fDi x TNW Tech Cities of the Future 2020/21 Winners

LONDON RANKS TOP IN FIVE OUT OF SIX CATEGORIES IN THE **fDi**/TNW INAUGURAL TECH CITIES OF THE FUTURE 2020/21. **NAOMI DAVIES** REPORTS

London has won top billing in fDi and TNW's Tech Cities of the Future for 2020/21, as its combination of capital, talent and infrastructure has proved unbeatable among European cities. Peers such as Paris and Dublin have, however, also developed a compelling proposition for innovators and start-ups.

The debut Tech Cities of the Future ranking is focused on finding those European cities with the most promising prospects for start-ups, tech and innovation investment. The ranking also marks fDi's first collaboration with TNW, a media, events and intelligence company focused on new technology and start-ups, and will take the centre stage at TNW's Ecosystem couch conference scheduled for June 25.

Attracting investment

The UK capital triumphed in the ranking, taking first place in five out of six categories. According to research from greenfield investment monitor fDi Markets, between 2015 and 2019, FDI in the software and IT services and communications sectors made up about 50% of London's total inward FDI, reinforcing its status as a tech powerhouse. In 2019, tech investors in the city ranged

"I'M THRILLED LONDON HAS BEEN RECOGNISED AS EUROPE'S LEADING TECH CITY OF THE FUTURE. AS WE LOOK TO THE FUTURE, I'M CONFIDENT LONDON'S STRENGTHS AS A GLOBAL TECH HUB WILL CONTINUE TO ATTRACT INTERNATIONAL BUSINESSES AND TALENT TO THE CITY"

SADIQ KHAN, MAYOR OF LONDON

fDi Intelligence TNW

TECH CITIES OF THE FUTURE

TOP 10 TECH CITIES OF THE FUTURE 2020/21 – ECONOMIC POTENTIAL

RANK	CITY	COUNTRY
1	London	UK
2	Dublin	Ireland
3	Paris	France
4	Istanbul	Turkey
5	Cork	Ireland
6	Luxembourg	Luxembourg
7	Amsterdam	Netherlands
8	Zug	Switzerland
9	Frankfurt am Main	Germany
10	Oslo	Norway

TOP 10 TECH CITIES OF THE FUTURE 2020/21 – FDI PERFORMANCE

RANK	CITY	COUNTRY
1	London	UK
2	Dublin	Ireland
3	Paris	France
4	Amsterdam	Netherlands
5	Barcelona	Spain
6	Berlin	Germany
7	Madrid	Spain
8	Belfast	UK
9	Vilnius	Lithuania
10	Bucharest	Romania

TOP 10 TECH CITIES OF THE FUTURE 2020/21 – START-UP ENVIRONMENT

RANK	CITY	COUNTRY
1	London	UK
2	Reading	UK
3	Berlin	Germany
4	Warsaw	Poland
5	Munich	Germany
6	Zurich	Switzerland
7	Cambridge	UK
8	Stuttgart	Germany
9	Paris	France
10	Moscow	Russia

TOP 10 TECH CITIES OF THE FUTURE 2020/21 – INNOVATION AND ATTRACTIVENESS

RANK	CITY	COUNTRY
1	London	UK
2	Paris	France
3	Munich	Germany
4	Cambridge	UK
5	Helsinki	Finland
6	Berlin	Germany
7	Zurich	Switzerland
8	Rome	Italy
9	Galway	Ireland
10	Bristol	UK

TOP 10 TECH CITIES OF THE FUTURE 2020/21 – COST-EFFECTIVENESS

RANK	CITY	COUNTRY
1	Skopje	Macedonia
2	Iasi	Romania
3	Cluj-Napoca	Romania
4	Kyiv	Ukraine
5	Kaunas	Lithuania
6	Bucharest	Romania
7	Sofiya	Bulgaria
8	Belgrade	Serbia
9	Tallinn	Estonia
10	Vilnius	Lithuania

TOP 25 TECH CITIES OF THE FUTURE 2020/21 – OVERALL

RANK	CITY	COUNTRY
1	London	UK
2	Paris	France
3	Dublin	Ireland
4	Amsterdam	Netherlands
5	Berlin	Germany
6	Munich	Germany
7	Bucharest	Romania
8	Barcelona	Spain
9	Belfast	UK
10	Cambridge	UK
11	Madrid	Spain
12	Stockholm	Sweden
13	Frankfurt am Main	Germany
14	Zurich	Switzerland
15	Warsaw	Poland
16	Edinburgh	UK
17	Reading	UK
18	Moscow	Russia
19	Helsinki	Finland
20	Sofiya	Bulgaria
21	Milan	Italy
22	Prague	Czech Republic
23	Tallinn	Estonia
24	Krakow	Poland
25	Glasgow	UK

from large multinationals Huawei Technologies, Facebook and Robert Bosch to smaller start-ups such as Chainalysis and Lilium Aviation.

According to data compiled by London & Partners, the UK capital is producing more unicorn tech companies (firms valued at more than $1bn) than any other European city. These companies include Monzo, Revolut, Deliveroo and Farfetch.

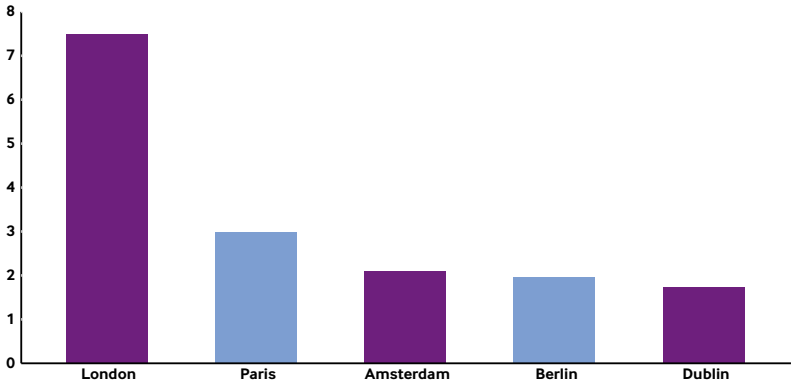
London continues to be a hotbed for innovation, with more than 5,000 patents in software and more than 100 in artificial intelligence registered in the city between 2003 and 2019. In addition, its reputation as a talent hub – hosting 370,000 students and five of the world's top 500 universities in electric and electronic engineering – contributed to it ranking top in the Innovation and Attractiveness category.

London also led in the Start-up Environment category. Figures from Dun & Bradstreet show the city boasts more than 70,000 companies in software and IT services, 5,000 in communications and almost 4,000

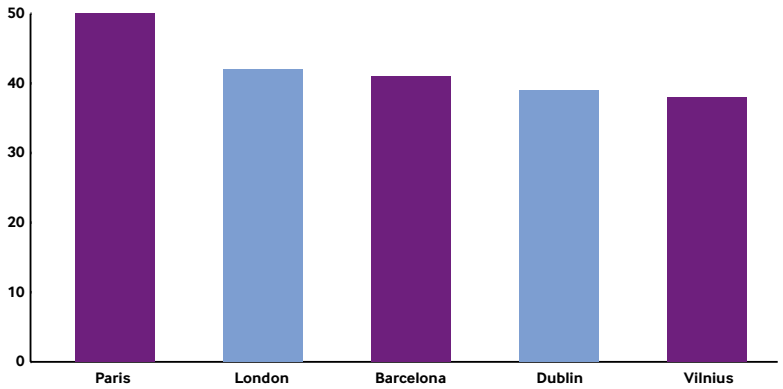
5000

LONDON CONTINUES TO BE A HOTBED FOR INNOVATION, WITH MORE THAN 5,000 PATENTS IN SOFTWARE AND MORE THAN 100 IN ARTIFICIAL INTELLIGENCE REGISTERED IN THE CITY BETWEEN 2003 AND 2019

TOP FIVE EUROPEAN DESTINATION CITIES BY NUMBER OF INWARD FDI JOBS CREATED BY START-UPS, 2015-2019, 000s



TOP FIVE EUROPEAN DESTINATION CITIES BY NUMBER OF SOFTWARE RESEARCH AND DEVELOPMENT PROJECTS, 2015-2019



Source: **fDi** Markets

in research and development. According to research by TNW, access to capital is the main strength of its start-up ecosystem, with the average Series A funding round raising more than $11m.

As a global financial centre, London offers start-ups access to a wide-range of financing opportunities, from venture capital funds and angel investors to crowdfunding platforms and banks. Between 2015 and 2019, London attracted the highest amount of jobs from start-up companies (defined by this study as companies established from 2014 onwards) out of all 76 cities analysed.

R&D hub

Paris is deemed the second-ranking tech city. The French capital attracted 50 inward FDI projects in software research and development (R&D) between 2015 and 2019, the highest out of all locations studied.

Investors include Sweden-based Inex One, a provider of a software as a service procurement tool for advisory services, which opened a new engineering and R&D location in May 2019. Online food delivery app iFood, a subsidiary of South Africa-based Naspers, also opened a Paris research office in October 2019.

Paris also did well in the Economic Potential category – since investors can start a business there in just four days – as well as in Innovation & Attractiveness; the city has 10 of the world's top 500 universities in computer science and engineering.

Potential and performance

Dublin, capital of the Republic of Ireland, places third in the study. The city ranked second in the Economic Potential category, with Ireland excelling in various country level data points, including the 2020 Index of Economic Freedom.

Dublin also shone in the FDI Performance category, with the highest level of capital investment in software R&D out of all locations analysed.

When Canada-based Traction Guest, a developer of enterprise visitor management systems, established operations in the city in December 2019, it commented: "Dublin is renowned for its thriving tech community, supportive business ecosystem and a talent-rich pool of technology professionals from all over Europe and beyond." ■

FDI Strategy

LONDON, BARCELONA AND BERLIN HAVE BEEN AWARDED FOR THEIR EFFECTIVE ECOSYSTEM APPROACH, WRITES **ALEX IRWIN-HUNT**

Successful tech cities are the result of coordinated government strategy aimed at developing a globally connected and supportive community that fosters collaboration, innovation and entrepreneurship.

London leads the pack in this regard, ranking first out of 50 European tech ecosystems assessed in the FDI Strategy category of **fDi** and TNW's inaugural ranking.

Spearheaded by its economic development agency London & Partners, the UK capital has effectively leveraged its global financial centre and academic landscape to become the European home of the most private companies valued above $1bn.

The UK's flagship Tech Nation initiative provides a support network for entrepreneurs in London and the UK, as well as visas to international digital talent.

Other networks, such as Tech London advocates, and events, such as SVC2UK, provide wider support and improve London's connectivity with other global ecosystems.

London has also promoted digital education in schools, including a £20m ($25m) government programme to train almost 6000 teenagers in modern cyber security skills by 2021.

Broad tax incentives, such as for research and development, have also helped London attract international tech companies, while the London & Partners Business Growth Programme has aided more than 400 companies to expand their workforce and raise financing in London.

TOP 25 TECH CITIES OF THE FUTURE 2020/21 – FDI STRATEGY

RANK	CITY	COUNTRY
1	London	UK
2	Barcelona & Catalonia	Spain
3	Berlin	Germany
4	Tricity (Gdansk, Sopot, Gdynia)	Poland
5	Lyon	France
6	Amsterdam	The Netherlands
7	Zurich	Switzerland
8	Munich	Germany
9	Milan	Italy
10	Cambridge	UK
11	Zagreb	Croatia
12	València	Spain
13	Vilnius	Lithuania
14	Hamburg	Germany
15	Rotterdam area	Netherlands
16	Manchester	UK
17	Sofia	Bulgaria
18	Brussels-Capital Region	Belgium
19	Greater Helsinki	Finland
20	Düsseldorf	Germany

Source: **fDi** Markets

$25M

LONDON HAS ALSO PROMOTED DIGITAL EDUCATION IN SCHOOLS, INCLUDING A £20M ($25M) GOVERNMENT PROGRAMME TO TRAIN ALMOST 6000 TEENAGERS IN MODERN CYBER SECURITY SKILLS BY 2021

Bolstered Barcelona & Catalonia

As the host of major global technology events, such as Mobile World Congress and Smart City Expo, Barcelona and its surrounding Catalonia region is a leading destination in the global tech ecosystem map.

The 'Start-up Catalonia' initiative, a set of public policies that promotes tech transfer and entrepreneurship, has helped develop an ecosystem of more than 1500 start-ups in Barcelona and Catalonia, including home-grown delivery app unicorn Glovo.

Infrastructure, including scientific parks, nine universities and a 200-hectare 22@ innovation district, help bolster Barcelona's attractiveness to international tech companies.

The public-private partnership Pier01, a 11,000 sq m converted building in Barcelona that hosts more than 100 start-ups, has helped develop a start-up ecosystem worth $4.1bn, according to Startup Genome.

Burgeoning Berlin

Berlin's business development agency has launched initiatives and portals to create an ecosystem which boasts over 9,500 start-ups, accounting for 15.8% of Germany's total.

The city's 'Gründen in Berlin' platform, which provides information, consulting and events for entrepreneurs, and StarterCenter which provides advice and mentorship, embody Berlin's centralised approach to its ecosystem development.

Specialised entrepreneurial centres, such as the Factory for Internet of Things (IoT) start-ups and fintech-focused H:32-Tower, have provided community spaces for entrepreneurs in some of the city's leading startup segments.

This short article cannot comprehensively cover the factors needed to develop a tech city, but the common thread is clear: ecosystems which develop through government policy driven support, funding and infrastructure tend to prevail. ■

CORK: A CITY RISING

Cork has a proud reputation as Ireland's second largest economic engine and has an enviable track record in investment attraction.

Cork is a compact city with an excellent business ecosystem.

The size of the city means that all stakeholders from business to academia can respond meaningfully to the needs of investors. Even though the City is compact it hits above its weight in terms of education, culture and access making the city a great place to live and work.

Cork has an agile and cost efficient economy ready to adapt to all external economic shocks and come through due to a bed-rock of professional talent and an innate economic resilience. It is a place of explorers and thinkers; who help businesses thrive. World class research in Tyndall Institute, University College Cork and the newly established Munster Technical University provides a competitive edge where talent and skills are in abundance.

With over 150 overseas companies employing 39,000 people, many leading brands such as Apple, Johnson Controls and Pfizer are building global success in Cork. Fast growing indigenous companies such as Teamwork along with multinationals choose Cork to take advantage of our ecosystem's vast strengths, combined with the quality of life that exists in the City.

UNPARALLELED LOCATION

Cork offers an immediate and unparalleled location for both visitors and investors alike. Voted by Condé Nast as Europe's friendliest City, Cork is an immersive business and visitor experience with a sense of place and people, renowned, even among the Irish, for an outstanding culture, charm and wit. A City with a thriving cosmopolitan café and pub culture, the city is well renowned for a vibrant, internationally accredited, night-time economy while there is also excellent connectivity to outdoor life in Ireland's stunning south-west region.

GLOBALLY CONNECTED

An english-speaking city, located inside the euro-zone, Cork is connected to the global stage through an International Port and Airport and is an ideal location from which to access the EU. Cork has a well developed rail, bus and road network and is easily accessible by land, air and sea. In addition to impressive hard infrastructure, the city also boasts an excellent broadband and communications infrastructure allowing for one of the highest concentrations of ICT activity within the OECD.

HOME OF CO-CREATION AND INNOVATION

Fast growing indigenous companies as well as multi-nationals have chosen Cork as their home to take advantage of our ecosystem's vast strengths, combined with the quality of life and environment.

The appeal of Ireland for Foreign Direct Investment is enhanced by an attractive regulatory and tax system underlined by a 12.5% corporation tax rate. Semi-state and government agencies such as the Industrial Development Authority (IDA), Enterprise Ireland and the Local Enterprise office network provide companies and start-ups with vital support and financial aid. The Cork region is also home to dynamic start-ups, fostered by our supportive innovation ecosystem that supports high value sectors such as ICT, Financial Services, Internationally Traded Services, Cyber Security and Nanotechnology.

The tremendous achievements of the City in recent times are a testament to the leadership role taken by Cork City Council and other key stakeholders in promoting the City region to a range of international investment and tech start-ups.

INVESTING IN TOMORROW

Cork's construction sector is experiencing a renaissance with large city centre development as demonstrated by the multiple cranes on the skyline. Over €1bn of office, hotel and apartment developments are currently underway in the City. In addition brown-field development opportunities on a 179 hectares will result in a complete regeneration of the City Docklands area with employment projections of 30,000 jobs and 30,000 residents. This will enable the city's population and local economy to continue to grow over the next 20 years, projected population to reach over 350,000 by 2040.

Cork City Council CE, Ann Doherty said:

"We are delighted to see Cork being ranked so highly as a location for investment and economic potential. Cork City Council has worked hard with IDA Ireland, UCC, CIT and Enterprise Ireland to make Cork a global investment capital where businesses are enabled to flourish and expand. Because we are an agile, compact city each investor who comes to Cork City can enjoy focused attention from the agencies to support the needs of business."

Welcoming the accolade, Lord Mayor of Cork, Cllr. John Sheehan stated:

"We are delighted to be ranked the fifth overall best city in Europe for economic potential. Despite the enormous challenges posed by Covid-19, Cork remains on track to retain its pool of FDI and expand its economic base in 2020. This confidence in our collective futures for Cork to thrive is clear in the sustained growth evident with the large numbers of people from overseas choosing Cork City as a place to live and work."

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Silicon Roundabout: in London, tech companies have traditionally settled in the east of the city

Why tech cities matter

BEYOND SILICON VALLEY, TECH CLUSTERS ARE BEING REPLICATED ACROSS THE GLOBE AND CAN PROVE HUGELY BENEFICIAL TO NATIONAL ECONOMIES, WRITES **YESSI BELLO PEREZ**

What do cities such as Guadalajara, Lagos, Denver, Tokyo and London have in common?

They are all tech cities, part of a long list of technology hotspots that are home to – and seek to attract – innovative companies of any size to their streets.

Silicon Valley, with its high concentration of hardware and software companies, is by far the most famous representation of a tech city – but the concept has been exported and replicated across the globe.

In London, for example, technology companies have historically settled in the east of the city, around Shoreditch. The mass arrival of start-ups into the area has, over time, paved the way for a wider ecosystem of co-working spaces, accelerators, incubators, venture capital investors, and entrepreneurial density.

But tech cities are also springing up further afield, sometimes in surprising locations. Silicon Mountain is the name coined to represent the ecosystem in the mountain area of Cameroon, with an epicentre in Buea, which is home to start-ups and a growing community of developers, designers and universities. The model is also spreading across the country. Just last year, the Cameroon government announced plans to back a new tech hub to be called 'Cameroon Silicon River' in its capital city Yaoundé.

On the other side of the world, Guadalajara – Mexico's second largest city – has reinvented itself as a technology hub, transforming into a research and development hotspot and giving outsiders an insight into its potential future.

Unique selling points

Each tech city, or cluster, has its own story and unique selling point, but each one strives to birth and support the next wave of successful technology companies.

Tech cities are hugely beneficial to local, national, and international economies. They create employment, attract investment, talent, and can help re-energise local pockets in cities and more remote areas.

Successful tech clusters can help cement cities' prominence on a global scale, making them more attractive to incoming businesses, investors, tourists and workers. Lesser known hot spots, on the other hand, can literally be put on the map thanks to a specific company's success – and the world hearing about it.

The positive effects are obvious but they also bring about certain challenges. Driven by the surplus of demand, office space can become unaffordable for the less funded, or less successful, start-ups. There is also the danger of insularity and the cluster itself becoming less receptive to external collaboration.

But one thing is for sure: tech cities seldom emerge on their own, rather they are often the byproduct of resolute urban planning and government intervention.

Policy support

Traditionally, they have been intrinsically linked to clustering – the building of technology parks or specific innovation districts where companies, R&D labs, universities, and the private sector can co-exist in close proximity and harmony. This ▶

kind of approach requires significant investment and support from local authorities.

Governmental policy plays a pivotal part in the ideation and creation of tech cities. It is almost always impossible to imagine such a cluster existing without the direct intervention from governments hoping to get ahead in the global tech race.

In November 2010, former British prime minister David Cameron set out the government's ambition for London's East End to become a world-leading tech city to rival Silicon Valley. Speaking to high tech business leaders and entrepreneurs in the area, Mr Cameron said the Olympic Park press and broadcast centres in London would exist beyond the 2012 Olympic Games and be used as an accelerator space, offering flexible office space, facilities and expertise to the city's tech companies.

"Right now, Silicon Valley is the leading place in the world for high-tech growth and innovation. But there's no reason why it has to be so predominant," Mr Cameron said at the time.

"Our ambition is to bring together the creativity and energy of Shoreditch and the incredible possibilities of the Olympic Park to help make east London one of the world's great technology centres. I want to show you how we can get there," he added.

As part of his strategy to boost the country's tech capabilities, Mr Cameron also launched Tech Nation (formerly Tech City) – a government quango that seeks to support, promote and consolidate technology clusters all over the UK.

Over in the Netherlands, the Dutch government has worked hard to negotiate favourable trade deals with nations across the globe, to make cities such as Amsterdam, Rotterdam or Eindhoven attractive to operate in.

StartupAmsterdam, for example, was born out of a collaboration between the City of Amsterdam and the private sector, which came together to devise a start-up and scale-up-focused initiative to help these very companies grow in a suitable environment. Today, several international tech companies including Netflix, Uber and Tesla have chosen Amsterdam as their European HQ.

While the Dutch and UK governments have made great strides they arguably pale in comparison to French president Emmanuel Macron's pledges to make France, and in particular, Paris, Europe's start-up nation. The city is already home to Station F, a multi-million pound start-up incubator that is largely touted as a symbol of France's tech renaissance.

Since being elected in 2017, Mr Macron has constantly tried to woo tech entrepreneurs and executives with a string of tempting initiatives, including tax breaks, subsidies, and credits for research. In spring 2018, he vowed to pour €1.5bn into AI research through to 2022.

Berlin, Germany's hip capital city, is a veteran in European tech city rankings and has also benefited from the government's Digital Hub Initiative which seeks to strengthen connectivity and cooperation between startups in a digital age.

Government intervention in the emergence of tech cities or clusters should not take anyone by surprise. Tech and innovation undoubtedly go hand in hand with economic prosperity and it is in every government's interest to promote this.

On the other hand, tech cities are an integral part of local entrepreneurial ecosystems and without them, it would not be farfetched to question the long-term survival of risky, yet valuable, start-up companies.

Urban dwellings and capital cities unsurprisingly make the most appropriate settings for tech cities or clusters, but it is possible that this phenomenon will eventually spread across entire countries, reaching smaller cities and towns as both startups and governments look for opportunities further afield. ■

Yessi Bello Perez is a senior writer at TNW's Growth Quarters.

TNW

"GUADALAJARA – MEXICO'S SECOND LARGEST CITY – HAS REINVENTED ITSELF AS A TECHNOLOGY HUB"