



# Innovation ecosystems

Empowering entrepreneurs and powering economies

# Contents

- 3 Introduction
- 4 Evolution of labour markets
- 8 Revolution of labour markets?
- 10 Mapping innovation
- 13 Nurturing innovation
- 15 Fostering innovation for the global community
- 17 Recommendations for creating successful innovation ecosystems
- 18 About this report

This report was written by Anna Lawlor and edited by Monica Woodley of The Economist Intelligence Unit.



# Introduction

Global economies are on the cusp of a ‘third-wave industrial revolution’<sup>1</sup> in which enterprising, young innovators will play a central role.

The rise of ‘micro-multinationals’ – start-ups which operate across high- and low-cost locations, delivering to an international customer base – exemplifies the opportunities wrought by globalisation, digital communications and the internet. The challenges for business leaders and policymakers are to empower such opportunities for entrepreneurs and to foster domestic and international innovation ecosystems, while mitigating an increasingly dysfunctional global labour market.



<sup>1</sup>Based on comments from the four case studies, citing: [http://en.wikipedia.org/wiki/Alvin\\_Toffler](http://en.wikipedia.org/wiki/Alvin_Toffler)

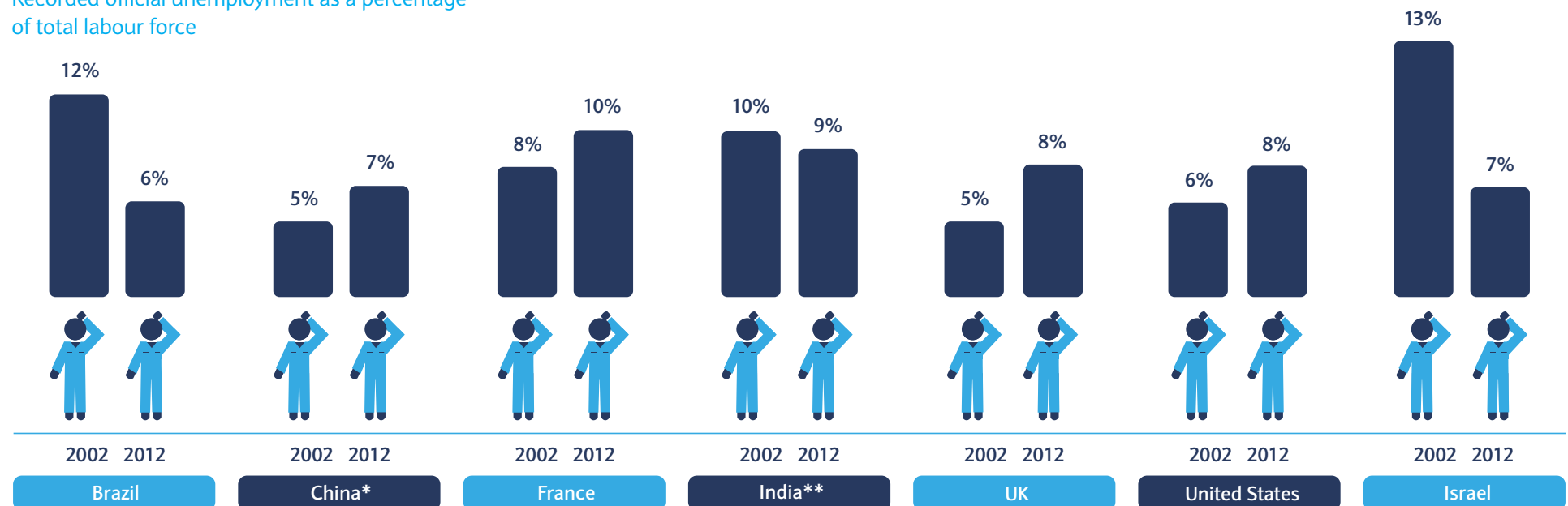
# Evolution of labour markets

The global labour market is undergoing massive structural changes that will have potentially far-reaching implications for the workforces of the future.

Mechanisation and technological adaption by companies are speeding up processes and increasing unemployment and under-employment – something the US writer and ‘futurist’ Alvin Toffler<sup>2</sup> has described as a post-industrial ‘third wave’ of socioeconomic organisation.

The type of work people across the world are doing is shifting. While agriculture still dominates in emerging markets such as India and Nigeria and manufacturing has taken hold in slightly more advanced economies such as China, the proliferation of the service sectors in developed economies such as the US, the UK and France (accounting for almost 80% of GDP<sup>3</sup> in each) stands in stark contrast.<sup>4</sup>

Recorded official unemployment as a percentage of total labour force



\*China's 2002 = 2012 figures estimated. \*\*India's 2012 figures estimated. Source: The Economist Intelligence Unit. Please note: data not available for Nigeria.

<sup>2</sup>[http://en.wikipedia.org/wiki/Alvin\\_Toffler](http://en.wikipedia.org/wiki/Alvin_Toffler)

<sup>3</sup><https://www.cia.gov/library/publications/the-world-factbook/fields/2012.html>

<sup>4</sup><https://www.cia.gov/library/publications/the-world-factbook/fields/2012.html>



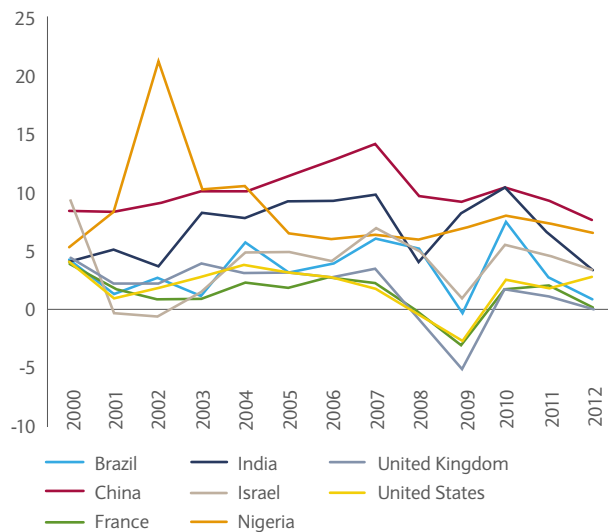
### Dealing with dysfunctional labour markets

In the West, the long economic slowdown has reduced demand for labour across the board, making it significantly more difficult for people to find work. Perversely, in faster-growing economies there are also signs of dysfunctional labour markets. Nigeria, for example, produced 7.4% GDP

growth in 2011 yet had a labour participation rate of 47.9%; fewer than half of its citizens of working age are employed. Equally, India produced 6.3% GDP growth in 2011 and had a labour participation rate of 55.6%. China bucks the trend, with 9.3% GDP in 2011 and the highest labour participation rate of the eight countries examined in this report, at 74.1%.

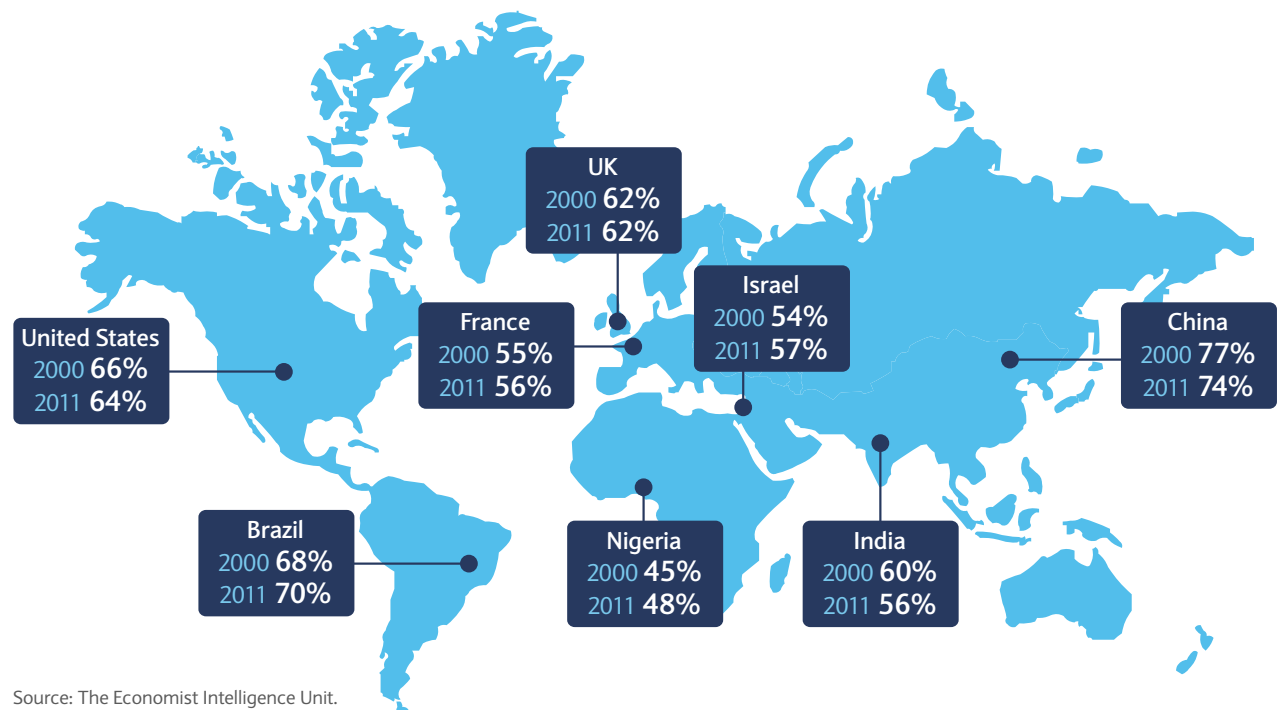
However, as the International Labour Organisation (ILO) considers a person to be employed if they have worked at least one hour in 'gainful' employment in the most recent week, such figures could considerably underestimate the underemployment rate in many countries.

### Percentage change in real GDP over previous year



Source: The Economist Intelligence Unit.

### Labour participation rate, total (% of total population ages 15+)



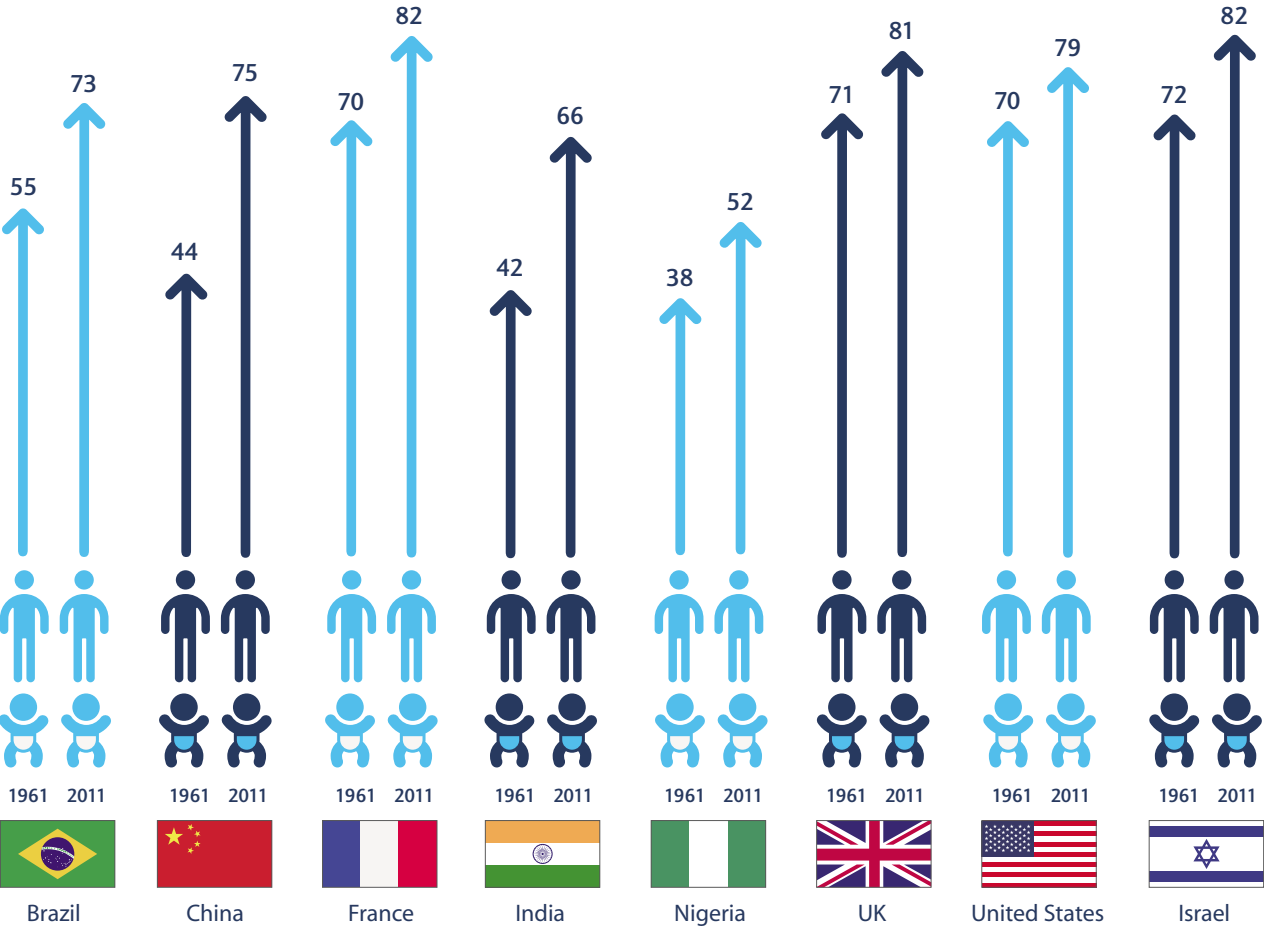
Source: The Economist Intelligence Unit.

Mature economies where economic growth has been less robust are also dealing with growing ageing populations – making them top-heavy and producing fewer young people to replace the generations who are approaching retirement or are already retired.

France and the UK have the highest proportion of over-65s in their population (of the eight countries examined for this report), whereas in fast-growing countries such as Nigeria and Brazil those aged over 65 account for a significantly smaller share – less than half that of France and the UK.

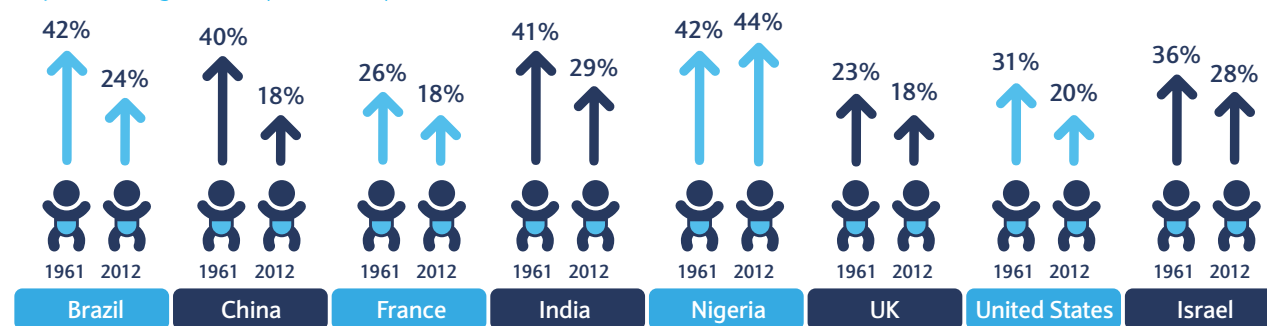
This poses a problem, and identifies a potential opportunity for fast-growing countries; their economies are not maximising the young and dynamic population available to the workforce, as demonstrated by the low labour participation rates.

Life expectancy at birth, total (years)



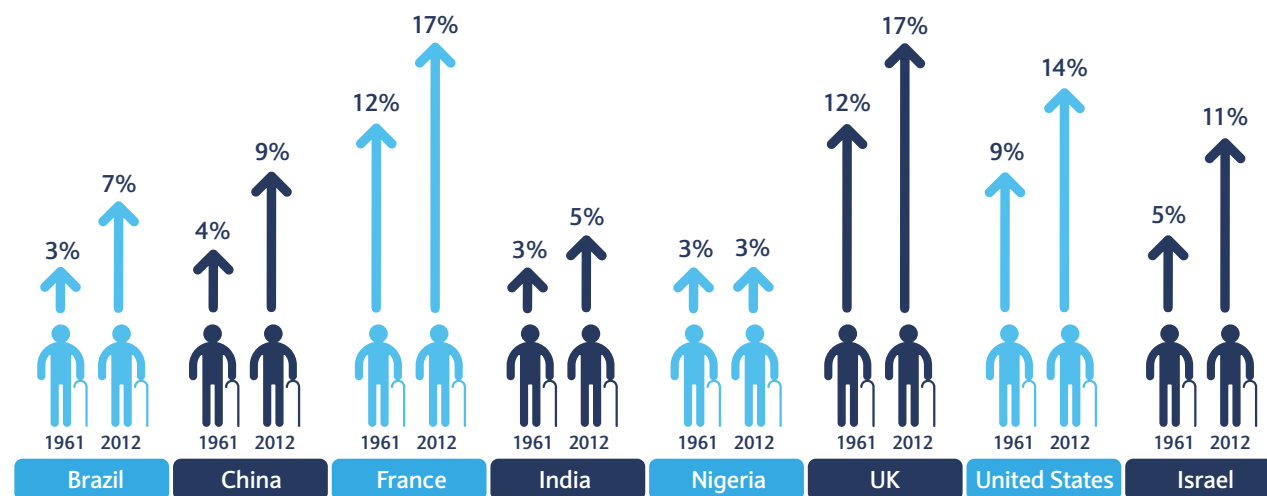
Source: World Bank.

### Population ages 0-14 (% of total)



Source: World Bank.

### Population ages 65 and above (% of total)



Source: World Bank.

# Revolution of labour markets?

One aspect of the structural changes to labour markets, particularly in developed economies such as the UK and US, is the shift to flexible and remote working arrangements.

'Zero-hours contracts', for example, give employers flexibility to employ casual labour as and when required, with none of the responsibilities associated with hiring employees. Companies can therefore keep overheads and corporate liabilities (such as employee benefits) low, making them competitively nimble, advocates would argue. This trend has swollen the ranks of the self-employed freelancer or contractor in developed economies, ostensibly giving them the flexibility to accept or decline work as they choose and to operate in the labour market unrestricted by a contractual obligation to one employer – but also unsupported and without a safety net.

The internet has facilitated a boom in online labour exchanges such as Elance, oDesk and PeoplePerHour, marketplaces which connect self-employed workers with employers offering one-off work projects or zero-hours contracts.<sup>5</sup> Young people (aged 18-24) and those aged over 55 are twice as likely to have as their main source of employment a zero-hours contract than any other age group, according to the Chartered Institute of Personnel and Development (CIPD).<sup>6</sup>

Are these developments signs that the labour market is evolving, creating an internet-enabled marketplace of self-employed, entrepreneurial individuals who choose when and how they work for corporations? Tyler Cowen, Professor of Economics at George Mason University in the US, says that the rise of self-employed freelancers does not constitute a subsequent rise in entrepreneurial activity.

Instead, "it is evidence of some social and economic dysfunction"; he explains that "they're kind of cheap labour at the fringe", which enables the 'real' entrepreneurial creators who are able to draw from this employment pool quickly and easily.

## >75 million

The number of young people who are now unemployed globally.

Source: Eurostat.

More than 75 million young people are now unemployed globally, with some of the highest youth unemployment rates found in developed economies. Before the financial crisis, youth unemployment (of those aged 15-24) in Europe was already double that of the rest of the population,<sup>7</sup> and this group has been hit hardest during the recession; by the end of 2012 the youth unemployment rate was 2.6 times the total rate, according to the EU statistical office, Eurostat.<sup>8</sup> Emerging markets fare comparatively better. India has half the youth unemployment rate of France, for example. Although Nigeria has a youth unemployment rate of 38%, a far larger proportion of many emerging economies are 'informal' – 'cash-in-hand', untaxed, unmonitored and unaccounted for work and economic productivity that operates outside of the

'formal' economy. This can obscure – or skew – the true economic picture. It is estimated that half of India's economy and as much as 90% of its labour force fall under the informal economy,<sup>9</sup> second only to Sub-Saharan Africa, which has the largest informal economy in the world.

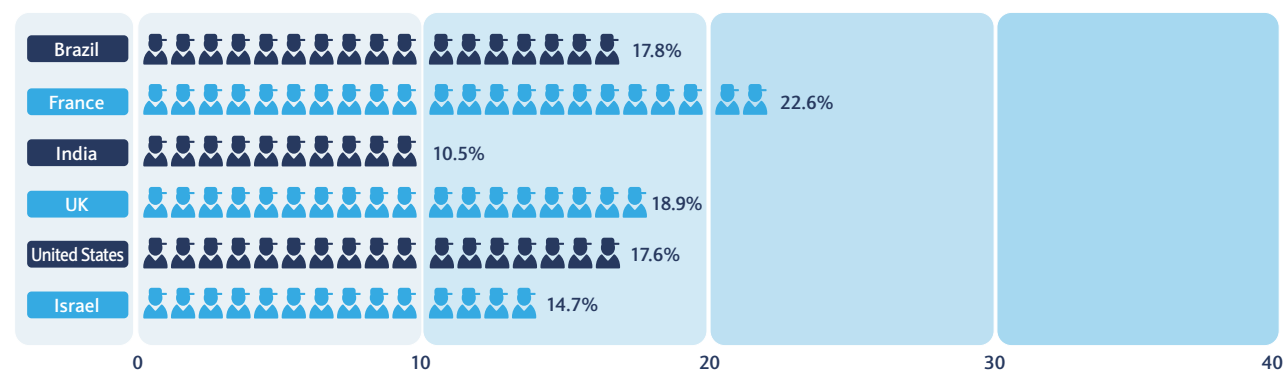
### Schumpeter's creative destruction

For Jaideep Prabhu, Jawaharlal Nehru Professor of Business and Enterprise at the Judge University of Cambridge Judge Business School, UK, this is the result of 'Schumpeter's creative destruction' – the way in which capitalist economic development arises out of the destruction of some prior economic order. "What we're seeing, it's really the new economy of the internet that has made the world flat, but only in certain sectors and only for certain people – people who have access to those global ecosystems and global networks," he says. "People involved in manufacturing in the West, for instance, have seen their incomes decline over the past 20 years or so as the Chinese, in particular, add very large numbers of people to the global workforce in those sectors, and Western competitiveness has not kept up."

As Western economies shift further into sectors such as technical services and IT, there is a divergence between those with the relevant knowledge and experience in such high-demand areas who gain employment – even if it is in a non-traditional and more flexible form – and those with more traditional skills and knowledge who have limited access to employment. It is not just changes in labour markets, but the way in which people work is shifting as well.



## Youth unemployment (aged 15-24), 2012



Source: CIA World Factbook - Unless otherwise noted, information in the page is accurate as of January 1, 2012

## Youth unemployment (aged 15-24), 2011



\*Youth unemployment rate, aged 15-24, both sexes. Source: Millennium Development Goals Database 1 United Nations Statistics Division.

\*\*World Bank statistics.

Sources: CIA World Factbook.<sup>10</sup> \*OECD.<sup>11</sup> \*\*World Bank.<sup>12</sup>

<sup>5</sup><http://www.economist.com/news/business/21578658-talent-exchanges-web-are-starting-transform-world-work-workforce>

<sup>6</sup><http://www.cipd.co.uk/pressoffice/press-releases/zero-hours-contracts-more-widespread-thought-050813.aspx>

<sup>7</sup>Youth Unemployment Trends: [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Unemployment\\_statistics#Youth\\_unemployment\\_trends](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Unemployment_statistics#Youth_unemployment_trends)

<sup>8</sup>Youth Unemployment Trends: [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Unemployment\\_statistics#Youth\\_unemployment\\_trends](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Unemployment_statistics#Youth_unemployment_trends)

<sup>9</sup>[https://www.credit-suisse.com/newsletter/doc/apac/aic2013/20130712\\_indiamkt.pdf](https://www.credit-suisse.com/newsletter/doc/apac/aic2013/20130712_indiamkt.pdf)

<sup>10</sup><http://www.indexmundi.com/g/r.aspx?v=2229>

<sup>11</sup><https://skills.oecd.org/informationbycountry/chinapeoplesrepublicof.html>

<sup>12</sup><http://businessdayonline.com/2013/11/addressing-youth-unemployment-in-nigeria/>

Professor Prabhu believes the next generation's approach to work will transform parts of the global labour market: "We will start to see a very different type of employment, where young people are not looking to big companies to employ them but will increasingly start being their own employer, have their own business." He believes that the 'democratisation of innovation' is under way.

"In the 20th century, innovation was the preserve of large corporations with access to resources, large teams and R&D (research and development) budgets," he explains. "Both in developing and developed economies, we're starting to see something of a revolution where, increasingly, smaller teams with fewer resources can do things that they couldn't do even ten years ago. This is because of the new economy." This, he says, is facilitated by open access to knowledge through free online courses (known as Massive Open Online Courses, or MOOCs), access to non-traditional funding sources like crowdfunding, the ability to quickly and affordably create prototypes with 3D printers, and access to social media and internet-enabled networks that help young entrepreneurs to commercialise their innovations and source new markets.

# Mapping innovation

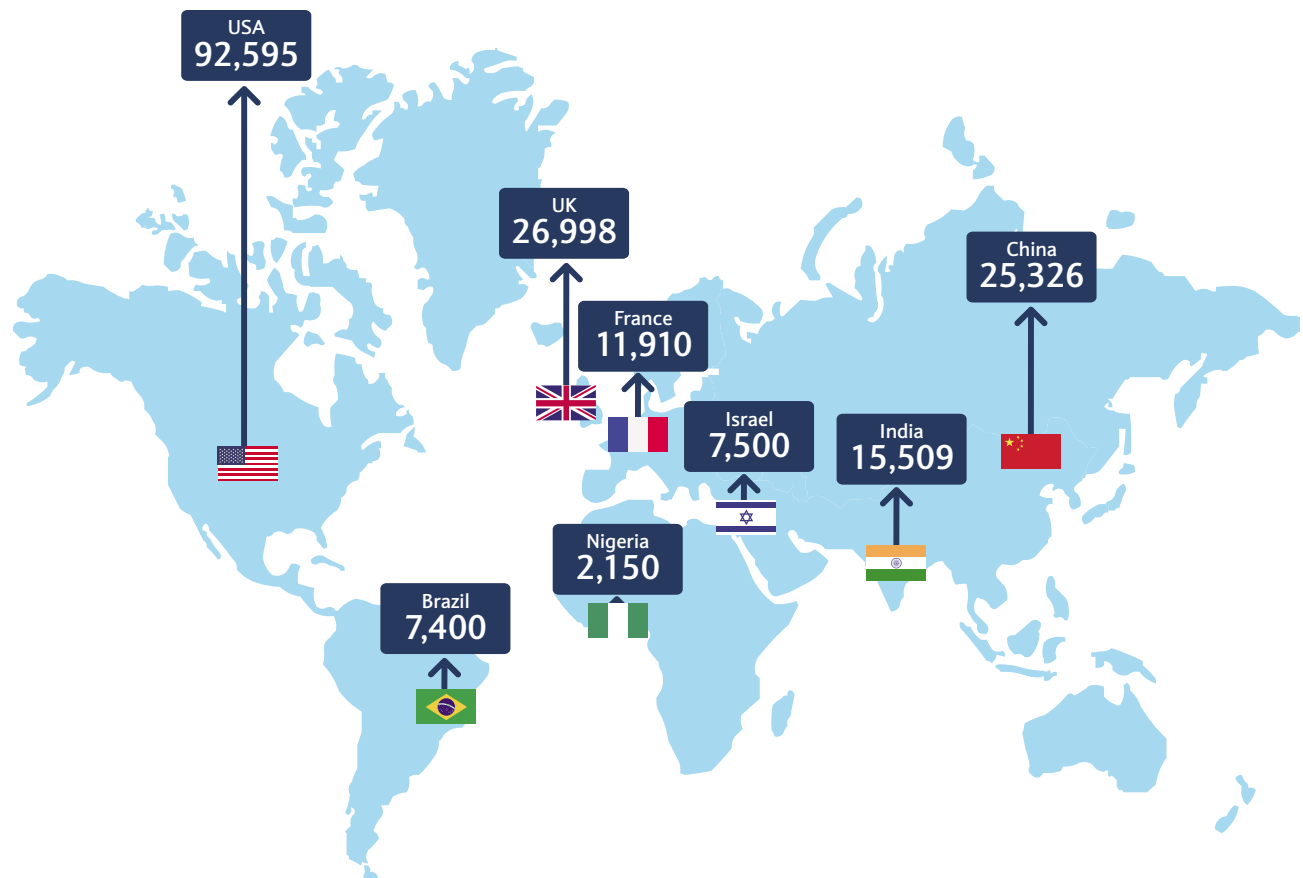
While the internet allows this development anywhere, ‘innovation ecosystems’ have emerged in multiple locations around the world – hubs or hotspots of entrepreneurial activity that form a geographic cluster, for example in Silicon Valley in the United States.

David Gill, Managing Director of St John’s Innovation Centre (established by St John’s College, part of the University of Cambridge, UK), says: “I think the paradox of the connected world is that, yes, it is easier and easier for somebody in the UK to be collaborating with someone in Poland or Silicon Valley, but you still find you get geographic concentrations of people. Partly, I think, because it’s to do with how you build up trust and cultures to start with.”

## Developing innovation ecosystems

The term ‘innovation ecosystem’ describes the role of independent factors working together to enable entrepreneurs and allow innovation to occur in a sustained way in a particular location. However, analysing how they develop differently in different places can enable policymakers and business leaders to provide a more supportive environment.

## Mapping the conversations around innovation ecosystems – news volume



Source: Quid research; Relative news volume surrounding innovation and entrepreneurship for distinct geographies as extracted from open information streams by the Quid natural language processing and conversation mapping engine.

In order to investigate the development of innovation ecosystems around the world, The Economist Intelligence Unit turned to Silicon Valley start-up Quid Inc. As the internet has changed labour markets, so it has also changed research. By mining tens of thousands of news and blog sources online,<sup>13</sup> Quid was able to map conversations in eight diverse geographies with identified innovation ecosystems: the US, UK, France, China, India, Israel, Brazil and Nigeria.

Discussing entrepreneurship

The research provides intriguing insights into how people within those geographies<sup>14</sup> discuss business innovation and entrepreneurship, which non-domestic locations they associate with innovation ecosystems of interest, and hints at the cultural nuances at play in locations around the world. It is by interpreting data such as these that governments and business leaders can understand the kinds of interventions that might encourage innovation ecosystems to take root, or to nurture entrepreneurs and innovation where such a system is already in place.

Quid found that in some – largely Western – nations online conversations and press coverage were dominated by domestic-focused government policy and data about entrepreneurial activity. This was the case in the UK, which also tended towards broader conversations about ‘small businesses’ rather than ‘start-ups’ and ‘entrepreneurs’, which were more prevalent terms in the US. Discussions in France also concentrated on domestic companies, but rather than government policy, it was award programmes,

incubators, investments and partnerships that dominated. In this context, China’s innovation ecosystem (based on the Quid data) was as introverted and domestically focused as the Western ecosystems.

The innovation ecosystems of developing countries – particularly Brazil, Israel and Nigeria – were typically less introspective, focusing on global trade and strategic regional or global partnerships. To a lesser extent, India’s top ten content clusters included international partnerships to foster entrepreneurial collaboration (with Australia and Cambridge University in the UK, respectively).

Connecting ecosystems

By amalgamating the locations named in content clusters about each of the eight innovation ecosystems examined, a map emerges of the connections between them. The chart below identifies not only domestic innovation ecosystems – such as Chicago, New York, San Francisco and Los Angeles, in addition to Silicon Valley, in the US – but also the other ecosystems discussed in each country’s news. The US’s overall dominance of news pertaining to innovation, entrepreneurialism and start-up businesses is clear, as is the mutually favourable relationship between the US and Israel with regard to innovation.

Top ten locations most frequently mentioned in innovation content clusters, according to Quid’s research

Region	US	UK	France	China	India	Israel	Brazil	Nigeria
1	United States	United Kingdom	France	China	India	Israel	United States	Nigeria
2	Israel	United States	United States	United States	Bangalore	United States	Brazil	Africa
3	India	London	Europe	Taiwan	United States	New York City	Europe	Lagos
4	Europe	Europe	Paris	Hong Kong	Mumbai	Tel Aviv	China	South Africa
5	China	Britain	London	Beijing	New Delhi	Europe	India	United States
6	Silicon Valley	India	United Kingdom	India	Asia	India	United Kingdom	Sub-Saharan Africa
7	Chicago	Northern Ireland	India	Singapore	Singapore	London	Latin America	Ghana
8	New York	Australia	New York City	Shanghai	China	Silicon Valley	Asia	Abuja
9	San Francisco	Israel	China	Israel	United Kingdom	China	North America	West Africa
10	Los Angeles	China	San Francisco	Asia	Europe	Singapore	Africa	India

Domestic

Source: Quid. Please note: the domestic ecosystems identified in each of the eight geographies are marked in pale blue.

<sup>13</sup>Between 18 August 2013 and 5 December 2013.

<sup>14</sup>Caveat: Those who happen to publish their views online between the period Quid examined; some sources (such as a very prolific blogger or journalist) could potentially skew the data findings based on the terminology they prefer. The Quid data also do not take into account differences in journalistic style/preference across the different regions, which could account for certain words (‘small business’ versus ‘start-up’) being more prevalent in certain geographies. The data also do not take into account the proportion of the population in each of the eight countries who have access to publishing on the internet, which means that the results may not be truly representative of the views and discussions of those operating in the nation’s innovation ecosystem.

Avner Warner, Director of International Economic Development at Tel Aviv Global City Administration, explains the close ties: “The Israeli ecosystem has no local markets (for products), so our local entrepreneurs leapfrog the Israeli market straight to the US. A lot of them consider opening their headquarters in the US in order to market their products there, so we certainly lose part of the value that we create. We lose also some of our local talent, but we’re living in a global world, and people leaving does create networks.”

He adds: “We’ve accepted that Israeli start-ups have to go abroad to go to market, and now the policy I’m using is to attract entrepreneurs from Europe to our early-stage ecosystem, playing to our strengths.”

### Overcoming challenges

Quid’s findings appear to support the idea that ecosystems are playing to their strengths, as well as Professor Prabhu’s assertion that “in emerging economies, a lot of the ingenuity is really a response to scarcity, and people innovating solutions to unmet needs”. A key theme for Nigeria is overcoming infrastructure challenges—also seen in many other emerging markets. But challenge can foster greater creativity. “The success of mobile telephony in the emerging world is really because of the lack of landlines and has been a very remarkable leapfrog,” Professor Prabhu says. “Mobile phones have pretty much covered most of the countries, and done so much more cheaply and quicker than [through] landline [infrastructure].”

Three-quarters of the 6 billion mobile phones being used around the world are in developing economies,<sup>15</sup> and such proliferation in mobile technology is supporting ‘micro-entrepreneurs’ (the smallest of small businesses, with low seed capital and a handful of employees).<sup>16</sup> A study by the London Business School<sup>17</sup> <sup>18</sup> found that within months of having received mobile network coverage, 80% of fishermen in Kerala, southern India, had purchased a mobile phone. They used the mobile devices to call each fish market while still at sea, which enabled them to sell their catch where they were offered the best price, making the market more efficient: the fishermen’s profits increased by 8%, consumer prices were reduced by 4%, and the dumping of unsold fish (which had previously made up 5-8% of the daily catch) was eradicated.

# 4million

The number of farmers in Indian villages who benefit from weather, crop and marketing information from Reuters Market Light, via SMS.

Source: Reuters.

Taking advantage of the proliferation of mobiles, Reuters Market Light (RML)<sup>19</sup> provides local and international weather, crop and marketing information in eight languages through SMS to 1.3 million registered farmers in 50,000 Indian villages (although it is estimated to reach 4 million farmers through information-sharing). Such information helps farmers decide when to plant seeds, when to harvest and how best to market their produce and at what price, resulting in a 5.2% reduction in price dispersion.<sup>20</sup>

### Innovating for impact

While there are well-known examples of innovation solving emerging problems, too often, Mr Warner notes, “too many of our entrepreneurs are trying to solve ‘first-world’ problems, and potentially missing out on massive opportunities in developing countries. The question is: What kind of innovation is happening? We would like to get those minds involved to make a greater impact.”

<sup>15</sup><http://www.worldbank.org/en/news/press-release/2012/07/17/mobile-phone-access-reaches-three-quarters-planets-population>

<sup>16</sup><http://en.wikipedia.org/wiki/Micro-enterprise>

<sup>17</sup><http://innovation.london.edu/resource/99/index.html>

<sup>18</sup>The Digital Provide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector: <http://qje.oxfordjournals.org/content/122/3/879.abstract>

<sup>19</sup><http://www.reutersmarketlight.com/index.html>

<sup>20</sup>[http://www.reutersmarketlight.com/about\\_us.html](http://www.reutersmarketlight.com/about_us.html)

# Nurturing innovation

In order to understand the challenges facing innovators, as well as where they are receiving support, the research identified ‘high-level topic’ themes discussed across all eight ecosystems.

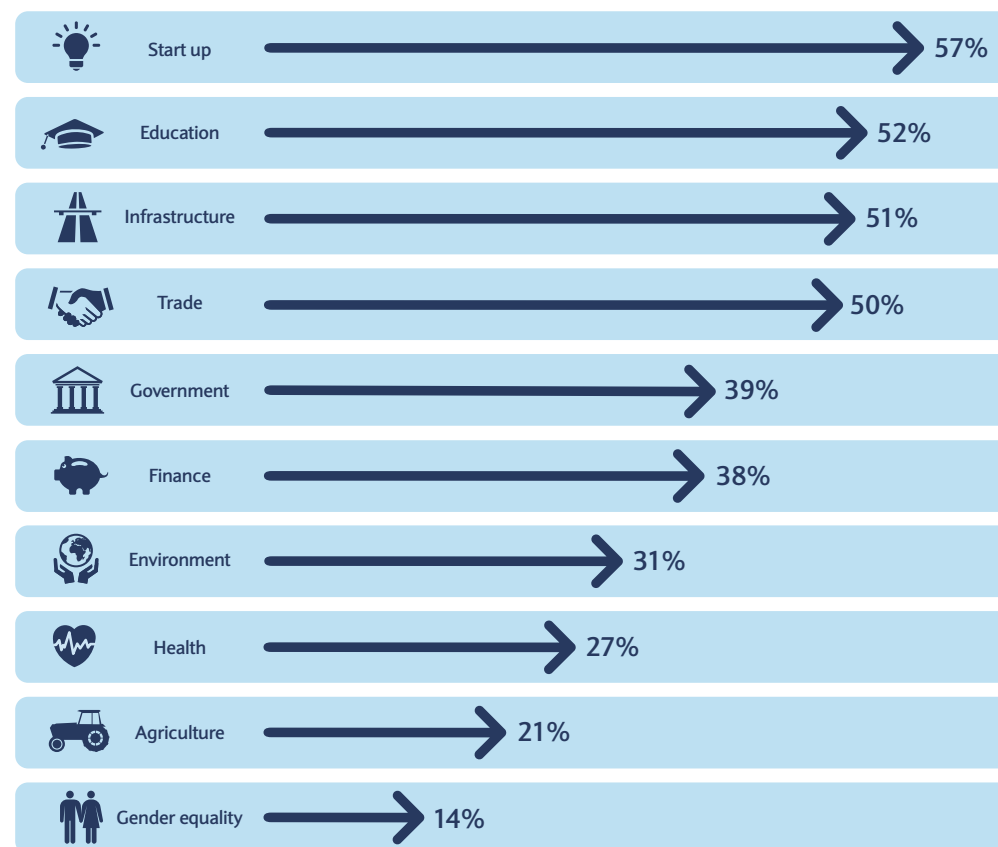
The role of government, the need for better access to capital and start-up ‘culture’ were all prevalent. Education and infrastructure were often mentioned as barriers to, rather than catalysts for, innovation. This is somewhat surprising, given that proximity to a university or research facility is considered to be an important ingredient for innovation ecosystems.

## Culture of collaboration

Mr Gill says this provides “a community of people who understand new ideas, understand research” and a “built-in culture of collaboration”. He adds: “The missing piece if you are a university or research facility is having the application or commercial focus. What works well is where you have gatekeepers who understand the needs of both sides.”

This is where providing innovation centres, such as St John’s in Cambridge, is beneficial in supporting entrepreneurs, according to Mr Gill. “We are a facilitator for the innovations of others,” he says, providing flexible workspace and “access to advice, guidance, introductions, networks – as much or as little as they need – so that they can get to the right people, the right resources, recruit new staff and find customers a lot easier than if they were doing it on their own.”

## Innovation factor average prevalence across all nations



## Top three geographics



Source: Quid.

### Building cultural self-confidence

One-fifth of the businesses housed in St John's Innovation Centre – which was the first accredited European Business and Innovation Centre (BIC) in the east of England and is one of eight in the UK – provide relevant services to innovators, such as patent and other legal advice, accountancy services and marketing services. There are similar BIC schemes in place across France, Spain, Italy, Portugal, Ireland, Germany, Belgium and Austria.<sup>21</sup>

Messrs Prabhu, Cowen and Gill believe that innovation ecosystems emerge where likeminded, visionary young people (and they see innovation as intrinsically youth-led) congregate, where they have what Mr Cowen calls the 'cultural self-confidence' to turn ideas into action. While technology has enabled cheap (or free) communication around the world, democratising voice and video conference calling, each expert says successful innovation cannot flourish without face-to-face interaction.

### Success factors

Beyond the ability to make connections face to face, what are the elements of a successful ecosystem? Mr Cowen lists: "Access to capital, ability to fail, a mix of arrogance and rivalry, cultural self-confidence, and then being at the right place at the right time. You need a decent regulatory environment that won't block too many things, and then

people on the funding side who have vision, and that's pretty rare because funders, by nature, are risk-averse."

Mr Warner agrees that governments can help to 'lower barriers' to innovation by encouraging 'balanced risk-taking' and providing financial incentives to entrepreneurialism, such as matching private investment in start-ups' research and development and providing tax incentives for funding start-ups.

While access to capital and different funding vehicles is essential, combining financing with some form of commercial mentorship would do more to ensure that it is used wisely and that past mistakes by previous start-ups are not repeated.

"One of the basic characteristics of a young entrepreneur is that they have had no experience," says Mr Warner. "Take Mark Zuckerberg, I mean he is a unique case, but he never ran a company before Facebook; his entry-level position is running a multi-million-dollar company. To foster mentorship and community, to support co-working spaces, clusters, where entrepreneurs can interact with one another and exchange ideas and talk about mistakes that they've made is really useful."

<sup>21</sup><http://www.ebn.be/DisplayPage.aspx?pid=10>





# Fostering innovation for the global community

The proliferation of global communication networks is a huge enabler for entrepreneurs and their employees across the world, with the potential to affect the capacities and productivity of companies in all sectors, be they agriculture, manufacturing or professional services.

The 'flat world' is the connected world, which highlights the importance of policymakers bridging the divide between digital-rich and digital-poor locations and communities where they exist.

By lowering barriers to entry, nurturing innovation and collaboration where it organically occurs and by promoting the successes of domestic entrepreneurs, countries can foster an entrepreneurial culture. With this in place, the potential for transforming the high numbers of unemployed into productive, engaged market participants is high.

Of course, education policies need to keep pace with the knowledge and skills required for young people to participate in the emerging 'third-wave industrial revolution'. To some extent, Mr Gill says, the sectors driving economies reflect the education systems – and types of learning – in each country. The Western 'ideas economy' arguably reflects the subtle shift away from rote and tick-box learning towards more creative and problem-solving learning. However, changing education policies may prompt politically difficult decisions with an ageing electorate. To some extent, business leaders and role model entrepreneurs can lend support to governments in their ambition to create a modern workforce for the future.

## Implications for governments

Mr Gill adds that governments must learn to recognise which entrepreneurs are most likely to flourish and to channel resources to them. "The trick for governments – and I fully accept it's a really difficult one – is to strike the balance between trying to let as many flowers bloom as possible and recognising those which are really not going to bloom and to stop feeding that pot plant," he says.

**"The trick for governments is to strike the balance between trying to let as many flowers bloom as possible and recognising those which are really not going to bloom and to stop feeding that pot plant."**

David Gill, Managing Director of St John's Innovation Centre

The issue of labour concentration is also a pressing one, as Mr Cowen believes innovation ecosystems will remain the preserve of cities, with 'more satellite relationships' from entrepreneurs who are based outside of cities but reliant on them. He explains: "It'll be a pretty small number of [innovation] hubs in most countries, and people will have

a satellite existence, perhaps because it's cheaper, but that's only possible once you've really built up your ties to the dominant [innovation ecosystem] centre." This has serious implications for city and town planners, with issues relating to 'urban sprawl' – such as high-density living, infrastructure overload and increased crime rates – already present in many countries. This could also cause issues of talent concentration, with some cities depriving other areas in the country of workers with necessary skills and intensifying inequality between domestic populations.

## Collaborating beyond borders

Getting the conditions right within an ecosystem is vital, but Mr Warner says policymakers also need to think beyond their borders. The rise of 'micro-multinationals' – start-ups built to target a global rather than domestic or regional market – necessitates greater collaboration between innovation ecosystems around the world, he says, which is why he is attempting to establish a Chamber of Commerce for Innovation Ecosystems.

"When a start-up is founded and has its R&D in Tel Aviv but within six months its headquarters in New York or Europe and supplies a global market, then certainly we have to think big. Essentially these entrepreneurs are working on a global scale (so we should too)," he adds.

### A virtuous circle of innovation

Aside from the economic gains of supporting entrepreneurs and increasing cross-border collaboration, the soft power benefits of a thriving domestic innovation ecosystem can buoy Mr Cowen's 'cultural self-confidence' and become a virtuous circle of innovation to meet the current and future needs of the global community.

The economic potential of entrepreneurs is tremendous, so understanding how and why innovation ecosystems emerge and what can be done to ensure that they flourish must be a priority. A suite of interventions, deployed across the cycle from education to employment, is needed to achieve lasting, substantive change. Governments, business and academia must work together to tackle this challenge. Global economies will fail to flourish unless more entrepreneurs are encouraged to build their ideas into successful businesses.



# Recommendations for creating successful innovation ecosystems

## Polymakers should:

- Increase cross-border collaboration
- Build innovation centres (as opposed to research facilities which typically lack commercial focus) that facilitate the innovations of others
- Create places where young people feel they have 'cultural self-confidence' and where they can meet face to face, as experts say that is when successful innovations emerge
- Ensure a friendly regulatory environment
- Lower barriers to innovation by encouraging 'balanced risk-taking' and providing financial incentives to entrepreneurialism (such as matching private investment in start-ups' research and development and providing tax incentives for funding start-ups)

- Reform education policies to keep pace with the knowledge and skills required for young people to participate in the emerging 'third-wave industrial revolution'
- Promote the successes of domestic entrepreneurs to foster an entrepreneurial culture
- Recognise which start-ups are more likely to succeed and channel the resources to them instead of trying to support as many start-ups as possible.

## Business leaders and entrepreneurs should:

- Combine financing with commercial mentorship
- Support the government in creating a modern workforce for the future
- Take advantage of opportunities in developing countries, instead of focusing too much on trying to solve 'first-world' problems.

# About this report

Barclays approached The Economist Intelligence Unit (EIU) in November 2013 to investigate how innovation ecosystems have developed around the world and how policymakers and business leaders can support these ecosystems and remove barriers for entrepreneurs.

Barclays also connected the EIU with Quid. Quid is a Silicon Valley start-up that has created a global intelligence platform used by the world's leading organisations and governments for strategic decision making. Quid is backed by investors including Peter Thiel and Niklas Zennstrom.

Quid software brings together data, algorithms and visualisation tools that allow users to uncover hidden relationships and insights from the world's information streams.

In the context of this study, Quid indexed and structured hundreds of thousands of global news documents on global innovation in eight geographies – the UK, US, France, China, India, Nigeria, Israel and Brazil. By utilising natural language processing and network theory, Quid visualised the topics of conversation, extracted key entities and events, to reveal trends in the global conversation around innovation. By analysing language, Quid revealed a data-driven comparison of the footprint of innovation factors and their sentiment in each ecosystem.

Sumon Sadhu, Daniel Houghton, Daniel Pedraza and Hamlet Abaya from the Quid Intelligence Team performed this analysis.

In addition to wide-ranging desk research and Quid's contribution, this report is also based on four expert interviews. Our thanks go to the following interviewees:



**Tyler Cowen** is the Holbert C. Harris Chair of Economics and General Director of the Mercatus Center (a university research centre that focuses on the market economy) at George Mason University in Fairfax, Virginia. He writes regularly for the New York Times, is co-author of the popular economics blog The Marginal Revolution and recently published his latest book, Average is Over.



**Jaideep Prabhu** is Jawaharlal Nehru Professor of Business and Enterprise at the Judge Business School of the University of Cambridge, UK. The professorship was established by the government of India with an endowment. He is also the Director of the Centre for India & Global Business (CIGB).



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**Avner Warner** is Director of International Economic Development at Tel Aviv Global City Administration, leading strategy and implementation for strengthening the city's positioning as a global innovation hub. His professional experience is as an attorney in the field of emerging and established technology companies, M&A and venture capital.

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