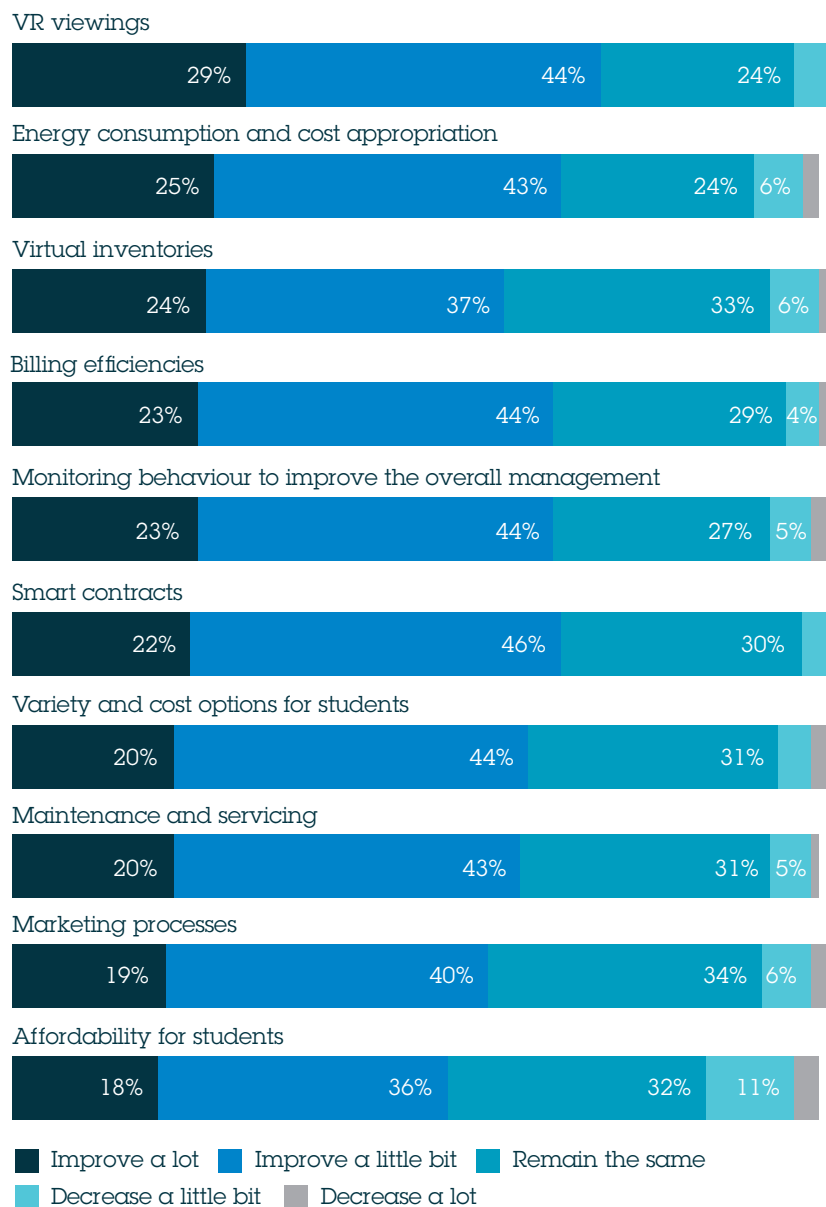
Alex Greaves
**Fund Manager
M&G**

Wired students

Q: How do you believe the following technology will impact the rental process in the student accommodation market?

Tech that saves students time and money will have the most impact; VR viewings (72%), energy consumption and cost appropriation (68%), and monitoring behaviour to improve overall management (68%) are the elements which are most likely to improve.

VR viewings

| 29% | 44% | 24% | |

Energy consumption and cost appropriation

| 25% | 43% | 24% | 6% |

Virtual inventories

| 24% | 37% | 33% | 6% |

Billing efficiencies

| 23% | 44% | 29% | 4% |

Monitoring behaviour to improve the overall management

| 23% | 44% | 27% | 5% |

Smart contracts

| 22% | 46% | 30% | |

Variety and cost options for students

| 20% | 44% | 31% | |

Maintenance and servicing

| 20% | 43% | 31% | 5% |

Marketing processes

| 19% | 40% | 34% | 6% |

Affordability for students

| 18% | 36% | 32% | 11% |

- ■ Improve a lot
- ■ Improve a little bit
- ■ Remain the same
- ■ Decrease a little bit
- ■ Decrease a lot

Interview

Tim Mitchell
GSA

As a global leader in student housing, GSA's customers have high expectations when it comes to technology and living experience. Global Head Real Estate Tim Mitchell explains how the company is consistently evolving in order to provide its market-leading student communities.

"Our current generation of students organise their whole life on their smartphones. We need to continually think over the horizon to ensure the residences we build now are future-proofed from a technology perspective".

"This makes an even greater case for new technology-based services such as booking, billing, repairs and smart home features to be available. We are considering a range of innovations to create a seamless interface with the customer, such as more sophisticated lock systems, addressable room controls and face recognition technology."

"Tech is enabling the creation of more compact, liveable spaces, similar to our new cabin concept in Tokyo, where facilities are shared. Taking inspiration from that same part of the world, we are also considering how we future-proof the buildings we are designing now to ensure we are able to progressively adapt to a future which may include use of AI and robotics.

The challenge we face is that this consumer technology is probably in the region of only 5-7 years away, so it's well within the lifespan of our new developments."

Mitchell is focused on staying ahead of the market: **"This is the time for bold thinking and if we don't get on the front foot with our customer group, which rides at the forefront of the evolution of tech, then we risk an element of functional obsolescence."**

So as a forward-looking company, we take a long-term approach to our new investments and we are finding ways to design in future technology and future-proof our portfolio."

Martin Hadland
CLV

With its strong emphasis on affordability, the student housing market has yet to see a massive impact from the most advanced technologies, says Martin Hadland, Commercial Director at CLV.

According to Hadland, what is essential and a massive priority for students is good quality wifi which he describes as **"more important than heating."**

It is a slightly different story when it comes to CLV's in-house technology adoption with the company using smart contracts and billing and a self-service app that students can use for maintenance enquiries.

"Of course, everyone is trying to differentiate themselves via the student experience and technology is a way of achieving this. At the moment, we are doing lots of work on introducing chatbots into our student engagement channels.

We also have an integrated management system which collates all our customer data including repair requests. This has the capacity to play a key role in proactive building maintenance by monitoring the lifecycle of each of our assets and predicting when work is due to be carried out."

Looking forward into the late 2020s, Hadland predicts greater market segmentation, with a distinctive higher end offering with a discernible difference in terms of tech features.

Tim Mitchell
Head of Global Real Estate
GSA

Martin Hadland
Commercial Director
CLV

Tech landlords

Q: How strongly do you agree or disagree with the following statements about the impact of tech in real estate?

The IoT will help optimise the use of office space
and co-working spaces

| 34% | 57% | 8% |

Employers are expected to be regulated to use tech to monitor
the health and wellbeing of office workers

| 29% | 52% | 15% | 5% |

Tech will increase the demand for co-working
and shared space

| 27% | 59% | 13% |

The number using AR / VR for viewings will
exceed physical viewings

| 26% | 49% | 22% | 4% |

Tech is expected to make real time pricing of offices
based on demand a reality

| 24% | 57% | 16% | 3% |

Tech giants are likely to become
significantly landlords

| 24% | 52% | 20% | 5% |

Useful tech in offices will mean that occupiers
will happily pay a higher price for their space

| 24% | 59% | 15% | 3% |

Technology will reduce the demand for
stand-alone office space

| 23% | 56% | 18% | 3% |

An investment in office tech will be compensated with a higher
return in office rent as the benefits become more well known

| 23% | 59% | 17% |

■ Strongly agree   ■ Slightly agree
■ Slightly disagree   ■ Strongly disagree

Over three quarters (76%) believe that 'tech giants' are likely to become significant landlords with technology being expected to make real time pricing of offices (81% agree) and useful tech in offices resulting in occupiers being happy to pay a higher price for their space (83% agree).

Interview

Alice Breheny
TH Real Estate

TH Real Estate's research team has identified technology as one of the 'megatrends' that is informing increasingly complex property market dynamics – other long-term drivers of real estate performance are urbanisation, rising middle classes, ageing population and the shift of economic power from the West.

Using this data, the firm is building an understanding of the demographic and genetic make-up of key cities across the globe, identifying the young, resilient, growing cities that hold the widest appeal for tomorrow's digital communities.

Global Head of Real Estate Research Alice Breheny says: **"The growth of the technology sector itself is a disruptive force for the built environment with tech occupiers putting greater emphasis on an accessible location, connectivity and amenity. We've highlighted three particular 'technology trailblazer' cities; Austin, Auckland and Hangzhou.**

With tech at its heart, each location is experiencing rapid growth due to factors such as high levels of venture capital and investment, affordable accommodation, likeability and liveability and connectivity."

Developing this deeper level of understanding is helping TH Real Estate look carefully at how developments in technology will impact on key property asset classes.

"The same factors are undoubtedly having an impact at city level and we envisage that a lot of current stock will become redundant. The property sector needs to react more quickly to changes brought about by technology. In the offices market, for example, property companies need to work harder to justify their role as landlord, focusing on tenant relationship management and a concierge service."

Breheny predicts Internet of Things and automation as key influencers on tomorrow's cities, with up to 50% job losses anticipated in some industries. The firm believes that this will translate into very differently configured workspaces in the future.

"We are already seeing the role of the 'data scientist' emerging in office space management, looking at how employees behave, move around and their productivity markers.

There is a mind-set within the property sector that we need to 'defend ourselves' against tech disruption and this has caused some reticence. However, conversations are gathering momentum about how to introduce new innovations into the sector."

TH Real Estate is adapting with the times, talking to proptech experts and partnering with startups.

Breheny says: **"Companies need to move from mere observation to developing some real action points and adoption. Obviously today's new technologies are expensive and the challenge is finding a way to set out the business case and potential ROI to decision-makers.**

As firms increasingly invest in the right kind of talent – such as the new trend for hiring chief technology officers – we will see more businesses gain the confidence to put their intuition around the power of tech into action and become bolder and more agile businesses as a result."

Alice Breheny
**Global Head of Research
TH Real Estate**

Logistically speaking

Q: How do you expect the following numbers in logistics to change over the next five years because of technology?

European tech experts expect significant changes to the logistics sector with 92% agreeing that autonomous vehicles having the potential to significantly change the location of distribution warehouses, 85% agreeing that intelligent buildings will reduce the amount of warehouse space overall, 79% agreeing that drones will be the answer to the war on space for last mile logistics and 84% agreeing that online platforms for trading surplus warehouse space will transform the industry.

Number of autonomous driving vehicles

28%	46%	21%	5%

Speed of deliveries to end user

23%	48%	24%	4%

Average size of warehouses outside of urban / town centres

22%	44%	25%	9%

Number of warehouses outside of urban / town centres

22%	47%	25%	6%

Number of vehicles undertaking deliveries (driven or autonomous)

20%	50%	22%	6%

Number of warehouses in urban / town centres

18%	40%	25%	15%

Number of people working in logistics overall

16%	35%	26%	19%	5%
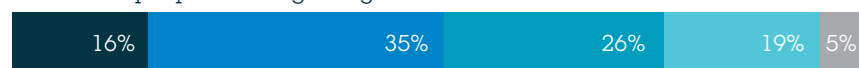
Average size of warehouses in urban / town centres

14%	38%	31%	15%
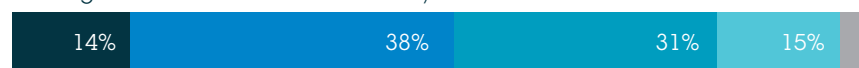
■ Significantly increase ■ Slightly increase ■ No change
■ Slightly decrease ■ Significantly decrease

Interview

Alan Holland
SEGRO

Retailers are among FTSE-100 warehouse developer SEGRO's biggest customers, and with their world having been turned upside down by e-commerce Alan Holland and his team are looking far into the future to assess the impact on the developments they create.

Holland, head of SEGRO's Greater London Business Unit, has overseen the success of SEGRO's Origin development at Park Royal, which has become the template for `urban logistics' warehouses springing up on the edge of towns and cities around the UK.

Built at Park Royal and adjacent to an arterial road network giving fast access to the West End and the City, Origin's key tenants include John Lewis and food supplier Mash Purveyors.

For John Lewis, deliveries stream out of its SEGRO warehouse to homes across London, and Mash delivers food ingredients to restaurants around the capital from Origin as well.

Now, Holland says: **"The big thing for us over the last 18 months, and for the coming years, has been to make our buildings `smarter'. I'm talking about how the building will help the end user, about enabling buildings more, and about improving cost-in-use.**

We're looking at using building design technology to get better information on how it is being run – simple things like lights going on outside when a van arrives, but not before."

Holland says a big driver is the amount of investment capital flooding into the logistics and industrial sectors, with sales of UK shopping centres in 2017 being far outstripped by industrial deals.

"We want our properties to be driven by information" Holland says. And although it is well-known as a hands-on landlord SEGRO is also exploring creating a SEGRO `customer app' to enable even better communication with its tenants.

Robotics are also influencing design within industrial buildings, and are already being designed to allow robots to move around within spaces smaller than a human could use to pick and deliver goods. Intensifying industrial use through multi-storey buildings is also high on SEGRO's agenda.

The company has pioneered successful multi-storey developments in continental Europe – and in particular Paris – and is exploring their further use in London.

At SEGRO's new SEGRO Logistics Park East Midlands Gateway development adjacent to the M1 and East Midlands Airport it is installing levels of connectivity that will future-proof its buildings far into the future, ensuring customers aren't caught out in years to come.

The power required for robotics in particular is rising rapidly, so needs to be catered for as retailers in particular need to offset the decline in high street demand through rapid online deliveries to maintain their market share.

Holland continues: **"We are mindful that a telephone exchange used to be a huge building containing technology that can now fit into a shoebox.**

Industrial and warehouse uses were once out on a limb, barely touching people's day to day lives. Now with e-commerce approaching 20% of UK retail sales our world is more mainstream – and the real opportunity is to look forward, to stay ahead of the game."
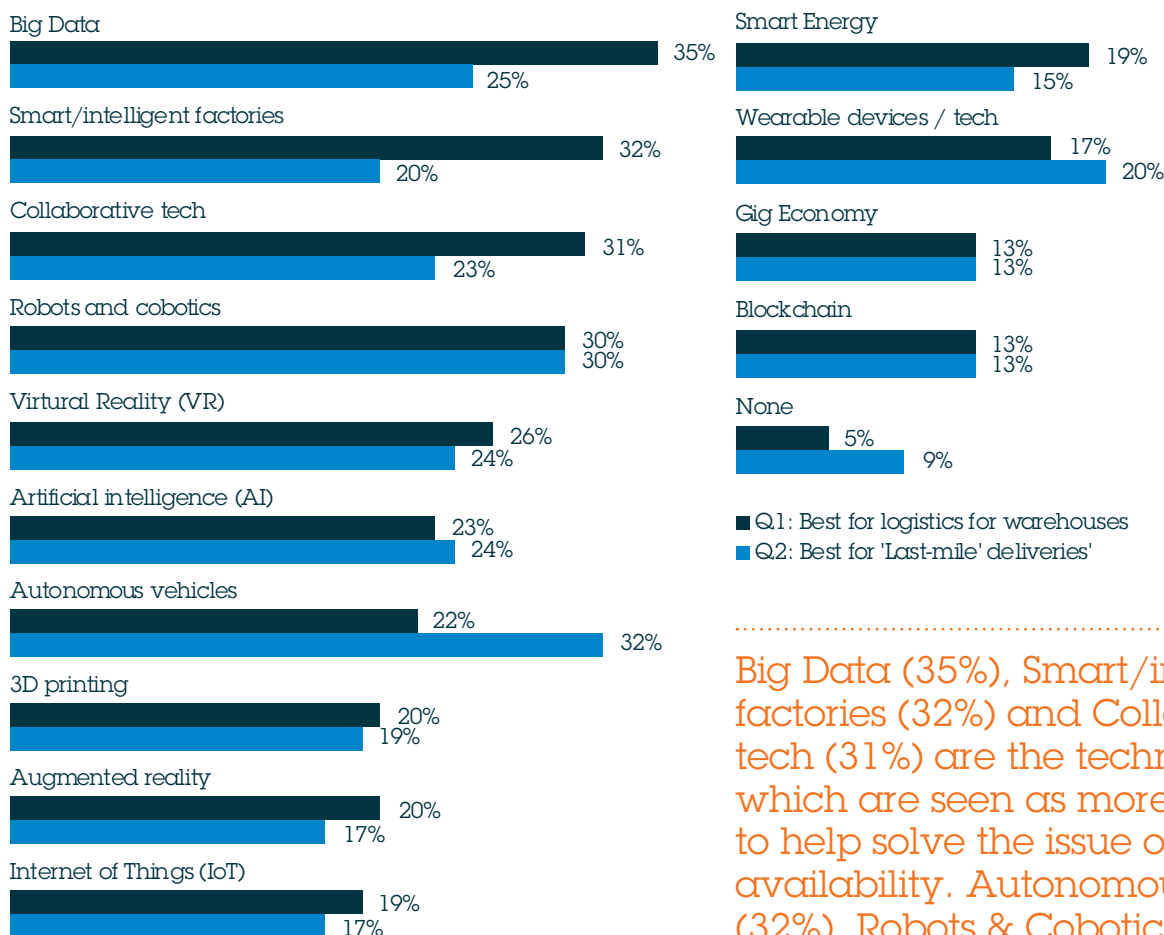
Alan Holland
Business Unit Director
SEGRO

Big, smart and collaborative

Q1: Which technology can help solve the issue of land availability for logistics and warehouses?

Q2: Which technology can help overcome the challenges associated with 'last mile' deliveries?

Big Data
- 35%
- 25%

Smart/intelligent factories
- 32%
- 20%

Collaborative tech
- 31%
- 23%

Robots and cobotics
- 30%
- 30%

Virtural Reality (VR)
- 26%
- 24%

Artificial intelligence (AI)
- 23%
- 24%

Autonomous vehicles
- 22%
- 32%

3D printing
- 20%
- 19%

Augmented reality
- 20%
- 17%

Internet of Things (IoT)
- 19%
- 17%

Smart Energy
- 19%
- 15%

Wearable devices / tech
- 17%
- 20%

Gig Economy
- 13%
- 13%

Blockchain
- 13%
- 13%

None
- 5%
- 9%

- ■ Q1: Best for logistics for warehouses
- ■ Q2: Best for 'Last-mile' deliveries'

Big Data (35%), Smart/intelligent factories (32%) and Collaborative tech (31%) are the technologies which are seen as more likely to help solve the issue of land availability. Autonomous vehicles (32%), Robots & Cobotics (30%) and Big Data (25%) are the technologies which are expected to help overcome the challenges associated with 'last mile' deliveries.

Interview

Nick Cook
Gazeley

A customer-centric culture, continuous innovation and developing best-in-class, future-proofed distribution warehouses is the key to future-proofing the logistics sector, according to Nick Cook, president and chief executive of Gazeley.

"In terms of technology, this means delivering the benefits of automation and robotics and examining new breakthroughs such as driverless vehicles and drones. We expect to ramp up the development of cutting edge logistics warehouses, in particular building multi-storey facilities."

Cook cites Gazeley's new fulfilment centre that has just been completed for Amazon in Hamburg which has four storeys and is operated by robots, moving pallets around with amazing precision.

"The building still needs to support a large workforce of 3,000 as high numbers of skilled technicians are still required to provide the brain power!

It's really exciting to see the resulting step change in the management of warehouse space. Robots, with their infinite memories, can achieve unparalleled levels of product control and with AI can ensure the placement of goods according to fast-changing needs."

But for the foreseeable future, Cook agrees that there will continue to be "dead space" in everyone's buildings at certain times of the year. The issue has seen the rise of proptech startups such as Stoga, who have developed an online trading platform for their users to view and utilise each other's respective dead space.

Outside of the warehouse, Gazeley see huge potential in autonomous vehicles and are watching the current trials closely, particularly in the US where the industry is at its most advanced.

"One massive change that they will bring to the built environment will be greater flexibility on location. At the moment, the industrial sector is largely focused around the Golden Triangle to fit in with driver schedules and break times, which will obviously become obsolete.

Drone technology feels like it is further off and comes with more challenges, mainly due to the level of precision and efficiency that will be needed in the distribution and supply chain. Health and safety issues in the management of air space will also be a challenge and for this reason, the technology is more likely suited for last mile delivery.

Having said that, our customers are already considering locations where it is possible to design in a docking area for drones in the longer-term."

Cook is pragmatic and believes that technology will not completely resolve issues around land usage and developing the right kind of industrial space to meet the complex of needs of the changing population.

"It would be easy to get excited by some of the methods being used digital cities developers such as Google Sidewalk Labs but we are not often starting with a blank sheet of paper.

We are already seeing that residential and logistics can now happily co-exist and the City of London, for example, could look at the potential of office blocks that do away with basement carpark in favour of storage for last mile delivery.

It is time for the industry to focus on adopting a clearer mindset and embracing a change of approach."

Nick Cook
COO
Gazeley

International reflections

Smart cities are valuable and important and each has their quirks. Through Osborne Clarke's international offices we're witnesseing the 'smart race' being played out across Europe. Each city is pushing their smart credentials in order to succesfully compete for international investment and to drive economic growth.

This report details which major European cities the tech community rate as the smartest and which they think will have podium positions within the next three to five years. It also reveals the individual idiosyncracies across each city – information which is valuable for anyone working, investing and developing in these markets.

Our team from Amsterdam, Paris and Cologne share their observations.

Bas Beenen
Managing Partner of the Osborne Clarke Amsterdam office

Amsterdam

Whilst you see more and more smart city initiatives in major cities including Amsterdam, it is interesting to note that there are recognised smart 'neighbourhoods' popping op throughout the Netherlands. Examples of these newly developed areas with cutting edge digital infrastructure and innovations adapted in the environment include Strijp-S in Eindhoven and Slim Seingraaf in Duiven. However, it's the investment into and extensive government support for, autonomous vehicles and intelligent transport systems - on land and water - which are really setting us apart. It won't be long before Rotterdam's harbour traffic is fully automated.

These innovations are clearly improving capabilities on logistics and last mile solutions but we are needing to be creative in finding legal solutions to help deliver these capabilities as the law isn't keeping up with the speed of innovation.

This report highlights that in our market there is a noticeable lack of enthusiasm for paying more for smarter buildings. However, this is to be expected in the Netherlands because "A" grade space is so scarce that the price is still largely determined by location, location, location!

Xavier Pican

A global technology specialist-within Real Estate/Smartcities innovation

Paris

Whilst not a serious contender in the early stages of the Smart Cities race, Paris is now making up for lost time. Acceleration has been driven by a series of government programmes such as the PTNB initiative, a public committee in charge of developing and championing the roll-out of smart technology across the real estate sector. The result is that we are now seeing greater proptech investment from all major stakeholder groups.

More specifically, we are seeing enhanced investment into the digitisation of design (via BIM), city infrastructure and transportation developments, with some thanks to the upcoming Rugby World Cup in 2023 and the 2024 Olympics. We're also seeing increased interest in low emission transport solutions.

It's been pleasing to see increased formal collaboration between the technlogy developers and the major real estate players in France. This should ensure we reap the benefits of game changing technologies such as AI. Blockchain, smart grids and IoT, all of which will secure Paris' place amongst Europe's smartest cities.

Jürgen Ehrlichmann

Head of Real Estate in Germany

Germany

Technology innovation dominates conversation across the German real estate market but for a long time we did not see this translating into action. It was difficult to understand what was possible and the scale of the return on investment.

This is changing, especially in areas where digital innovation can solve existing business problems.

For example:

Portfolio management: Technology is being used to revolutionise cost control and information management and it is also delivering significant labour savings

Logistics and fulfilment: Simply pursuing "same day" delivery isn't enough for the German market, where consumers also want control of the specifics of their delivery window. Any business which delivers this gains a strategic competitive advantage and we're seeing technology being used to achieve this, not just within warehouses but in the full length of their supply chains.

Facilities management: We see FM companies making excellent use of technology to monitor and manage space in ways never before possible. This is reflected in the report, which highlighted 'management' as being an area of high impact in Germany.

Whilst the report found that a lack of suitable technology is a relatively strong impediment to further digital adoption in Germany, we predict that this will be addressed as an increase in collaborations and joint ventures between property and technology specialists start to yield fit-for-purpose solutions.

However, the problems associated with the use of data is probably one of the biggest issues in Germany. We already have the strictest and most punitive data protection and eprivacy laws-which are due to be dramatically tightened. This regime will require serious reconsideration if Germany is going to be able to keep up with change and remain competitive within other international markets.

Osborne Clarke tech expertise

Peter Day
Joint Head of Osborne Clarke's UK Real Estate Practice

Adrian Bott
Global Head of Osborne Clarke's Digital Business team

Real Estate

Real estate has often been accused of being reluctant to embrace technology but whilst this may once have been true when compared to some industries, it's definitely not the case anymore.

Our contacts across a wide range of industry sectors share a similar view – that technology is playing a major role in all strategic decisions and all future proofing activity – although at differing speeds depending on the geography, asset class and technology itself.

We're seeing major changes in how property is designed, built, occupied, shared and managed. It's also being made increasingly sustainable, further integrated into the wider surroundings and there are big differences in how it's used and transacted. Looking further ahead, we're seeing buildings which are becoming more responsive to individual occupiers and there is the potential for measurable positive impacts on well-being and workforce performance.

As a result of these digitally driven changes, 'property' is now so much more than simply bricks and mortar. Buildings are now data collectors, energy plants, transport hubs... and so much more. It means that our advice as real estate lawyers is now also much broader.

At Osborne Clarke we overlay our digital technology understanding onto our sector knowledge so that we are relevant to our clients and the challenges and opportunities presented in their industries. Increasingly, technology providers are working collaboratively with the real estate sector to provide innovative legal solutions to the evolving proptech market.

Digital Business

The speed of adoption of digital innovation is a key differentiator between markets. Willingness and ability play a key part, but, as identified by respondents here, there are additional inhibitors within the various property asset classes – such as planning and other regulation, age/complexity of existing infrastructure and financing appetite. These are relatively high within the real estate industry when compared to some other markets, where AI and Data (which go hand-in-hand), Robotics and 3D printing have more rapidly gained traction and penetration.

We would echo the interestingly consistent responses from these technology experts. We would expect to see AI, particularly, as rapidly becoming all-pervasive. It is slightly surprising to see blockchain rated as having a relatively lower potential impact and slower adoption rate; the expectations (or possibly hype) in other markets are higher and quicker.

We would also see sensor technology having an impact on how traditional offices are used (leading to adaptation in design) by monitoring and managing regular/irregular occupancy and traffic; on retail (in terms of automated, EPOS-free units and applications of AR/VR in enhancing the shopper experience); and on cities becoming "smarter" through monitoring and regulating commuter and logistics traffic flow.

Dave Ferris
Global Head of Osborne Clarke's Energy and Utilities team

Energy & Utilities

In the built environment a lot of innovation focus is on the optimisation of the occupation and use of properties with connectivity being central to the operation of the constantly developing applications in this space.

However, this same connectivity can also provide the platform for technologies which enable buildings to become energy management assets as well as energy consumers. They can work to generate revenues to offset the cost of increasing power demands.

This is not just the inclusion of renewable generation and battery storage in buildings and energy efficiency in design, but extending to the remote management of smart facilities to take advantage of time-of-use energy tariffs and remuneration for reducing power demand at peak times.

The platform technology for such remote and automated facilities management already exists and so incorporating it in building design will allow building owners and occupiers to take advantage of business models to monetise this potential.

Simon Spooner
Global Head of Osborne Clarke's Transport and Automotive team

Transport & Automotive

It's interesting to see the consistency with which respondents view the positive influence autonomous vehicles are likely to have on real estate and infrastructure, especially when it comes to logistics.

We completely agree with the view from the Energy and Utilities team, but would also emphasise the role that electric vehicles, together with highly connected (rather than fully autonomous) ones are going to play in the very near term. Whilst fully autonomous vehicles are probably going to be first commercialised in the light commercial and logistic environments, we see connectivity – both in terms of digital and electric infrastructure – as a key theme for smart transport and logistics systems in the next 12-24 months.

Methodology, about Osborne Clarke and about FTI Consulting

Research was conducted online by FTI Consulting from 5th-12th January 2018, with n=555 IT experts participating (n=150 in the United Kingdom, n=150 in Germany, n=150 in France, and n=105 in the Netherlands). Aggregated results have been weighted to ensure that each country is equally represented in the total.

Further information on the results and methodology can be obtained by emailing: dan.healy@fticonsulting.com

Please note that the standard convention for rounding has been applied and consequently some totals do not add up to 100%.

About Osborne Clarke

Osborne Clarke is a future-focused international legal practice, across our network we have over 740 talented lawyers and 250 expert Partners across 25 locations in 12 countries.

Real estate is one of OC's largest sectors and we are heavily involved with the full range of real estate asset classes.

However, we also have market leading teams in all the key sectors that play into smart cities, including Digital Business, Energy and Utilities, Transport and Automotive and Financial Services.

Although we appreciate the requirement to concentrate on the needs of our clients in the moment we also passionately believe in looking forwards – exploring how we can help them to succeed in tomorrow's world.

We're listeners, innovators and problem solvers, finding new ways to join the dots between our clients' challenges today and the opportunities being created in an ever-evolving, ever-developing global society.

About FTI Consulting

FTI Consulting is an independent global business advisory firm dedicated to helping organisations manage change, mitigate risk and resolve disputes: financial, legal, operational, political & regulatory, reputational and transactional. Individually, each practice is a leader in its specific field, staffed with experts recognised for the depth of their knowledge and a track record of making an impact. Collectively, FTI Consulting offers a comprehensive suite of services designed to assist clients across the business cycle – from proactive risk management to the ability to respond rapidly to unexpected events and dynamic environments. Our EMEA offices include: Belgium, Denmark, France, Germany, Ireland, Netherlands, Spain, United Kingdom, Qatar, U.A.E. and South Africa. Our UK property team's skills range from tax to corporate finance to strategic communications. Our London strategic communications team is the UK's largest in property, specialising in corporate and financial PR, public affairs and thought leadership.

Full details at *www.fticonsulting.com*

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