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CITY INITIATIVES *for* TECHNOLOGY, INNOVATION *and* ENTREPRENEURSHIP

A resource for city leadership

June 2015

John Gibson, **Matthew Robinson** and **Scott Cain**

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Nesta...

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Innovation and entrepreneurship have an important role to play in shaping the future of cities.

High-growth companies are creating the kinds of jobs, skills and technology needed to compete in the 21st century global economy. At the same time a new wave of businesses are changing how people interact with the city around them, through the creation of data-driven, location-aware and on-demand services.

It is perhaps no surprise that city governments around the world are starting to take action to capitalise on these trends. Through our research, we can see policymakers in cities using an impressive range of initiatives to create the right conditions for talent, ideas and businesses to flourish; from 'Technology

Apprenticeships' in London, 'New Urban Mechanics' in Boston and 'Owl Buses' in Seoul, to innovation-friendly regulation in Amsterdam, and start-up-friendly procurement in Barcelona.

CITIE aims to bring the best of this urban innovation together, both in the form of a framework that allows cities to benchmark their performance and through case studies that can help cities learn from one another.

Our hope is that by doing this we can enable more cities harness the energy of innovation and entrepreneurship to drive growth and make better places to live.

John Gibson
Director of Government Innovation
Nesta

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High performance. Delivered.

How city administrations programme themselves and the city for innovation is little understood. It is also not always clear what entrepreneurs should ask of their city hall. What is missing is a comprehensive view of the ways in which a city government can mainstream the innovation that underpins a city. The City Initiatives for Technology, Innovation and Entrepreneurship consortium was founded to fill this gap.

The businesses that can be incubated in cities can provide new jobs and economic growth, but also solve the challenges of city governments and help them run well. For a number of cities embracing this growing sector of their economies, a positive feedback loop exists between innovation and entrepreneurship outside the city administration and good governance - including both policy and delivery - within it.

We went into this project confident that city governments can draw on the tools already at hand to implement a systematic and efficient approach in how innovation and entrepreneurship are realised in the city - an approach that does not require a significant investment. The results from CITIE bear this out: incremental adjustments in the day-to-day workings of city

leadership can have a significant impact on the innovative capacity of a city.

Successful creation and implementation of delivery will require, perhaps, a city administration that acts a bit more like a start-up itself, in how it creates, experiments, prototypes and scales solutions. Through this approach, city governments will be in constant dialogue and interaction with the business community, leading to policy that is more experimental and more impactful.

Accenture is pleased to work with Nesta and the Future Cities Catapult to understand how a city government can re-engineer itself to better enable innovation and entrepreneurship. This report is an important resource for both city governments and entrepreneurs to draw on to begin or deepen their conversation.

Matthew Robinson
Managing Director of Policy Research
Accenture Institute for High Performance

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Future Cities

One of the most fundamental challenges of 21st century city governance lies in creating an environment where entrepreneurs and businesses can thrive. As cities face strains that include ageing populations, shifting public service provisions and the saturation of infrastructure, there's never been a more vital time for innovation, nor a more difficult situation in which to make it happen.

At Future Cities Catapult, we work with cities around the world to help deliver innovation at the city scale. We know that to achieve such results cities must share knowledge, build synergistic partnerships and ultimately create an ecosystem where businesses and people thrive. The framework proposed in the CITIE project provides a springboard from which cities can do just that.

The framework offers powerful visualisations of urban data, which will help unlock the information cities already collect and turn it into useful tools to inform better decision making at scale. It will guide cities towards fruitful conversations about their strengths and relative weaknesses, allowing them to explore new opportunities to encourage innovation. And it will improve their ability to create positive partnerships, allowing them to work more closely than ever with businesses and academia, and with other cities.

Ultimately, it will enable city leaders to develop policies that help entrepreneurs and businesses to succeed. Because a 21st century city needs the governance to make best use of its 21st century innovation.

Scott Cain
Chief Business Officer
Future Cities Catapult

CITIE

CITY INITIATIVES *for* TECHNOLOGY, INNOVATION *and* ENTREPRENEURSHIP

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EXECUTIVE SUMMARY

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City Initiatives for Technology, Innovation and Entrepreneurship (CITIE) provides city policymakers with a resource to help them develop the policy initiatives that catalyse innovation and entrepreneurship in cities

This report is an introduction to the CITIE framework, analysis and results for 2015. It complements the CITIE website, where more detail including full case studies and a diagnostic tool can be found.
www.citie.org

Section one makes the case for innovation and entrepreneurship, and introduces our approach

Innovative tech companies are attractive to cities. Not only do they produce the jobs of tomorrow, but they are increasingly perceived as a symbol of civic vitality. There is a growing feedback loop between entrepreneurship outside of the city hall, and innovative governance within them. As a result, a growing number of city governments are turning their attention to what they can do to grow this part of their economy.

While city authorities can't create tech communities or entrepreneurs, what they can do is optimise the policy levers that are within their control to design the best set of conditions for innovation to flourish. CITIE aims to help city leaders around the world understand how best to approach this.

We researched how 40 leading cities from around the world are supporting innovation and entrepreneurship. We tested against a series of metrics that collectively answer three questions:

1. How open is the city to new ideas and new businesses?

2. How does the city optimise its infrastructure for high-growth businesses?

3. How does the city build innovation into its own activities?

In the course of our research we generated 1,440 original data points. Each of these was derived by observing whether, and if so how extensively, a city has implemented a particular policy.

Section two provides detail on the nine policy roles that are at the heart of our analysis

Our analysis revolves around nine policy roles that city governments can adopt to support innovation and entrepreneurship. The roles are Regulator, Advocate, Customer, Host, Investor, Connector, Strategist, Digital Governor and Datavore. They are designed to cover the full range of a city's operations.

For each of these roles, we:

- Set out why it is important.

- Identify the specific actions we look for to indicate good practice.

- Show how each city performs.

- Describe examples of good practice, and extracts of the detailed case studies that can be found at www.citie.org. This case study material is designed to highlight what good practice looks like globally so that other cities can learn from it.

Section three gives an overview of the results for 2015, and draws out some lessons from top performing cities

We have assessed 40 cities against our framework. The purpose of doing this is to help them identify their relative areas of strength and weakness in order to guide policymaking efforts.

We have clustered our 40 cities into four tiers of performance: 'Front Runners', 'Challengers', 'Builders' and 'Experimenters'. This is to provide each city with a group of comparable peers that they can benchmark themselves against and learn from.

We have also highlighted the five cities that we currently think represent best practice globally for 2015:

1. New York City

2. London

3. Helsinki

4. Barcelona

5. Amsterdam

Although the cities in this leading group tend to perform consistently well across our indicators, there are also marked variations in the approaches that they take.

Our analysis of 40 cities globally shows a rich diversity of approaches to catalysing innovation and entrepreneurship. This kind of diversity is apparent across all 40 cities. There is no single pathway to success. Nevertheless, there are certain things that high-performing city governments share:

1. **They make sure that very different areas of policy need to work in concert.**

   Good policy in one area can be undermined by bad policy in another. As a result, they tend to have teams, individuals or strategies in place who champion innovation across departmental siloes.

2. **They are open by default.**

   They recognise that the kind of knowledge and ideas needed to drive change are unlikely to reside entirely within the city hall. As a result, they habitually find ways to work with outsiders in solving urban problems.

3. **They employ styles of working that are more closely associated with start-ups than bureaucrats.**

   They are happy to try things out and not afraid to fail. And they are increasingly delivering agile projects, prototyping, deploying user-led design and developing digital services. As a result, they are able to move quickly as the world changes around them.

Section one: An introduction to CITIE: CITY INITIATIVES *for* TECHNOLOGY, INNOVATION *and* ENTREPRENEURSHIP

Why this is important for city leaders

Innovation is disproportionately driven by young, technology-intensive companies.[1]

Over the past few years these new businesses are moving from suburban research parks to urban communities integrated into the heart of the city.[2]

They bring with them considerable benefits to cities.

High-growth companies create jobs

Growth is disproportionately driven by young, high-growth companies. Between 2002 and 2008, for example, just 6% of high-growth companies created 50% of the UK's employment growth.[3]

Vibrant tech sectors are often the epicentre for new growth. New York City's tech sector directly created 45,000 jobs between 2003 and 2013 – 6% higher than the employment growth rate in New York City and 14% higher than the national average.[4]

These are the jobs of tomorrow

Not only are these jobs numerous, they are also the jobs of tomorrow. With recent research predicting that up around 47% of U.S. jobs are at risk of automation, innovative high-growth companies are creating the skills and ideas that cities will need to compete in an increasingly digital global economy.[5]

There is a growing feedback loop between entrepreneurship outside city halls, and innovative governance within them

Whereas city administrations were once relatively closed and insular environments, leading cities are now looking to engage with outside ideas and innovators to improve services and create new solutions to complex problems. Individuals and teams within cities are also starting to adopt working practices more typically associated with start-ups than bureaucrats.

A new breed of companies are reshaping the way people interact with the city around them

Companies like Uber, Airbnb, Citymapper, Deliveroo and JustPark are bridging the digital and the physical with location-aware and on-demand services that create new ways for citizens to experience their city.

> " *Tech companies are starting to build services that connect the physical and digital worlds. It is natural that cities are the focal point for this kind of innovation, which in turn adds to the richness of the urban experience. New possibilities are being created in terms of where to stay, how to get around, what to eat or where to go.* "
>
> **Greg Marsh**
> Co-founder and CEO
> onefinestay

It is clear that many cities recognise the importance of innovation and entrepreneurship

By looking across 40 cities from around the world, we can observe a growing range of policy initiatives being employed by city governments to foster entrepreneurship both in the private sector as well as innovation in the way the city delivers services.

These efforts have yet to be brought together and analysed in a systematic way, leaving an important knowledge gap. We developed CITIE to fill this gap.

What is C I T I E ?

City Initiatives for Technology, Innovation and Entrepreneurship (CITIE) is the product of a partnership between Nesta, Accenture and the Future Cities Catapult.

CITIE provides city policymakers with a resource to support the development of policy initiatives to catalyse innovation and entrepreneurship in cities.

CITIE comprises four main components:

1. A framework for understanding how policy in nine key areas at the city level can be used to support innovation and entrepreneurship.

2. A diagnostic tool that allows cities to understand how they perform against this framework relative to 40 global cities.

3. A range of examples and case studies that shine a light on best practice from around the world.

4. The results and analysis for 2015.

CITIE is designed to be used by policymakers in cities. To the greatest extent possible, it focuses on those policy levers that city governments have at their disposal, although this inevitably varies from place to place.

Explore our framework, diagnostic tool and case studies with city leaders further at: www.citie.org.

> *When people ask what countries can do to foster innovation, they're asking the wrong question. It's really about what cities can do. Some cities across Europe, the US and beyond have become hotbeds for entrepreneurship, with innovative start-ups driving the growth of their economies and serving their inhabitants.*
>
> **Neil Rimer**
> Co-founder and partner
> Index Ventures

Figure 1: CITIE resources

CITIE FRAMEWORK

An assessment of 40 global cities against a framework of policy levers city governments can use to support innovation and entrepreneurship
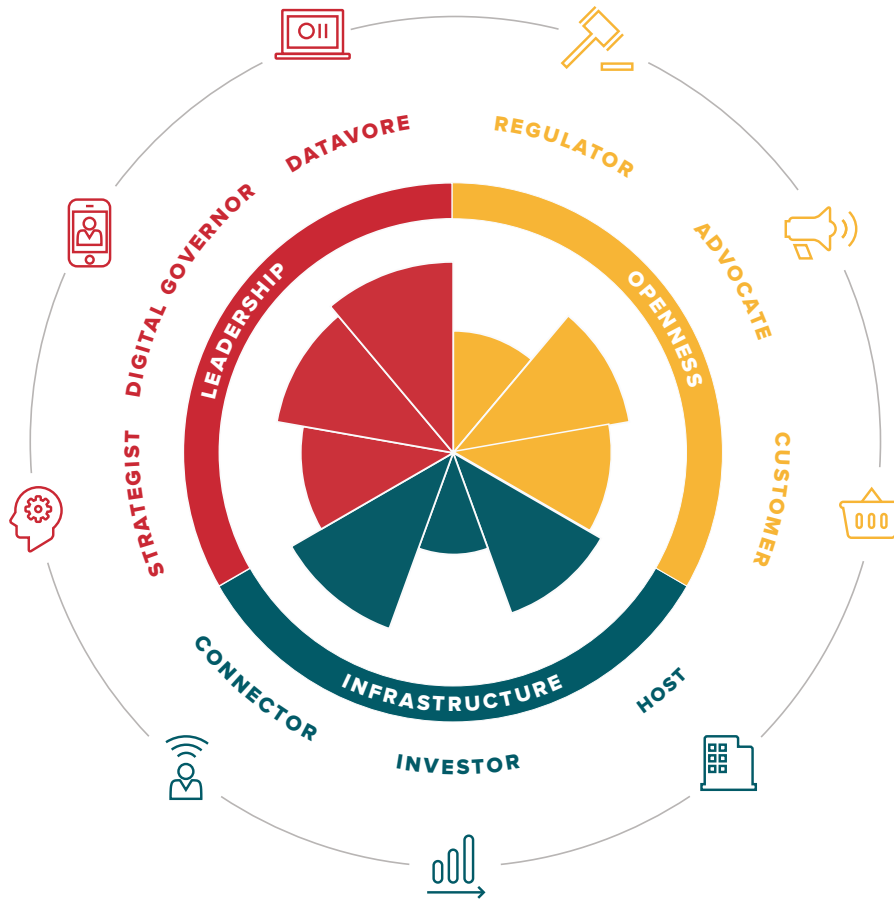
DIAGNOSTIC TOOL

An online tool to allow city governments to explore their performance and assess how they compare with their peers

CASE STUDIES

A series of case studies for cities to learn about global best practice

Figure 2: **The CITIE Framework**

OPENNESS	INFRASTRUCTURE	LEADERSHIP
How open is the city to new ideas and businesses?	*How does the city optimise its infrastructure for high-growth new businesses?*	*How does the city build innovation into its own activities?*

REGULATOR *How does the city regulate business models in a way that allows for disruptive entry?*	**HOST** *How does the city use space to create opportunities for high-growth companies?*	**STRATEGIST** *Has the city set a clear direction and built the internal capability required to support innovation?*
ADVOCATE *How does the city promote itself as an innovative hub and its new business community to the outside world?*	**INVESTOR** *How does the city invest in the skills and businesses required for innovation?*	**DIGITAL GOVERNOR** *How does the city use digital channels to foster high-quality, low-friction engagement with citizens?*
CUSTOMER *Is procurement accessible to small businesses, and does it actively seek out innovation?*	**CONNECTOR** *How does the city facilitate physical and digital connectivity?*	**DATAVORE** *How does the city use data to optimise services and provide the raw material for innovation?*

The **CITIE** *framework*

An overview of the framework

The CITIE framework provides a resource for city policymakers who want to develop policy to support innovation and entrepreneurship (Figure 2).

It was developed by combining extensive consultation with city government leaders, policy experts, venture capitalists and entrepreneurs with detailed research into the state of the art in policy from cities around the world.

There are three levels to our analysis, illustrated in Figure 3:

1. Policy dimensions: overarching questions about how a city supports innovation and entrepreneurship

On the basis of this research, we identified that the approach a city government takes to innovation and entrepreneurship can be characterised by the answers to the following three questions:

OPENNESS

a. How open is the city to new ideas and businesses?

High-performing city governments support insurgent businesses by ensuring that regulations, procurement rules and advocacy efforts work in their favour.

INFRASTRUCTURE

b. How does the city optimise its infrastructure for high-growth businesses?

High-performing city governments invest in their transport and digital infrastructure, and support access to inputs such as talent and capital that high-growth businesses need to thrive.

LEADERSHIP

c. How does the city build innovation into its own activities?

High-performing city governments lead by example, by taking a clear view on how they want to support innovation, and then using data and engaging with citizens to do so.

2. Policy roles: the nine roles that city governments can play to support innovation and entrepreneurship

In order to answer these questions, we designed a framework that identifies nine different roles that a city can play to support innovation and entrepreneurship.

City governments can increase their openness to new ideas and businesses through their roles as **Regulator**, **Advocate** and **Customer**. They can optimise the enabling infrastructure for high-growth businesses in their roles as **Host**, **Investor** and **Connector**. And they can lead from within the city hall through their roles as **Strategist**, **Digital Governor** and **Datavore**.

These nine roles are the focal point of CITIE, and each is described in detail in the rest of this report.

3. Policy levers: the specific policy initiatives we use to measure how well cities perform these roles

We tested how well 40 leading city governments perform each of these roles by measuring a series of policy levers.
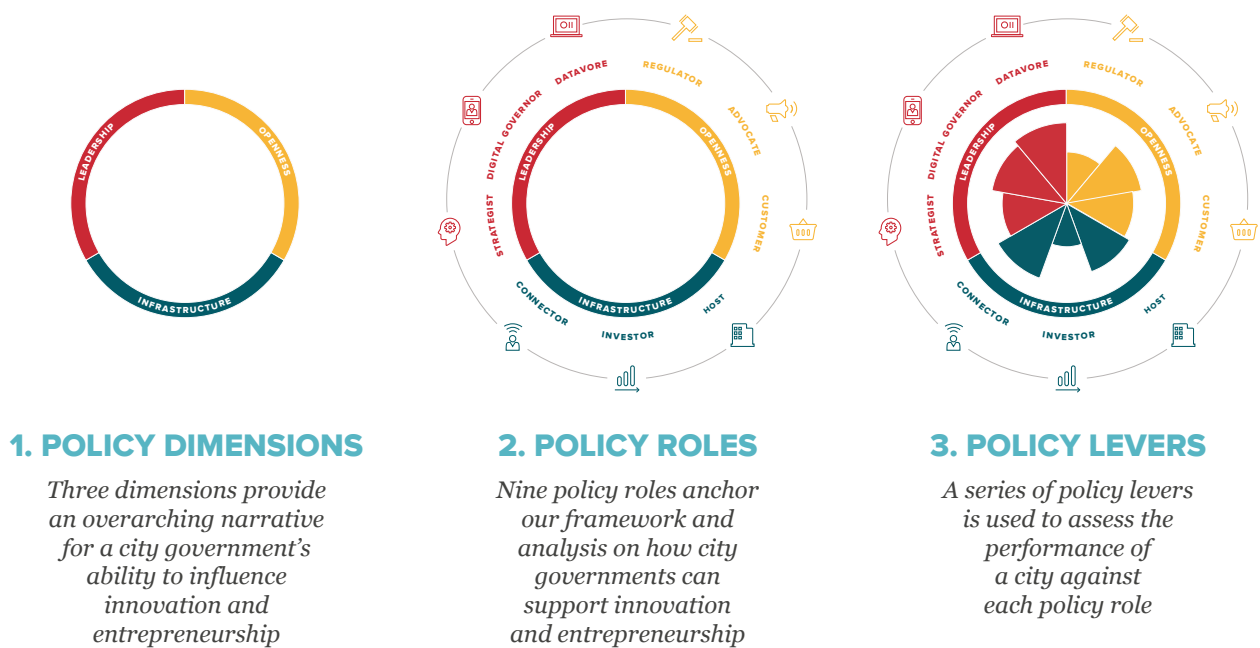
These levers were chosen to represent best practice from around the world. In many cases, they are measures that can be quick to implement, allowing policymakers opportunities for prompt action. The levers are detailed in each section and are set out in full at Appendix 1.

> ❝ *City governments must be open to new ideas that challenge the status quo and help stimulate innovation locally to compete globally.* ❞
>
> **Josep M. Piqué**
> CEO
> Office of Economic Growth
> Barcelona City Council

Taken collectively, these three levels of analysis comprise the CITIE framework. Figure 3 shows how they build on top of each other.

Figure 3: **Constructing the CITIE framework**

1. POLICY DIMENSIONS

Three dimensions provide an overarching narrative for a city government's ability to influence innovation and entrepreneurship

2. POLICY ROLES

Nine policy roles anchor our framework and analysis on how city governments can support innovation and entrepreneurship

3. POLICY LEVERS

A series of policy levers is used to assess the performance of a city against each policy role

The cities in our analysis

CITIE has assessed 40 city governments from around the world (Figure 4) against the policy framework.

The cities were selected to provide a diverse set of insights across cities of different sizes, cultural contexts and with different stages of maturity in the start-up ecosystem.

Figure 4: **The 40 cities in our analysis**

Amsterdam Netherlands	**Buenos Aires** Argentina	**Jakarta** Indonesia	**New York City** USA	**Singapore** ROS
Bangalore India	**Chicago** USA	**Johannesburg** South Africa	**Paris** France	**Sydney** Australia
Barcelona Spain	**Copenhagen** Denmark	**London** UK	**Prague** Czech Republic	**Tallinn** Estonia
Beijing China	**Doha** Qatar	**Los Angeles** USA	**Riyadh** KSA	**Tel Aviv** Israel
Berlin Germany	**Dubai** UAE	**Melbourne** Australia	**San Francisco** USA	**Tokyo** Japan
Bogotá Colombia	**Helsinki** Finland	**Moscow** Russia	**São Paulo** Brazil	**Toronto** Canada
Boston USA	**Hong Kong** SAR	**Nairobi** Kenya	**Seattle** USA	**Vancouver** Canada
Brussels Belgium	**Istanbul** Turkey	**New Delhi** India	**Seoul** South Korea	**Vienna** Austria

Section two: THE ANALYSIS

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Nine roles city governments can play to support innovation and entrepreneurship

Our analysis revolves around nine policy roles that city governments can adopt to support innovation and entrepreneurship (Figure 2).

Each is important in its own right, but taken together they can create an environment that is optimised to support innovation and entrepreneurship.

Putting the nine roles in context

Below, we set out a few points of context that help describe how the policy roles relate to one another and how best to interpret them.

1. **Some policy roles imply a direct focus on private sector entrepreneurship. Others are more about innovation within city hall. The system as a whole works best when these work together**

   Policy roles such as Regulator, Customer and Investor directly define how a city government engages with and supports businesses. Getting them right tends to require an explicit commitment to prioritise entrepreneurship.

   Other policy roles such as Strategist, Digital Governor and Connector are less explicitly focused on entrepreneurship. Measures such as laying fibre, digitising public services or building an internal innovation team serve a wider range of policy objectives. Nevertheless, they form important components of the overall business environment.

   Entrepreneurship outside the city hall and innovation inside it are complementary to each other.

2. **The extent of control over each policy lever varies between different city governments**

   We have tried to focus on areas in which cities have direct policy levers to work with. However, the delineation of powers between national, regional and city-level government varies considerably around the world.

   We have tried to accommodate this within our analysis where possible. We have also accounted for less direct measures that city governments can take when they do not have formal powers, such as advocacy, matchmaking, educational campaigns and marketing. Increasingly, these tactics are being deployed through partnerships with private sector actors and other key stakeholders in the city.

3. **The areas that a city government has the most direct control over do not correlate perfectly with the things that matter most to entrepreneurs**

   For example, access to capital is crucial to entrepreneurs, indicated by the rapid growth of the alternative finance market, such as equity-based and reward-based crowdfunding.[6] It is therefore not surprising that we can see a number of cities making efforts to support these inputs, but they are rarely the principal actor in these areas. Risk capital markets are primarily private, and few city governments have direct control over school curriculums or the quality of local universities.

   In contrast, all city governments have control over how they run their procurement or what they do with their data. These factors are very important to some businesses, but less so to others.

   Figure 5 sketches the relationships between how important different variables are to entrepreneurs and innovators, and how much control a city has over them.

4. **The wider cultural and economic context of a city is also important, but we have kept our analysis focused on the policy levers that city governments have at their disposal**

Considerations ranging from house prices, crime levels, school quality to cultural vitality, to the quality of bars and restaurants, all make a city attractive. But, in general, it is difficult to hold city governments directly to account for them, at least in the short or medium term. As a result, we have excluded them from our analysis.

Figure 5: **Factors important to entrepreneurs that city governments can influence**
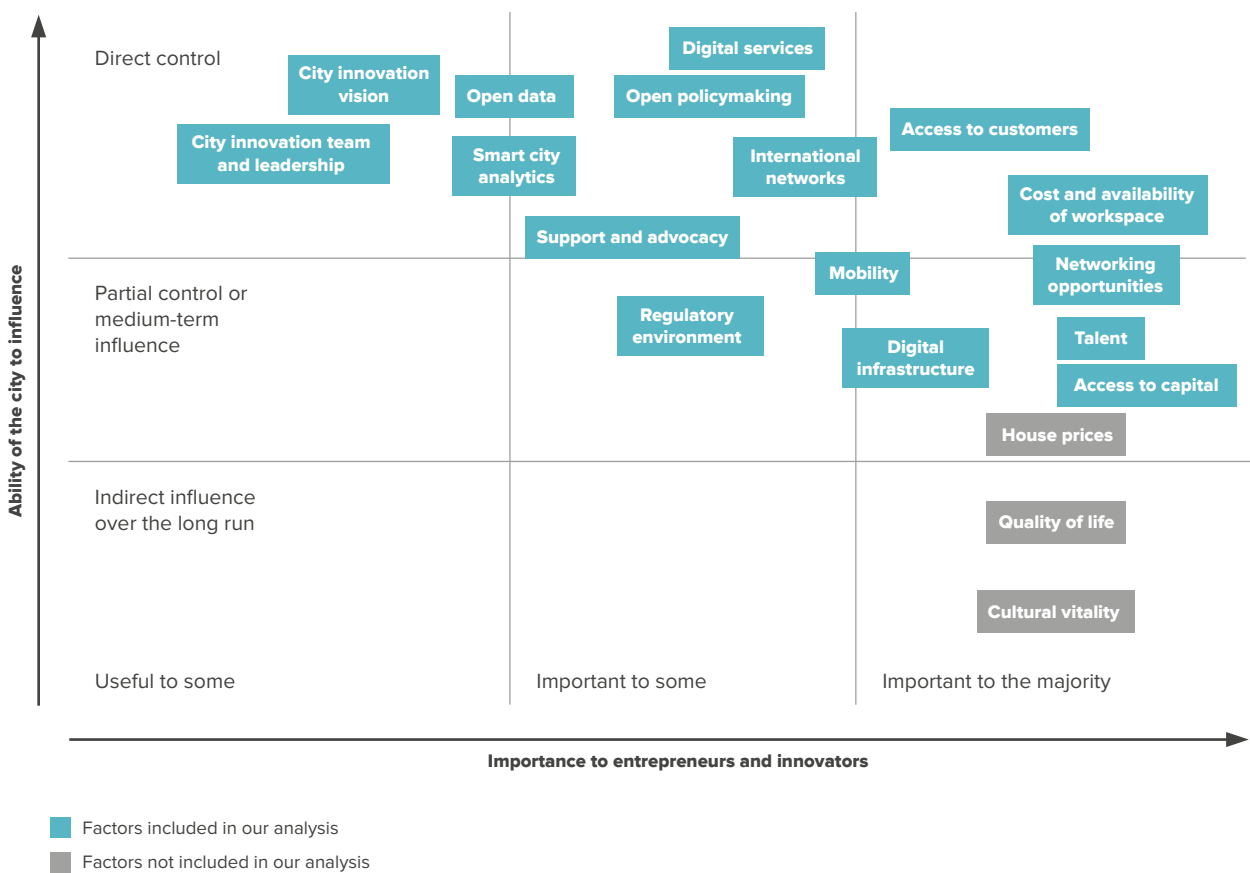
The remainder of section two gives an overview of each of the nine roles that city governments can play. For each of these roles, we:

- Set out why it is important.

- Identify the specific actions we look for to indicate good practice.

- Show how each city performs.

- Describe examples of good practice, and extracts of the detailed case studies that can be found at www.citie.org. This case study material is designed to highlight what good practice looks like globally so that other cities can learn from it.

OPENNESS

How open is the city to new ideas and businesses?

REGULATOR
How does the city regulate business models in a way that allows for disruptive entry?

ADVOCATE
How does the city promote itself as an innovative hub and its new business community to the outside world?

CUSTOMER
Is procurement accessible to small businesses, and does it actively seek out innovation?

CITY AS REGULATOR

How does the city regulate business models in a way that allows for disruptive entry?

Why this is important for city governments and entrepreneurs

Regulatory compliance is something that all businesses need to make sure they get right. This can be particularly challenging for companies that bring new business models to market which challenge the assumptions made by regulations from a previous era.

Often it is the city authority that has to determine how these new models will be regulated, particularly in markets that operate at a city level, such as on-demand taxi services and short lets. This is a delicate balancing act.

Digital technologies are increasingly disrupting previously well-defined industry boundaries, giving rise to new business models. These can create value for businesses and consumers alike. For example, in San Francisco the short-term holiday rental platform Airbnb is estimated to contribute $56 million in local spending and support 430 jobs in the city.[7]

However, such businesses often present novel challenges for lawmakers and regulators - should a spare room be treated in the same way as a hotel room? They can also threaten legacy businesses, which will often respond by seeking regulatory protection from what they perceive as unfair competition.

High-performing city governments are finding ways to accommodate innovative new business models into their local economy.

This does not mean crudely deregulating markets, nor does it involve using regulation to protect incumbents. Rather, it is about taking measures to make sure that regulations keep up to date with new ideas and technologies.

We used contemporary examples of disruptive business models – shared lets and on-demand taxi services – to test how well city governments do this.

We assessed whether city governments:

a. enforce existing regulations proportionately; and

b. keep regulations up to date in response to changes in the market

What we looked for in cities

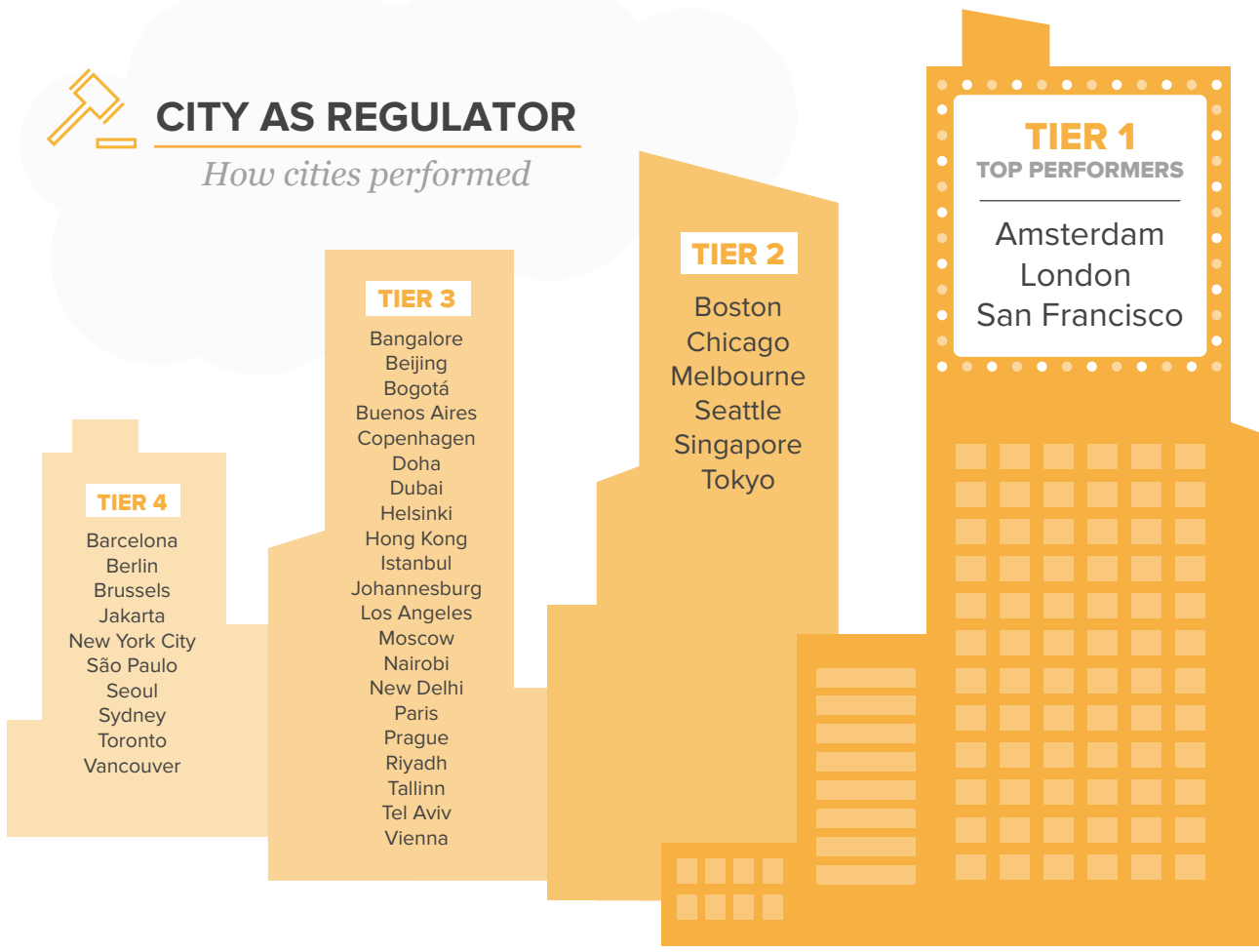| ENFORCE PROPORTIONATELY	RESPONSE TO CHANGE	
1 Enforce existing regulations proportionately	**2** Review and update regulations to take account of new business models	**3** Engage the full spectrum of stakeholders to craft balanced regulation
Proportional enforcement ensures that old regulations do not block new entry over technicalities.	Regulation becomes better able to take account of pace of change.	Engaging with all stakeholders helps to construct fair and balanced regulations.

CITY AS REGULATOR
How cities performed

TIER 1
TOP PERFORMERS

Amsterdam
London
San Francisco

TIER 2

Boston
Chicago
Melbourne
Seattle
Singapore
Tokyo

TIER 3

Bangalore
Beijing
Bogotá
Buenos Aires
Copenhagen
Doha
Dubai
Helsinki
Hong Kong
Istanbul
Johannesburg
Los Angeles
Moscow
Nairobi
New Delhi
Paris
Prague
Riyadh
Tallinn
Tel Aviv
Vienna

TIER 4

Barcelona
Berlin
Brussels
Jakarta
New York City
São Paulo
Seoul
Sydney
Toronto
Vancouver

How cities are acting as Regulator

In advance of the 2020 Olympics, **Tokyo** has set a target of 20 million visitors a year by 2020. And as part of its economic growth strategy, the government has designated special zones in Tokyo and Osaka where regulations related to short-term lodging are set to be eased.

In 2014, **Amsterdam** created a new category of accommodation – 'Private Rental' – which clarified homeowners' rights and responsibilities for short-term letting. And from February 2015, Airbnb has been working with the city to collect tourist taxes from their hosts, which goes direct to the city. Amsterdam has worked closely with citizens and Airbnb to ensure it got this right.

In 2014, **Seattle** approved updated regulations to allow Uber, Lyft and other smartphone app-based transport services to operate legally. The result of more than a year's debate between the city, taxi companies and ride-share services, the regulation allows a new industry to thrive while maintaining high levels of public safety.

And what this can mean for business

Airbnb, founded in 2008, provides a marketplace for people to short-term let their homes, providing a low-cost alternative. Its rapid growth has resulted in cities such as Dubai, Paris and Amsterdam updating planning and building rules that govern short lets.

> *"Cities like Amsterdam have shown how productive it can be to engage in conversation with businesses and residents when thinking about how to update regulations in response to new business models."*

Patrick Robinson
Head of Public Policy, EMEA & Canada
Airbnb

CASE STUDY EXTRACT **Regulation disrupted: How cities are responding**

Disruptive business models often challenge traditional ways of doing things and the regulatory structures that have evolved around them. This presents some relatively new challenges to cities. We suggest four things that city governments should think about:

1. Consult widely

Incumbents who are threatened by change will often have the loudest voice and in some cases will lobby hard to use regulation to protect the status quo. When reflecting on how to respond to change, city governments should ensure that they also take into account not just the opinions of new service providers, but their users too. Much regulation is designed for the benefit of consumers, and so their perspective on the impact of change is valuable. Amsterdam did this very well when designing new regulations for short lets in 2014, going beyond traditional consultation exercises to run workshops that brought all interested parties together.

2. Don't worry about getting it perfect first time

Regulations can become outdated quickly. But markets often move too fast for city governments to try and design the perfect solution. Instead, they should experiment, learn and be flexible. If a new business model falls foul of existing regulations in a way that does not cause obvious harm, measures like granting temporary permissions can be a good way to trial a new approach. The city of Portland adopted this approach in 2015 by running a 120-day pilot to test out a set of new rules for ridesharing in the city.

3. Make sure you distinguish between protecting consumers and protecting producers

Regulations that require a minimum service quality are an important form of consumer protection. But if the quality standard is gold-plated, it risks protecting producers more than consumers. And any regulation that places quantity restrictions on supply into a market is unlikely to be in the consumer interest. The approach taken by London to Uber makes a good compromise. Drivers must have a Public Carriage Licence, which includes criminal and driving record and vehicle quality checks. But there is no quota for the number of licences available.

4. Try to stay ahead of change

Leading regulators are starting to make more effort to understand what is coming on the horizon and how it is likely to impact them. For example, the UK's Financial Conduct Authority's 'Project Innovate' is designed in part to enhance their understanding of the regulatory implications of developments in FinTech. Many city governments have strong relationships with local innovators, and could benefit from using this as a source of intelligence about upcoming regulatory challenges. Being quick to design regulations that accommodate new business models can be a source of competitive advantage.

For more information and to view the full case study, visit **www.citie.org**

CITY AS ADVOCATE

How does the city promote itself as an innovative hub and its new business community to the outside world?

Why this is important for city governments and entrepreneurs

Young businesses need to invest a great deal of time and energy in building their reputation and their networks. Getting the attention of investors, partners or customers can be challenging when you are small and do not have an established brand.

City leaders often have precisely the kind of reach and convening power that early-stage businesses need. They can sponsor international events and are able to draw in investors and influential people, giving critical exposure to fledgling local businesses.

For example, through its online, interactive map of start-up activity across New York City, Digital.NYC facilitates connections and meetings between investors and entrepreneurs. Digital.NYC also promotes related events, such as New York Tech Day – an annual event with over 400 exhibitors and 10,000 attendees, where companies can showcase and recruit.

Consciously branding the city as a place where innovation happens and entrepreneurship is valued helps to attract the next generation of start-ups.

High-performing city governments use their influence to help champion the cause of local businesses, and to enhance their own business environment.

We assessed whether city governments:

a. promote themselves as centres of innovation to attract the best ideas and business; and

b. support local businesses to gain exposure to influential people, organisations and ideas by bringing them into the city.

What we looked for in cities

PROMOTE THE CITY AS AN INNOVATION HUB			PROMOTE LOCAL NEW BUSINESS TO THE OUTSIDE WORLD	
1 Ensure a new business focus within the trade and investment function	**2** Provide setup support for new businesses	**3** Promote the city as a hub of business creation	**4** Sponsor events relevant to high-growth sectors	**5** Help early-stage ventures access global network
Trade and investment function can be used to promote the city to entrepreneurs.	Provision of information needed by new businesses as an accessible package or service.	Being seen externally as an innovation hub helps attract the best ideas, companies and investors.	Hosting events brings in new ideas, connections and potential customers from around the world and profile its new businesses.	City leaders can use their reach and convening power to promote its new businesses through trade visits and other events.

CITY AS ADVOCATE
How cities performed

TIER 1
TOP PERFORMERS

Amsterdam
Barcelona
Berlin
Dubai
London
Los Angeles
Melbourne
New York City
Singapore
Sydney
Tel Aviv

TIER 2
Bogotá
Copenhagen
Helsinki
Hong Kong
Moscow
Paris
San Francisco
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Tallinn
Toronto
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TIER 3
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Brussels
Buenos Aires
Chicago
Doha
São Paulo
Seattle
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TIER 4
Bangalore
Beijing
Istanbul
Jakarta
Johannesburg
Nairobi
New Delhi
Prague
Riyadh
Tokyo

How cities are acting as Advocate

Berlin provides extensive soft landing support for businesses seeking to start out, operate and expand in the city, allowing them to try out the city for a few months at minimal cost. Operated by the Berlin Partner for Business and Technology, its Business Welcome Package, costing €4,500, provides entrepreneurs with an office, an apartment and advice on marketing, taxation and finance.

Innovate **Los Angeles** (in LA) is a not-for-profit organisation set up to promote and accelerate the innovation economy and spur job creation.

Comprised of tech and venture capital leaders, entrepreneurs and universities, Innovate Los Angeles promotes the county as a global innovation and entrepreneurial hub, with Los Angeles Innovation Week celebrating the burgeoning sector.

Dubai's Department of Economic Development has a dedicated team focusing on SMEs, providing consultations and various incubator programmes. The Dubai SME100 ranking actively promotes Dubai as an innovation hub.

And what this can mean for business

Zopa, a peer-to-peer lending platform, was one of the FinTech companies that joined the Mayor of London, Boris Johnson, on his trade visit to Boston, USA, in

February 2015. In 2012, The UK Government used Zopa as a way of lending £10 million to SMEs.[8]

> *The key is to make the city a lab. Within a city you can create prototypes, test pilots and ultimately use the environment as a showcase to the country and the rest of the world.*

Josep M. Piqué
CEO
Office of Economic Growth
Barcelona City Council

CASE STUDY EXTRACT **The city as Advocate: lessons from New York City**

Start-ups can struggle to gain the exposure required to attract investment and the employees they need. With limited contacts, marketing budgets and recruiting capabilities, isolated start-ups lack the reach of larger organisations. In such cases, a city government's capacity to convene can be used to champion its local entrepreneurs.

New York City is a leading example of how strategic branding can accelerate entrepreneurial development. Between 2003 and 2013, the New York City tech scene raised $3.1 billion in funding, with capital availability growing twice as fast as in Silicon Valley.[9]

Successful advocacy helps build a brand for a city's start-up community, which in turn strengthens the scope and scale of the community's network. New York City achieves this through three initiatives in particular:

1. **'Made In NY'** – a brand for companies that have at least 75% of their business production in NYC.

2. **Digital.NYC** – an online hub for the city's start-up ecosystem.

3. **World to NYC** – launched by the New York City Economic Development Corporation, invites and connects innovative international companies to contribute to the local ecosystem.

For more information and to view the full case study, visit **www.citie.org**

CITY AS CUSTOMER

Is procurement accessible to new businesses, and does it actively seek out innovation?

Why this is important for city governments and entrepreneurs

Every business needs customers. And city governments are big customers, spending $4.5 trillion globally; New York City spent $17.8 billion in 2014 buying goods and services and the Greater London Authority's budget for 2015/16 is £16.7 billion, for example.[10]

However, historically it has been difficult for young firms to win business from public bodies like city governments. Legacy processes, a preference for large integrated contracts and an aversion to working with unproven ideas or suppliers have all created barriers to new players accessing this market.

High-performing city governments increasingly recognise the value of acting as customers of innovation. Opening up procurement mechanisms to make them accessible to younger, smaller businesses allows cities to access a wider range of new ideas and technology than traditional market procurement has allowed for.

It also opens up commercial opportunities for local entrepreneurs and provides them with a living urban lab in which to test and validate their products and services.

We assessed whether city governments:

a. have made procurement open and accessible to small businesses; and

b. are actively using their buying power to pull through innovation and provide a 'first customer' for new ideas.

What we looked for in cities

OPEN AND ACCESSIBLE PROCUREMENT			PROCUREMENT AS A LEVER FOR INNOVATION	
1 Ensure the visibility of procurement opportunities through a single portal	**2** Ensure that pre-qualifying requirements achievable by new businesses	**3** Define targets for spend on new businesses	**4** Use problem-based procurement methods	**5** Use open innovation methods to engage the ecosystem
A single portal makes it easier to access opportunities and for the city to increase its reach.	Pre-qualifying requirements such as stipulating annual turnover can restrict new entrants from accessing opportunities.	Public targets signal intent to the entrepreneur community and prioritisation of SME spending helps ensure objectives are met.	Challenge Prizes enable city governments to define complex problems and leverage entrepreneurs to develop and test new solutions.	Often used in tandem with open data initiatives, city hackathons encourage the creation of new products and services from public datasets.

CITY AS CUSTOMER
How cities performed

TIER 1
TOP PERFORMERS

Barcelona
Chicago
Helsinki
London
New York City
Paris
San Francisco
São Paulo
Singapore

TIER 2

Amsterdam
Boston
Buenos Aires
Johannesburg
Los Angeles
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TIER 3

Bangalore
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TIER 4

Beijing
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Riyadh
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Tallinn
Tokyo

How cities are acting as Customer

When tendering for public sector contracts, companies in **São Paulo** only need to display their tax compliance at the time of bidding to pre-qualify for the contract. Furthermore, SMEs are given preferential treatment as long as their bid price is no more than 10% higher than non-SME bidders.

CHIdeas was launched by the mayor to engage **Chicago's** residents and businesses in improving city hall services and to create neighbourhood programmes. The Chicago CleanWeb Challenge, a year-long hackathon, challenged developers to use city data and create technological solutions for environmental issues.

Helsinki's Hack at Home concept uses a collaboration platform that brings developers and mentors together over a four-month period. Teams are tasked with using open data from the city to create apps to solve city challenges.

And what this can mean for business

Founded in 2011, **Citymart** works with city governments to help them procure better solutions for citizens, by helping cities open up their procurement processes to entrepreneurs. In the last five years, SMEs have won 98% of tenders published on Citymart.[11]

> *The role of a city manager is changing to defining the challenge and bringing in innovators from outside to solve the problem.*

Josep M. Piqué
CEO
Office of Economic Growth
Barcelona City Council

CASE STUDY EXTRACT **The city as customer for innovation: lessons from Barcelona**

Barcelona has successfully redefined the way the city council conducts procurement. Two initiatives stand out.

Barcelona's BCN Open Challenge set out six challenges for businesses and entrepreneurs to provide solutions to that will transform public space and services.

The city government sought to procure innovative solutions, support winning companies and validate projects. Winning solutions were provided with public service contracts and office space from which to run their operations.

The Barcelona Urban Lab, which predates the Open Challenge, turned Barcelona into an urban laboratory where public spaces are used as testing grounds for new products and services. Of the 16 pilot projects the Urban Lab has supported so far, the city's Office for Economic Growth estimates that 90% have gone on to develop a business based on their pilot.

Five key lessons are central to Barcelona's success:

1. **Build user-centricity into the design of procurement tenders.**

2. **Make procurement opportunities visible to new entrants.**

3. **Signal commitment and offer the right incentives.**

4. **Adapt the role of the city procurement manager.**

5. **Set up an urban laboratory to test and validate new ideas.**

The CITIE team talked to **Josep M. Piqué, CEO of the Office of Economic Growth**, and **Anna Majó, Director of Strategic Sectors and Innovation in Barcelona City Council**, to discuss the city's approach to procurement and how other city governments can learn from the progress they have made.

For more information and to view the full interview, visit **www.citie.org**

INFRASTRUCTURE

How does the city optimise its infrastructure for high-growth new businesses?

HOST
How does the city use space to create opportunities for high-growth companies?

INVESTOR
How does the city invest in the skills and businesses required for innovation?

CONNECTOR
How does the city facilitate physical and digital connectivity?

CITY AS HOST

How does the city use space to create opportunities for high-growth companies?

Why this is important for city governments and entrepreneurs

Physical proximity matters for entrepreneurs and their businesses. There is real value in being close to potential collaborators, customers, advisors, employees and investors.[12]

Businesses are moving from business parks located in the suburban outskirts of cities to centrally located districts, areas where people live, work and connect. These areas of innovation in cities are often spontaneous and self-organising.

However, centrally located, flexible office space frequently comes at a high price and is less suited to the fast-changing requirements of high-growth companies. Public spaces and infrastructure often need investment to support young businesses, and networks can require some curation to reach their full potential.

High-performing city governments are seeing the value of integrating the needs of young businesses into their development plans in a way that supports access to flexible office space and connects disparate parts of the entrepreneurial ecosystem.

We assessed whether city governments:

a. support the provision of appropriate and affordable working space and support networks for early-stage ventures; and

b. use space and influencing power in a way that creates opportunities for collaboration and serendipity.

What we looked for in cities

ACCESS TO OFFICE SPACE AND SUPPORT NETWORKS			FACILITATE COLLABORATION AND MATCHMAKING	
1 Support for access to co-working spaces	**2** Support for incubator and accelerator schemes	**3** Enable access to affordable and flexible office space	**4** Nurture of Innovation Districts	**5** Playing the role of matchmaker within the ecosystem
Co-working spaces offer cheap and collaborative environments for entrepreneurs to get early-stage ventures off the ground.	Incubator and accelerator schemes provide vital support services for early-stage ventures, increasing the likelihood of commercial success.	Office space is a significant overhead cost for early-stage ventures and the flexibility required by growing businesses can be hard to find.	Innovation Districts can bring together diverse parts of the ecosystem to facilitate collaboration and growth.	Networks sometimes need curation to meet their full potential. Cities can act as matchmakers to bring all the stakeholders and opportunities together.

CITY AS HOST
How cities performed

TIER 1
TOP PERFORMERS

Amsterdam
Barcelona
Boston
Buenos Aires
Helsinki
London
New York City
Paris
San Francisco
Seattle
Seoul
Tel Aviv
Toronto

TIER 2

Bangalore
Berlin
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Dubai
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São Paulo
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Sydney
Tallinn
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Vienna

TIER 3

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Nairobi
Prague
Riyadh

TIER 4

Doha
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New Delhi
Tokyo

How cities are acting as Host

Seven years ago, **Paris** created an incubator plan to establish 100,000m² dedicated to innovative companies. Led by entrepreneur Xavier Niel, the private sector has taken this initiative on, and the space in the 13th Arrondissement will host the 1,000 Start-ups project.

Buenos Aires has been active in revitalising areas of the city into innovation districts with different themes – the first being technology. This initiative will transform local neighbourhoods, with tax incentives for locating there.

Tel Aviv's ILVenture is an open platform for start-ups, investors, accelerators and others in the city interested in innovation. It allows users to post jobs, services and programmes, and search for investors and potential hires.

And what this can mean for business

Quby, founded in 2004 in Amsterdam was able to test its smart thermostat in the Utrechtsestraat Climate Street. This was an initiative set up by the government of Amsterdam in which entrepreneurs were able to use a shopping street as a 'living lab' to test innovative technologies in a live environment.

> ❝ *We act as a catalyst in the ecosystem. We identify gaps and challenges and then try to put together the relevant people and parts to address them.* ❞
>
> **Chris Rickett**
> Manager for Entrepreneurship Services
> Enterprise Toronto

CASE STUDY EXTRACT **Supporting a thriving incubator network: lessons from Toronto**

Toronto is using its convening and matchmaking power to support early-stage businesses. The city government has helped start and support a network of 50 business incubators and accelerators which fuel small businesses and start-ups in the city.

Toronto's incubator network is highly diverse, ranging from digital and high-tech industries to supporting restaurants test their concepts in pop-up shipping containers – reflecting the wide spectrum of businesses in the city.

While the individual incubators are not managed by the city government directly, they identify opportunities for growth and then act as matchmaker, finding suitable businesses and not-for-profit organisations that are equipped to partner with and manage the incubators.

The scale of the network and the number of start-ups engaged is impressive: including all of Toronto's Entrepreneurship Services programmes, the city works with and supports 30,000 young businesses a year.

The Toronto city government's role in the ecosystem and its success can be summarised as follows:

1. **Facilitator:** funding the infrastructure and inviting investors and organisations to assist.

2. **Catalyst:** identifying gaps and challenges in the ecosystem; putting together the relevant people and parts to address them.

3. **Collaborator:** working with business clients and partners to provide practical support and establish new businesses in the city.

The CITIE team talked to **Chris Rickett, Manager for Entrepreneurship Services at the City of Toronto**, to discuss their efforts in more detail.

For more information and to view the full interview, visit **www.citie.org**

◢◣ CITY AS INVESTOR

How does the city invest in the skills and businesses
required for innovation?

Why this is important for city governments and entrepreneurs

A good supply of technical talent and capital is a vital ingredient in the success of any digitally enabled business. In fact, many surveys suggest that these are the two things that matter most to young companies with growth ambitions.[13]

A city government's ability to influence the availability of talent and capital varies considerably. For example, New York City has long had responsibility for its school system, something that London is starting to acquire; in France, however, responsibility sits at the national level.

Similarly, funding is primarily a private pursuit which differs in scale across cities according to the maturity of local capital markets. For example, in 2011, San Francisco had nearly $7 billion in venture capital investment compared with $90.55 million invested in Amsterdam in 2013.[14]

Nevertheless, high-performing city governments are finding ways to use the resources at their disposal to invest in the supply of talent and capital in ways that are appropriate to the extent of their powers and to local market conditions.

Those without direct control of education policy can use their influencing and matchmaking powers to work with local colleges and universities to facilitate skills transfer into early-stage ventures.

And even some cities with thriving private investment markets target funds at strategically important opportunities in order to pump-prime that part of their start-up ecosystem.

We assessed whether cities:

a.   are actively investing in building their tech talent base; and

b.   are supporting access to capital.

What we looked for in cities

TECH TALENT AVAILABILITY		CAPITAL AVAILABILITY	
1 Support provision of coding and technical skills	**2** Support for schemes that help young people access the tech sector	**3** Help businessess understand types of financing options	**4** Provision of funding
Cities can use their influencing power to promote coding in schools and ready the next generation of the workforce.	Acting as a facilitator, cities can help match new high-growth businesses with young people in the local area seeking employment experience, through technology apprenticeships, for example.	Making all the potential financing options clear and accessible helps new businesses to access all of the opportunities available.	Cities can provide funding to kick-start the ecosystem, entice venture capitalists to the city and work with them to multiply the funds available.

CITY AS INVESTOR
How cities performed

TIER 4

Bangalore
Beijing
Bogotá
Istanbul
Johannesburg
Nairobi
New Delhi

TIER 3

Amsterdam
Brussels
Buenos Aires
Doha
Dubai
Jakarta
Prague
Riyadh
São Paulo
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TIER 2

Barcelona
Copenhagen
Hong Kong
Los Angeles
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Moscow
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Singapore
Sydney
Tallinn
Tel Aviv
Toronto
Vancouver
Vienna

TIER 1
TOP PERFORMERS

Berlin
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Seattle

How cities are acting as Investor

New York City is actively sponsoring technology apprenticeships for young people; the school district has added coding classes to the curriculum, as well as training teachers to deliver the classes.

A new **Vancouver** Entrepreneur Fund raises private investment to support emerging start-ups, giving the city's tech sector a boost as it competes for talent and investment. The Vancouver Foundation also funds the Greenest City Fund with $2 million to support ideas generated by the community.

Some 30 schools in **Buenos Aires** are using Codecademy and the intention is to roll this out across the whole of the school system by the end of 2015, offering digital and coding skills to all students.

And what this can mean for business

Founded in 2011, **Codecademy** helps people learn coding skills online. Codeacademy has recently been working with the city of Buenos Aires, to provide programming skills to schools, citizens and government workers in the local language.

> *"Paris's economic development is centred on innovation. To foster a good environment for the development of new business, the city has created a fund to support start-ups as well as incubators. "*

Carine Saloff-Coste
Director of Economic Development
Ville de Paris

CASE STUDY EXTRACT Building local skills for digital entrepreneurship: lessons from London

City governments are using their convening power to shape and develop their local skills base in order to remain relevant in a rapidly changing digital world.

In London, apprenticeships are at the heart of the city government's drive to equip young people with the skills that employers need to grow and compete.

To implement this policy goal, London sponsors designated technology apprenticeship schemes for young people between the ages of 16 and 23 who have few qualifications and who have not progressed to higher education.

The apprenticeships provide participants with business knowledge and specialist skills in web and software development, ICT and networking, or digital marketing. The apprentices work with local employers to gain National Vocational Awards, as well as invaluable work experience.

Delivered by industry-led bodies such as Tech Up Nation and Tech City Stars, these schemes are typically aimed at young Londoners to fuel the growing human capital demands of London's Tech City, located in the East End, as well as opening up the technology sector to a greater number of people.

Evidence points to a strong return on investment. In the London region alone, organisations saw an aggregate net benefit in 2012/13 of £202 million, with the average net benefit per apprentice in London at £2,261.[15] At the national level, research has shown that apprenticeships contributed £34 billion to the UK economy in 2014.[16]

For more information and to view the full case study, visit **www.citie.org**

CITY AS CONNECTOR

How does the city facilitate physical and digital connectivity?

Why this is important for city governments and entrepreneurs

Working practices are changing. More and more business activity takes place in the digital realm, and work is increasingly happening out of the office and on the move; in coffee shops and metros, or at meet-ups and events.

Entrepreneurs tend to be early adopters of these new approaches. It is particularly important to them that they can get around a city easily, and that they have high-quality internet access while they do so.

In this respect, the boundaries between digital and physical connectivity are increasingly blurred. Both are important components of a 21st century infrastructure that is conducive to the circulation of new ideas and the growth of young businesses. In fact, a 2015 Tech Nation report found that, after reputation, good transport and infrastructure was the second most important driver of growth in London's digital economy.[17]

High-performing city governments are finding ways to ensure that both types of connectivity are as comprehensive and frictionless as possible.

We assessed whether city governments:

a. are supporting high-quality digital connectivity; and

b. are making it quick, easy and efficient to move around the city.

What we looked for in cities

DIGITALLY CONNECTED		PHYSICALLY CONNECTED	
1 Support access to high-speed internet	**2** Provide free, public Wi-Fi	**3** Ensure the high quality and extent of cycling infrastructure	**4** Ensure frictionless and integrated public transport
Broadband speed and fibre availability are vital inputs into any high-growth business.	Work increasingly happens on the move and access to the internet is fast becoming a universal public good.	As start-up ecosystems coalesce in urban centres, cycling infrastructure and public bike hire schemes allow busy entrepreneurs to move quickly around the city.	Integration between different modes of transportation reduces frictional delays and speeds up movement around the city.

CITY AS CONNECTOR
How cities performed

TIER 1
TOP PERFORMERS

Amsterdam
Barcelona
Copenhagen
Helsinki
Paris
Seoul
Vienna

TIER 2

Beijing
Berlin
Brussels
Buenos Aires
London
Melbourne
Moscow
New York City
San Francisco
São Paulo
Seattle
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Vancouver

TIER 3

Bogotá
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TIER 4

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Nairobi
New Delhi
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How cities are acting as Connector

Paris has taken a dual approach to connectivity: building up its physical cycling infrastructure and public cycle hire scheme into one of the largest in the world, and promoting free, fast Wi-Fi at more than 260 public places across the city.

In 2015, **Melbourne** introduced the Free Tram Zone in the city centre to get people out of cars and on to trams. Coupled with free Wi-Fi in the city centre, citizens are able to connect physically and digitally across the city for free.

Tallinn has been offering free public Wi-Fi to its visitors and citizens since 2005, as Wi-Fi is seen as a service that directly benefits the city. Estonia was one of the first countries to establish access to the internet as a human right. It has also been offering free public transport since 2013, the first capital in Europe to do so.

And what this can mean for business

In 2012, **Bitcarrier** piloted a network of traffic sensors that helped Barcelona improve traffic flow in the city using Bluetooth and WiFi-generated data. Bitcarrier is now a world leader in providing real-time traffic information, and is implementing solutions in other cities around the world, such as Buenos Aires and Sydney.[18]

> **❝** *When it comes to mobility, city governments need to show businesses the way, and say 'this is where we are going'. They can set out the marketplace and businesses will come.* **❞**
>
> **Sampo Hietanen**
> CEO
> ITS Finland

CASE STUDY EXTRACT **The city as Connector: lessons from Helsinki**

With public expectations changing and inner-city populations swelling, Helsinki has laid out a compelling 'mobility on demand' vision to fundamentally change the way public transport works in the city by 2025.

Helsinki is aiming to render car ownership redundant by offering citizens a 'mobility as a service' app. This enables users to purchase their 'mobility' – whether by bus, taxi, ferry or bike, or a combination of these – at a cheaper price with greater flexibility. Users can pay for a single ticket by SMS, which will be added to their monthly phone bill.

Already trialling new initiatives, Helsinki has rolled out Kutsuplus – an on-demand shared bus service that enables commuters to specify pick-up and drop-off points using their smartphones. The ease of use and competitive pricing of Kutsuplus had attracted 17,000 users by November 2014.

The CITIE team talked to **Sampo Hietanen, CEO of ITS Finland** about implementing mobility as a service in Finland. Sampo Hietanen argues that it is the city government's role to lead in *"unlocking the ecosystem of mobility"* for citizens. If the city takes the first step, then businesses will follow and users will ultimately benefit.

For more information about Helsinki's efforts to transform its transport network, and to view the full case study, visit **www.citie.org**

LEADERSHIP

How does the city build innovation into its own activities?

STRATEGIST
Has the city set a clear direction and built the internal capability required to support innovation?

DIGITAL GOVERNOR
How does the city use digital channels to foster high-quality, low-friction engagement with citizens?

DATAVORE
How does the city use data to optimise services and provide the raw material for innovation?

CITY AS STRATEGIST

Has the city set a clear direction and built the internal capacity required to support innovation?

Why this is important for city governments and entrepreneurs

City governments are often large organisations encompassing many separate departments, each with its own responsibilities and day-to-day pressures.

Delivering a sustained commitment to innovation and entrepreneurship can be challenging in such a complex environment.

Good policy can be built on an ad hoc basis but, in order to really maximise its potential, it is wise to ensure that the plans and people are in place to provide leadership, and co-ordinate it across the city government.

Many city governments have started to develop ambitious and wide-ranging strategies that weave together innovation, skills, economic development and planning to become leading innovation hubs.

High-performing city governments are going on to establish innovation teams and leadership positions that provide integration to all policy initiatives, allowing for experimentation and the transformation of the way city governments operate.

We assessed whether city governments:

a. have created a clear vision for promoting innovation and entrepreneurship; and

b. have co-ordinated leadership and teams to support innovation.

What we looked for in cities

INNOVATION VISION AND STRATEGY		INNOVATION TEAMS AND LEADERSHIP	
1 Published vision of how to support innovation and entrepreneurship	**2** Have a public set of KPIs that measure the success of the city's vision	**3** Have an innovation function within city hall	**4** Have senior leadership with responsibility for innovation and entrepreneurship
Setting out a clear strategy and making it publicly available helps the city government and innovation ecosystem to come together around a unified vision.	Measurable key performance indicators (KPIs) allow progress and success against the city strategy to be tracked and reported.	Specialist innovation teams can help to co-ordinate activities across city departments, spur the creation of new ideas and develop external partnerships for delivery.	Innovation leaders are vital to keep innovation at the top of the city's agenda and signal intent to the wider ecosystem.

CITY AS STRATEGIST
How cities performed

TIER 4
Bangalore
Bogotá
Istanbul
Johannesburg
Los Angeles
Nairobi
New Delhi
Prague
São Paulo
Sydney
Tokyo
Toronto

TIER 3
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TIER 1
TOP PERFORMERS

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Seoul
Tel Aviv

How cities are acting as Strategist

Via the Seoul Innovation Bureau, **Seoul** is promoting a Sharing City where citizens can use social media and an online platform to engage with the development of their public services. With a chief information officer (CIO) in place since 1999, Seoul has taken the lead in establishing a sophisticated e-governance information system infrastructure.

Chicago's Innovation Delivery Team is one of five city teams funded by Bloomberg Philanthropies,

working on initiatives to improve city services. In 2011, Chicago appointed a chief technology officer, and The City of Chicago Technology Plan sets out an inspiring vision of change for the city.

In **London**, the Smart London Plan was published by the Smart London Board to set out the role that digital technology can play in helping to address key city challenges such as rapid population growth, and to improve Londoners' lives.

And what this can mean for business

Buildingeye worked with the San Francisco Municipal Transport Agency to help citizens find permit and planning application information more easily via an online mapping tool. Buildingeye was one of the start-ups in the 2014 San Francisco Entrepreneurship-

in-Residence programme, which invites cohorts of start-ups to work with the city government over 16-weeks on city issues, to create low-cost, high-impact solutions.

> *"The city may need to push things in the beginning, find incentive for different groups to work together and then give space to let things evolve."*
>
> **Katalin Gallyas**
> Open Innovation Programme Manager
> City of Amsterdam

CASE STUDY EXTRACT **Establishing innovation leadership: lessons from Amsterdam**

In March 2014, Amsterdam created the role of chief technology officer (CTO).

The role is responsible for breaking down silos across the city government, setting overall strategic direction, providing a consistent face to external stakeholders and helping to navigate a complex political landscape.

Three factors are critical to the success of Amsterdam's CTO and provide cross-learning opportunities for other city governments:

1. Importance of the right leadership structure

The CTO office plays an integrator role by working across functions and directly reporting to the mayor. This is vital for ensuring that innovation is kept at the top of the city government's agenda and that they are able to run complex, multi-agency programmes, such as the Amsterdam Smart City platform – a partnership between the city government, businesses, research institutions and citizens.

2. The city as a platform for innovation

Amsterdam uses a partnership model to effectively and efficiently use its resources to greatest effect. By building collaboration into their approach from the outset, just eight full-time staff look after 44 smart city projects, something they do by actively matchmaking city initiatives with over 70 external partners.

3. Community-centred thinking

Amsterdam applies a community-centred and open problem-solving approach. First, the city focuses on the challenges that need addressing – such as energy solutions – and engages its citizens in the process. Using modelling techniques to quickly assess the economic impact of a project, rather than leading with the latest technology that may quickly become outdated, allows for sustainable city planning.

The CITIE team talked to **Katalin Gallyas, Open Innovation Programme Manager in Amsterdam's CTO Office**, to understand how Amsterdam has built its internal capacity to support innovation and entrepreneurship.

For more information and to view the full interview, visit **www.citie.org**

CITY AS DIGITAL GOVERNOR

How does the city use digital channels to foster high-quality, low-friction engagement with citizens?

Why this is important for city governments and entrepreneurs

Entrepreneurs can make demanding citizens. As busy people who place a high opportunity cost on their time, they like things to be done quickly and efficiently. And as business owners with a clear stake in their local environment, they tend to have strong views about how things should work and expect to be listened to.

Historically, interacting with city governments has often been opaque, bureaucratic and time-consuming. Administrative tasks, from applying for a licence to paying local tax to reporting a broken streetlamp, can be a burden to both citizens and businesses.

This is increasingly problematic at a time when citizens' expectations are being set by their experience of using well-designed, innovative and highly interactive mobile and web apps which deliver an extremely high quality of user experience.

High-performing city governments are rising to the challenge by using digital channels to interact with citizens in convenient, low-friction ways and on citizens' own terms. They also recognise that by engaging citizens in the policymaking process, they can deliver better outcomes.

We assessed whether city governments:

a. have built high-quality digital interfaces for interacting with city services; and

b. have created mechanisms for citizens to input into city-level policy decision making.

What we looked for in cities

DIGITAL CITIZEN SERVICES		OPEN POLICYMAKING
1 Enable 'digital by default' city services	**2** Enable citizens to report problems to cities on the go	**3** Enable citizens to engage in policy decision making
Entrepreneurs prefer services which save them time and effort. Citizens are expecting more of their interactions with government to be quick, mobile and on their own terms.	The ability to interact with the city government on the move, report issues and raise requests is desirable for citizens and provides real-time feedback on the city.	Creating a platform where citizens can input into policy helps improve decision making and public satisfaction.

CITY AS DIGITAL GOVERNOR

How cities performed

TIER 4

Beijing
Brussels
Istanbul
Johannesburg
Nairobi
New Delhi
São Paulo
Tokyo

TIER 3

Bangalore
Berlin
Bogotá
Buenos Aires
Copenhagen
Doha
Hong Kong
Jakarta
London
Moscow
Tallinn
Vienna

TIER 2

Amsterdam
Boston
Chicago
Helsinki,
Melbourne
Paris
Riyadh
San Francisco
Seattle
Singapore
Sydney
Toronto
Vancouver

TIER 1
TOP PERFORMERS

Barcelona
Dubai
Los Angeles
New York City
Prague
Seoul
Tel Aviv

How cities are acting as Digital Governor

Los Angeles has a comprehensive, online portal for residents to make a variety of licence and bill payments and request services. The Share Your Ideas for LA platform allows citizens and businesses to suggest directly to the mayor their ideas for improving the city and its services and for creating jobs.

Active Citizen is **Moscow's** citizen engagement app that asks Muscovites their opinion on city issues – like transport, healthcare and education – on a weekly basis. Participation is incentivised through a points system, where citizens receive points when they vote in a poll or e-referendum. Points can then be exchanged for city services like rent-a-bike, parking spaces or theatre tickets.

Qlue is **Jakarta's** crowdsourcing app with which users can report incidents such as natural disasters and traffic congestion. Nearby officials are notified about the incident by the CROP Jakarta app. Information on both Qlue and CROP is displayed and updated in real-time.

And what this can mean for business

Founded in 2007 in Israel, **Waze** enables better journeys for drivers and better traffic management by city governments such as Los Angeles and Rio de Janeiro, who have data-sharing agreements with the app.

> **"*Our goal is to build an environment where citizens have a constant and surprising interaction with the municipality.* "**
>
> **Liora Shechter**
> Chief Information Officer
> Tel Aviv-Yafo Municipality

CASE STUDY EXTRACT Curating a new digital relationship with citizens: lessons from Tel Aviv

DigiTel is Tel Aviv's personalised digital communications network. Launched in 2013, DigiTel is open to all residents aged 13 and over. DigiTel is unique and offers best practice insight in three key factors:

1. Single digital citizen interface with the city

DigiTel is a platform composed of over 30 projects that allows for the sum of Tel Aviv's ICT projects to be greater than its constituent parts – it is a single point of interface with the city; a digital, streamlined and easily accessible platform through which all interactions between resident and municipality can occur.

2. Tailored interactions with residents

DigiTel allows the municipality to build unique profiles for each resident, focusing on their interests, location, day-to-day activities and transport preferences. This enables DigiTel to offer high levels of personalisation in messages, notifications and opportunities, on any device residents choose.

The DigiTel Resident's Card is free of charge and involves a one-time visit to one of the municipal DigiTel service stations to verify identity.

3. Citizen engagement in policymaking

Through DigiTel, residents are influencing municipality decisions, ensuring the development of smarter solutions and experiences.

DigiTel also provides feedback to citizens on how their input was used in the final outcome, encouraging transparency and continued engagement.

To date, more than 33% of Tel Aviv's population is signed up to and actively using DigiTel. Tel Aviv's ultimate goal is to build an environment where citizens gain maximum value from the municipality.

The CITIE team talked to **Liora Shechter, CIO for Tel Aviv-Yafo Municipality**, about how the city municipality is using technology to develop new relationships with citizens.

For more information and to view the full interview, visit **www.citie.org**

CITY AS DATAVORE

How does the city use data to optimise services and provide the raw material for innovation?

Why this is important for city governments and entrepreneurs

Data is an increasingly valuable economic asset and forms an important raw material both for civic innovation and for a growing number of businesses.

Cities produce a great deal of data, relating to everything from school results to bus timetables and energy consumption. The range, volume and frequency of data are growing rapidly as cities start to install sensors into everything from streetlights to parking bays.

High-performing city governments are finding ways to turn this 'big data' into smart data, by building it into their decision making and using it to optimise

services. Inevitably, they require the assistance of innovative businesses to do this.

Opening this data and inviting outsiders to engage with it is equally important, and can lead to a new source of economic growth for a city. Big and Open Data is expected to improve European GDP by 1.9% by 2020.[19]

We assessed whether city governments:

a. generate and analyse their own data to make the city more efficient, and therefore a better place to do business; and

b. publish data in a way that allows citizens to access it and businesses to build services from it.

What we looked for in cities

CAPTURE AND ANALYSE CITY DATA	OPEN CITY DATA TO THE PUBLIC	
1 Use data analytics to optimise city services	**2** Publish open data	**3** Publish live data with appropriate APIs
Using advanced data analytics in smart ways can reveal opportunities to optimise services and improve the livelihoods of citizens.	Publishing machinereadable data under open licence allows entrepreneurs to create new services and businesses.	Regularly monitoring, updating and publishing live data with APIs allows entrepreneurs to create services with advanced functionality.

CITY AS DATAVORE
How cities performed

TIER 1
TOP PERFORMERS

Amsterdam
Barcelona
Buenos Aires
Helsinki
London
New York City
Seoul
Singapore
Vienna

TIER 2

Chicago
Copenhagen
Istanbul
Los Angeles
Moscow
San Francisco
Tokyo

TIER 3

Beijing
Berlin
Boston
Brussels
Doha
Dubai
Jakarta
Melbourne
Paris
Riyadh
São Paulo
Seattle
Sydney
Tel Aviv
Toronto
Vancouver

TIER 4

Bangalore
Bogotá
Hong Kong
Johannesburg
Nairobi
New Delhi
Prague
Tallinn

How cities are acting as Datavore

The City of **Amsterdam** has developed a significant portfolio of smart city projects. The city dashboard draws on the open data made available and displays this on a single dashboard accessible to everyone.

Siemens and partners are creating a living lab in **Vienna** that will test designs and systems for intelligent cities of the future. By opening up the Aspern district as a testbed, new solutions are being developed in intelligent traffic solutions, green buildings, water management and smart grid infrastructure.

The **Greater London Authority** has launched the second version of its pioneering London Datastore. It now contains 850 datasets with open APIs covering 16 themes from employment and skills to transparency and health, allowing entrepreneurs the opportunity to use the data to create new businesses and solve city problems.

And what this can mean for business

Citymapper, founded in 2011, takes open transport data published by cities and turns it into insightful, real-time transport advice for citizens. It started in London and currently works with 21 other cities including New York, Berlin, Paris, São Paulo, Singapore and Toronto.

> *We are moving from organised stockpiles of knowledge to participating in active flows of knowledge. So understanding what those flows are and how you can tap into them is becoming increasingly important.*

Colin Fairweather
Chief Information Officer
City of Melbourne

CASE STUDY EXTRACT **Big data solves the smallest grievances: lessons from Seoul**

Seoul, under the strategy of 'Big data solves even the smallest grievances', has successfully found a way to use data about citizen behaviour to build services that are better suited to their needs and preferences.

Three examples highlight Seoul's leadership in this area:

1. Using data to create a new night bus service

Seoul identified significant public dissatisfaction with the city's late-night taxi service. In response, the city decided to introduce a new Owl Bus service. Three billion late-night mobile calls were mapped and analysed along with records of passenger use at each stop to create an optimised route to connect outer districts with hub areas.

2. Data solutions for finding a cab

Finding a cab at peak times in a busy city can be hard. In response, Seoul used touch card payment information from 25,000 taxis and combined it with weather conditions to provide information to citizens and drivers on the best spots to get a taxi at specific times.

3. Using data to improve facilities for the elderly

Seoul recognised a need to ensure that welfare facilities for the elderly were keeping pace with the needs of a rapidly changing population. The city analysed population data along with facilities data across the city and, among other things, found that, for the majority of senior citizens, a 16–17 minute walk from their home was the maximum time they were happy to travel. The findings are being incorporated into plans to expand, locate and improve facilities to better meet the needs of senior citizens.

For more information about how Seoul is using big data to optimise services for its citizens, **visit www.citie.org**

SECTION 3: **THE RESULTS**

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An overview of performance across all policy roles

Our approach to the results

We have assessed the practices of 40 city governments from around the world against the CITIE framework. This is designed to help them identify their relative areas of strength and weakness in order to guide policymaking efforts.

This section provides a short overview of the overall performance of cities across the nine policy roles. It is broken into four parts:

1. First we pull out the top 5 performing cities for 2015.

2. Next we cluster all 40 cities into four tiers based on their performance.

3. We then describe the typical characteristics of cities at each tier of performance.

4. And finally we provide an overview of traits that high-performing cities have in common.

Explaining the CITIE Profile

Each city government's overall current performance is captured by their CITIE Profile. Performance is illustrated by the scores of the nine policy roles.

The CITIE Profiles demonstrate that there is no single pathway to success. Instead each Profile helps a city understand its relative strengths and weaknesses, and choose areas to prioritise for development.

The top 5 cities

First place: **NEW YORK CITY**
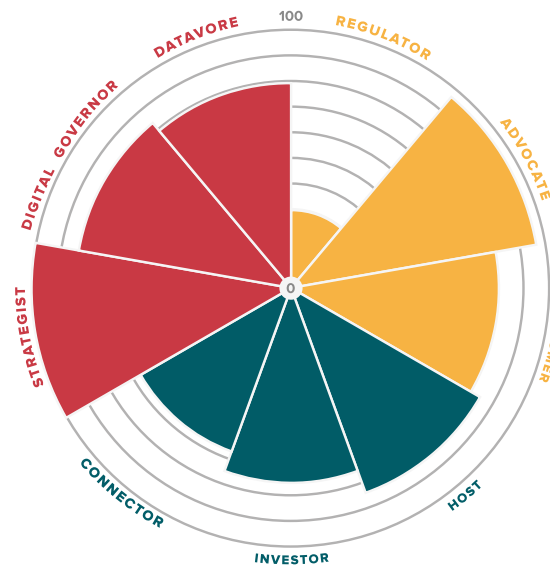
New York City pipped fierce competition from London to win first place overall, performing strongly across almost all the CITIE policy roles. One of its key differentiators is the strength and long standing of leadership from the centre. This earned the city joint top profile in its role as Strategist.

New York City prioritised innovation and entrepreneurship earlier than most other comparable cities, and has taken an extremely active stance towards its start-up and tech communities over the last few years. It provides support for local start-ups across a wide range of activities from funding and branding to community building and skills provision. And it has also built a first-class internal capability to deploy technology and exploit data in the services it delivers to citizens.

New York City's one area of relative weakness is in the role of Regulator, where it is held back by ongoing struggles to find the best way to accommodate the new business models of short lets and ride-sharing as characterised by companies such as Airbnb. This is a hard thing to get right, but cities such as Amsterdam have shown that, with the right stakeholder engagement, it can be done.

Nevertheless, as New York City's relatively young tech sector continues to grow, the City can feel confident that it is doing its bit to provide the right conditions for innovation and entrepreneurship to flourish.

Second place: **LONDON**

Third place: **HELSINKI**
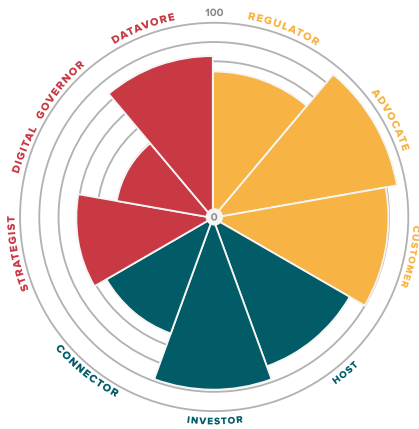
London only narrowly lost out to New York City at the top of the rankings. It was a consistently strong performer across all areas of analysis, and its silver medal is well deserved.

True to its reputation as an open and global city, London was the highest overall performer across the three Openness roles. It has a sophisticated approach to using methodologies such as Challenge Prizes to act as a customer of new ideas. And it is an energetic advocate for the local tech sector, through support for the Tech City initiative, and the work of the mayor to include local start-ups on international trade visits. London also benefits from a proportionate and flexible approach to regulating new businesses, though this is primarily driven by national government.

But at the margin, London lacks some of the internal leadership and digital capability that New York City has. For example, London doesn't have functions like a chief technology or digital officer or an innovation unit, and there is no consistent digital channel for Londoners to interact with services, which are split across different boroughs. Nevertheless, the recent Smart London Plan is a positive step, and provides a platform to build the kind of capability that London will need if it wants to compete for top spot next year.
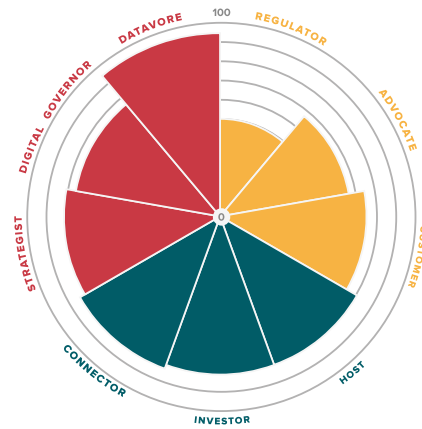
As large, global cities with well-publicised tech communities, the success of New York City and London may have been expected. However, Helsinki's third place finish shows that smaller-scale cities are just as capable of developing the policy and ecosystems to support innovation and a thriving entrepreneurial tech scene.

Helsinki had the most consistent profile of any of the top 5, with a particular strength in the Infrastructure roles of Host, Investor and Connector, where it was the number one performer. By adopting a highly collaborative approach to working with local entrepreneurs, Helsinki is developing high-quality digital solutions for citizens through, for example, the Helsinki Loves Developers and CitySDK platforms.

Helsinki's vision of mobility on demand, a fully integrated public and private transport 'one click' solution, carries the scale of ambition you would more typically expect from a tech start-up and is defining mobility as a service agenda globally. This mobility ambition is in part enabled by its high score as Datavore, making transport data openly available to entrepreneurs to develop new service offerings.

Although Helsinki's performance in the Openness roles of Regulator, Advocate and Customer are respectable, this is the area where there is most room for improvement for next year.

Fourth place: **BARCELONA**

Fifth place: **AMSTERDAM**
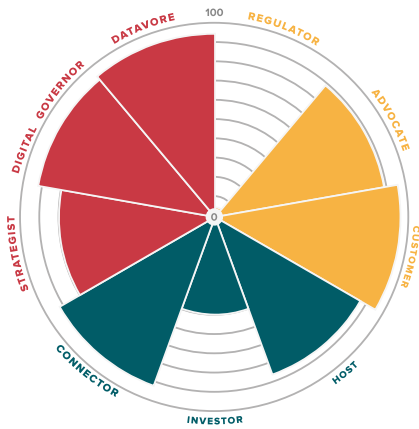
Barcelona is a city that, like New York City, has used the innovation and entrepreneurship agenda to reinvent itself over the last decade. In the 1990s it developed one of the first city Innovation Districts - 22@Barcelona. The city's Office for Economic Growth has estimated, for example, that of 16 pilot projects supported by 22@Barcelona, 90% have gone on to develop a business based on their pilot. One leading success is Bitcarrier which is now a world leader in providing real-time traffic information, with its technology in use along more than 1,500 kilometres of roads in southern Europe. The city is now building on this legacy by actively promoting itself as an urban playground for experimentation by entrepreneurs.

This permeates the way it goes about its role as Customer, an area in which it was the top performing city in the analysis. Barcelona has radically changed how it buys services: the BCN Open Challenge specifies the problems the city wants to solve and invites entrepreneurs to suggest, prototype, validate and scale solutions that it then procures.

The city also takes the approach of bringing the world to Barcelona and actively supports a range of now world-leading conferences, such as the Smart City Expo World Congress and Mobile World Congress, giving local entrepreneurs and innovators opportunities to display their solutions to a worldwide audience.

A notable area of weakness is in its role as Regulator, where Barcelona scores very poorly. The 2014 ban on Uber by a judge in Madrid and the fining of Airbnb by the Government of Catalonia for its breach of local laws make it challenging for Barcelona to absorb disruptive business models into the fabric of the city.
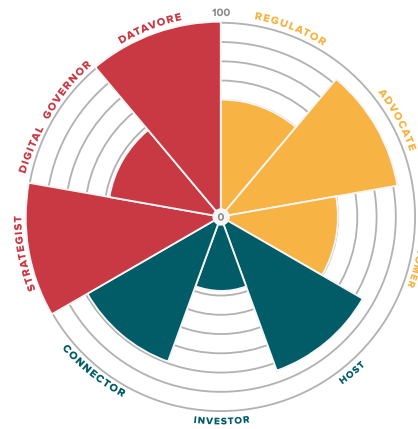
Amsterdam takes fifth place, just edging out other leading global cities. Amsterdam further demonstrates that sometimes the medium-sized cities are more capable of experimenting and developing the right policy conditions for innovation and entrepreneurship to flourish.

With the most varied performance of any city in the top 5, Amsterdam's strength comes first and foremost from its leadership where it scores highly as Strategist and Datavore. The appointment of the city's first chief technology officer (CTO) in 2014 is increasing the momentum to break down silos and support the co-ordination of citywide innovation projects, providing the strategic direction for how technologies will be utilised to improve the livelihoods of Amsterdam's residents. All civil servants are encouraged to become innovators and changemakers, and to work with the CTO's team to learn new skills and create better linkages across city hall.

Amsterdam's ambition to reinvent how the city hall delivers services and engages with its residents can also be seen in the Amsterdam Smart City initiative. Through this, the city is applying an open problem-solving approach. Like Barcelona, Amsterdam also uses urban assets to provide a 'living lab' that start-ups, like Quby, have used to test new products in live examples.

The city recently launched a new StartupAmsterdam vision and four-year action programme. Successful delivery of the comprehensive set of initiatives laid out in the programme has the potential to improve the city's relative weakness in policy roles such as Investor and Digital Governor, and catapult the city to the top of our rankings next year.

Overall performance for all 40 cities

We have clustered the 40 cities into four different tiers of performance, based on their overall profiles and by the characteristics they share.
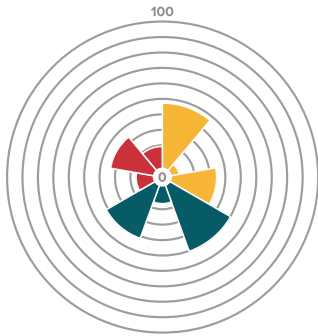
TIER 4. EXPERIMENTERS

Bangalore
India

Beijing
China

Doha
Qatar

Istanbul
Turkey

Jakarta
Indonesia

Johannesburg
South Africa

Nairobi
Kenya

New Delhi
India

Prague
Czech Republic

Riyadh
KSA
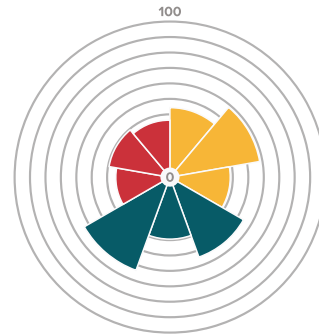
TIER 3. BUILDERS

Bogotá
Colombia

Brussels
Belgium

Hong Kong
SAR

Melbourne
Australia

Moscow
Russia

São Paulo
Brazil

Sydney
Australia

Tallinn
Estonia

Tokyo
Japan

Vancouver
Canada

Vienna
Austria

These clusters are designed to provide cities with a peer group to compare themselves against and learn from, made up of other cities at similar stages of development.

The next section describes the typical characteristics of cities in each group.
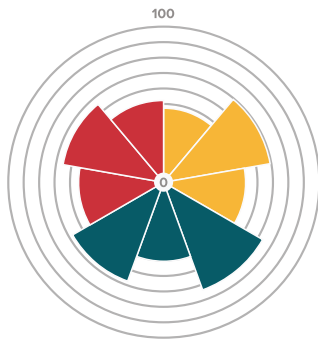
TIER 2. CHALLENGERS

Berlin
Germany

Boston
USA

Buenos Aires
Argentina

Copenhagen
Denmark

Dubai
UAE

Los Angeles
USA

Seattle
USA

Seoul
South Korea

Tel Aviv
Israel

Toronto
Canada
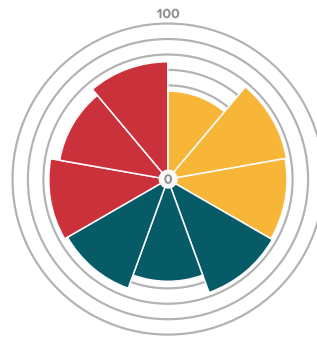
TIER 1. FRONT RUNNERS

Amsterdam
Netherlands

Barcelona
Spain

Chicago
USA

Helsinki
Finland

London
UK

New York City
USA

Paris
France

San Francisco
USA

Singapore
ROS

Characteristics of each tier of performance

TIER 4 **EXPERIMENTERS**
Testing new approaches for growth

Experimenter cities have yet to take decisive action to prioritise innovation and entrepreneurship. This is particularly evident across City as Advocate, City as Investor and City as Strategist policy roles, indicating a lack of focus on innovation and entrepreneurship as a mechanism for growth.

Siloed instances of good practice within some Experimenter city governments signal an emergent desire to test new approaches to achieve diversified economic growth. Increases in efforts around digital governance, specifically e-governance applications, are often an initial step, given the relative ease of implementation. When Experimenter cities do this, they can do it very well. Jakarta, for instance, has implemented a state-of-the-art mobile reporting app for citizens that allows for requests and issues to be flagged and then integrated across all relevant government agencies.

While at this stage these policies are not often explicitly designed with the motivation of promoting innovation and entrepreneurship, they are steps on the way to creating a conducive environment.

These cities are contenders for a step-change and can learn from global best practice to position themselves as leaders in innovation and entrepreneurship. Initially, they should undertake to increase their advocacy for new businesses in high-growth sectors; by doing this they will build relationships with local start-ups that can be used to better understand their needs and ambitions.

TIER 3 **BUILDERS**
### Actively building an innovation agenda

Builder cities have begun to actively incorporate innovation and entrepreneurship into their policy development. This first manifests itself in policy roles that have direct contact with local businesses, such as advocacy on behalf of new businesses trumpeting their success and the potential of the city to the world. For example, Hong Kong has initiated StartmeupHK – a global competition for high-impact, innovative and scalable ventures whose founders aim to expand their businesses from Hong Kong.

These cities are in a stage of rapid transition, and many are building the capacity they need to promote innovation.

Builder cities are also targeting policy roles which are not always directed at innovation per se, but which have the effect of creating a more conducive environment for entrepreneurship within the city. Vienna has worked to increase the digital and physical connectivity of the city with a universal public transportation smart card and ultra-fast broadband access.

However, many of these cities have yet to lay out a clear and compelling vision with innovation at its core. This is reflected in ad hoc instances of good practice which are not backed by a scalable portfolio of policy actions. These cities need to be bold and keep experimenting with innovative policies while planning strategies to implement successful efforts. The creation of a vision and team committed to this task can provide a rallying cry across all areas of city government and the wider ecosystem.

Average profile of Experimenter cities
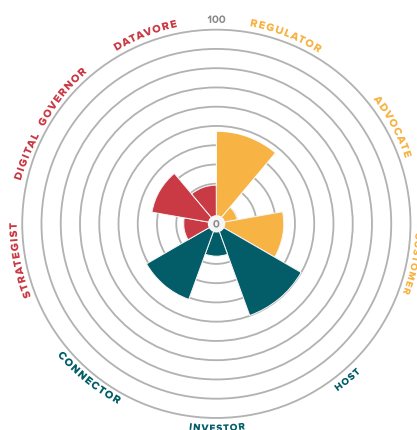
Average profile of Builder cities
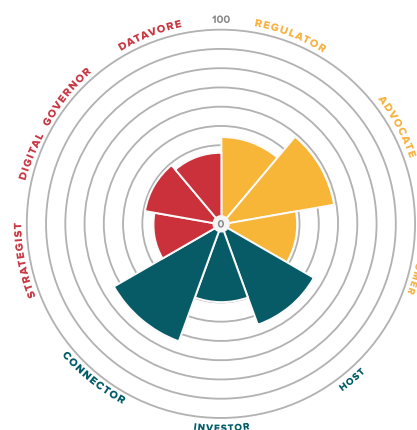
TIER 2 **CHALLENGERS**
Catalysing rapid ecosystem growth

Challengers are ambitious and dynamic cities riding a wave of technology-enabled growth. They are usually following a published growth strategy that embeds innovation and entrepreneurship across a range of policy roles. This is reflected by an uptick in performance against the City as Strategist policy role. Dubai, for example, has published a clear innovation vision for the city which, among other policies, gives all civil servants scope to undertake an innovative project using 20% of their time.

While Challenger cities are not yet consistent high-performers across the board, they do specialise in a number of initiatives where they demonstrate global best practice. Seoul, for example, is best in class in providing strong city leadership, exemplified by its comprehensive multi-channel citizen engagement platforms. And Buenos Aires has taken an interesting approach to regenerating parts of the city through industry-themed innovation clusters and 'open neighbourhoods' to promote inclusive growth. These Challenger cities need to continue building on their comparative advantage and focus on how they can match or even leapfrog current 'Front Runners'.

To reach the next stage of development, these cities need to better integrate their efforts across different internal division, making sure that areas of relative strength are not let down by areas of relative weakness.

TIER 1 **FRONT RUNNERS**
### Crafting a rounded innovation ecosystem

Front Runners tend to be global cities that are able to build on the foundations of well-established innovation practices and mature entrepreneurial ecosystems. These cities actively use all roles in the framework to support innovation. Having successfully capitalised on their first-mover advantage, they have established a base from which to craft forward-thinking, well-rounded policies.

These leading cities show maturity across all policy levers and are pressing forwards in redesigning even the most complex of systems, including procurement. Barcelona, for example, in 2014 launched an 'open challenge' to its citizens, consisting of a series of six prizes to procure innovative city solutions to problems such as bicycle theft and social isolation. The city committed to procuring, then supporting and validating these solutions to ensure their successful delivery and scaling.

To remain in the lead, Front Runners need to work on harnessing the value of big data and predictive analytics, a field that is expanding rapidly among the top performers. They should also continue reinventing themselves, particularly in the areas of digital governance and citizen engagement, an area in which Challenger cities are investing heavily and in some cases beginning to take the lead.

Finally, these cities need to engage with and find ways to accommodate disruptive business models within their regulatory systems. Some risk having efforts that they make in other areas being undermined by regulations that provide an obstacle to new businesses and innovative ideas.

Average profile of Challenger cities
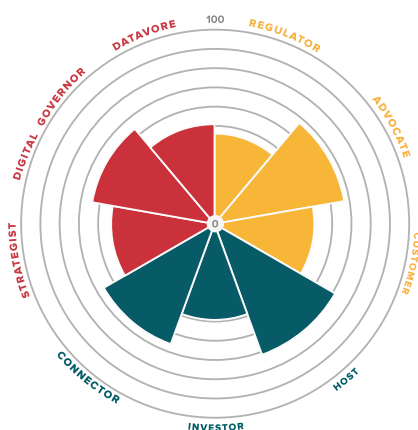
Average profile of Front Runner cities
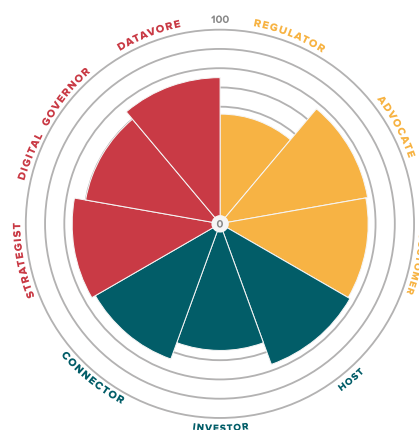
The traits high-performing city governments have in common

Our analysis of 40 cities globally shows a rich diversity of approaches to catalysing innovation and entrepreneurship: there is no single pathway to success.

Nevertheless, there are certain things that high-performing city governments share. Most importantly, they recognise that new ideas and technologies create a big opportunity to do things differently and make better places to live. But they also recognise that harnessing this potential will not happen by accident.

> *"Cities don't need to compete against each other always. Indeed, they should seek to compete together whenever they can. It is through friendly competition and collaboration that we will make progress on issues that matter to us all. "*

Andrew Collinge
Assistant Director Intelligence and Analysis
Greater London Authority

This tends to provoke three responses in the way that they work:

1. **They make sure that very different areas of policy need to work in concert.** Good policy in one area can be undermined by bad policy in another. As a result, they tend to have teams, individuals or strategies in place who champion innovation across departmental silos.

2. **They are open by default.** They recognise that the kind of knowledge and ideas needed to drive change are unlikely to reside entirely within city hall. As a result, they habitually find ways to work with outsiders in solving urban problems.

3. **They employ styles of working that are more closely associated with start-ups than bureaucrats.** They are happy to try things out and not afraid to fail. And they are increasingly delivering agile projects, prototyping, deploying user-led design and developing digital services. As a result, they are able to move quickly as the world changes around them.

APPENDIX

Summary of the policy levers we looked for in city governments

We looked for city governments who:

	1	2	3	4	5
REGULATOR	**1.** Enforce existing regulations proportionately	**2.** Review and update regulations to take account of new business models	**3.** Engage the full spectrum of stake-holders to craft balanced regulation		
ADVOCATE	**1.** Ensure a new business focus within the trade and investment function	**2.** Provide set-up support for new businesses	**3.** Promotion of the city as a hub of business creation	**4.** Sponsor events relevant to high-growth sectors	**5.** Helping early-stage ventures access global networks
CUSTOMER	**1.** Ensure the visibility of procurement opportunities through a single portal	**2.** Ensure that pre-qualifying requirements are achievable by new businesses	**3.** Define targets for spend on new businesses	**4.** Use problem-based procurement methods	**5.** Use open innovation methods to engage the ecosystem
HOST	**1.** Support access to co-working spaces	**2.** Support incubator and accelerator schemes	**3.** Enable access to affordable and flexible office space	**4.** Nurture Innovation Districts	**5.** Play the role of matchmaker within the ecosystem
INVESTOR	**1.** Support provision of coding and technical skills	**2.** Support schemes that help young people access the tech sector	**3.** Help businesses understand types of financing options	**4.** Provide funding	
CONNECTOR	**1.** Support access to high-speed internet	**2.** Provide free, public Wi-Fi	**3.** Ensure the high quality and extent of cycling infrastructures	**4.** Ensure frictionless and integrated public transport	
STRATEGIST	**1.** Publish a vision of how to support innovation and entrepreneurship	2. Have a public set of KPIs that measure the success of the city's vision	**3.** Have an innovation function within the city hall	**4.** Have senior leadership with responsibility for innovation and entrepreneurship	
DIGITAL GOVERNOR	**1.** Ensure 'digital by default' city services	**2.** Enable citizens to report city problems on the go	**3.** Enable citizens to engage in policy decision making		
DATAVORE	**1.** Use data analytics to optimise city services	**2.** Publish open data	**3.** Publish live data with appropriate APIs		

ABOUT THE RESEARCH

The nature of our research

The objective of this research was to create a consistent, comparable and replicable set of judgements about whether, and how extensively, city governments are using policy initiatives to better enable innovation and entrepreneurship in their cities.

By looking across 40 cities from around the world, we can observe a growing range of policy initiatives being employed by city governments to foster entrepreneurship both in the private sector and innovation in the way the city delivers services.

The CITIE Framework therefore brings together a diverse set of phenomena that have been rarely assessed side-by-side.

Three phases of research

The research for the City Initiatives for Technology, Innovation and Entrepreneurship was carried out by Nesta and Accenture over three phases:

Phase 1: determining scope

The objective of phase 1 was to determine the scope of the research. Through consultation with city government leaders, policy experts, entrepreneurs and venture capitalists we identified three policy dimensions (Openness, Infrastructure and Leadership) that city governments have direct influence over and are important to entrepreneurs.

Phase 2: designing a framework

To design the CITIE Framework we identified nine policy roles that city governments can adopt to better enable innovation and entrepreneurship. We considered and accounted for:

- Separation between policy for urban innovation and innovation within the city government.

- Variation in the extent of control that city governments have over policy initiatives.

- The imperfect correlation between the areas a city government has most direct control over and the things that matter to entrepreneurs.

- Wider cultural and economic contexts over which city governments do not have direct influence.

Phase 3: conducting research and analysis

To construct the CITIE framework, we identified and measured performance against 36 policy levers that sit underneath the nine policy roles. We analysed whether, and if so how extensively, a city has implemented each of the policy levers identified in the framework. In the process, we collected, analysed and reiterated on approximately 1,440 unique data points

To derive these data points we developed a maturity model approach to understand, and therefore measure, a city government's performance against best practice in each policy levers. At each stage of the maturity model we defined the characteristics that demonstrated performance and assigned a standardised score. Categorising where a city was placed in the maturity model was primarily achieved through desk-based research utilising a range of sources including: observations, policy documents, internal and external datasets. Where possible this was also supplemented by interviews with cities and other experts 'on the ground'.

We conducted an internal audit of the consistency of profiling across cities.

About CITIE

CITIE is the product of a partnership between Nesta, Accenture and the Future Cities Catapult under CITIE. Index.

It was developed from an original concept created by John Gibson, Director of Government Innovation at Nesta and Greg Marsh, Co-founder and CEO of onefinestay.

About Nesta

Nesta is an innovation charity with a mission to help people and organisations bring great ideas to life.

We are dedicated to supporting ideas that can help improve all our lives, with activities ranging from early–stage investment to in-depth research and practical programmes.
www.nesta.org.uk

About Accenture Institute for High Performance

The Accenture Institute for High Performance develops and communicates breakthrough ideas and practical insights on management issues, economic trends and the impact of new and improving technologies. Its worldwide team of researchers collaborates with Accenture's strategy, digital, technology and operations leadership to demonstrate, through original, rigorous research and analysis, how organisations become and remain high performers.
www.accenture.com/institute

About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 323,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$30.0 billion for the fiscal year ended Aug. 21, 2014. Its homepage is **www.accenture.com**

About Future Cities Catapult

We are Future Cities Catapult. We accelerate urban ideas to market, to grow the economy and make cities better. We bring together businesses, universities and city leaders so that they can work with each other to solve the problems that cities face, now and in the future. From our Urban Innovation Centre in London, we provide world-class facilities and expertise to support the development of new products and services, as well as opportunities to collaborate with others, test ideas and develop business models.
futurecities.catapult.org.uk

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The CITIE team would like to thank the following individuals and organisations for their assistance:

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