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BARCELONA



BERLIN



BRUSSELS



COPENHAGEN



HELSINKI



ISTANBUL



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TALLINN



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# CITIE

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

### *The Nordic analysis*

November 2015

Prepared for Index Ventures for Slush

# 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.

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# CITIE

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

### *The Nordic analysis*

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## FOREWORD *All about the city*

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*Introducing CITIE's<sup>1</sup> Nordic Analysis, Index Ventures co-founder and partner Neil Rimer argues that cities, not countries, are best-placed to spur innovation*

**Since founding Index Ventures almost twenty years ago, I have been asked by European policymakers what their countries can do to increase the amount of entrepreneurship and enterprise-creation within their borders. What I have come to realise over time is that, while I wholeheartedly support their objective, they're asking the wrong question. It's not really up to countries and national governments. Entrepreneurs thrive at city-level, often in neighbourhood clusters within cities, and it's these rather than countries that are the relevant entities when it comes to optimising for innovation and start-up activity.**

Start-ups are overwhelmingly driven by young people, often in their 20s and early 30s. People of that age want to live in an exciting, stimulating city that reflects their own values and aspirations, and inspires them to pursue their dreams. They want a place that is always changing, and constantly offers opportunities to try new things, to learn, to be entertained and delighted.

People in their 20s and early 30s do not want staid. They do not want traditional, or quiet, or pristine or predictable. Live music, radical architecture, bold public works, new restaurants and clubs. These are

all part of what make a great city great, assuming the fundamentals are also in place. Well-connected airports, modern public transportation networks, cycling infrastructure, multiple parks and public spaces, ubiquitous Wi-Fi and reliable broadband, not to mention the corner shops, grocery stores and delivery services that allow basic shopping needs to be fulfilled 24/7, great cities have all of these, and more.

Yet while such cultural and social elements exert a powerful pull-factor for entrepreneurs, they do not explain which cities excel at innovation, and crucially why. Traditionally, league tables purporting to show the cities that are the best places in which to locate a start-up have paid far too much attention to 'quality of life'. Indeed, for too long, civic leaders and consultants have been able to hide behind their world-class museums, beautiful lakes or fine restaurants. But the problem with these attributes is that they are impossible to measure in an objective, meaningful way.

Thanks to research led by Nesta, Accenture and the Future Cities Catapult, we now have far more robust, durable means for gauging a city's performance at creating the best conditions for innovation and start-ups. CITIE (City Initiatives for Innovation, Technology and Entrepreneurship) bills itself as "A resource to help city policymakers develop initiatives that catalyse innovation and entrepreneurship". It tested 40 leading cities from around the world against a

series of metrics which addressed three key areas: openness to new ideas and businesses; how a city optimises its infrastructure for high-growth new businesses; and how it weaves innovation into its own activities.

### **No silver bullet**

The reason I find this so exciting is that over the past ten years, Index has paid an inordinate amount of attention to what has been going on in cities like London, Berlin, Paris, Helsinki, Stockholm, Copenhagen, Amsterdam, Barcelona and Tel-Aviv. We have focused on these cities, in particular, because we have witnessed that the pace, scale and level of ambition of the start-ups we've seen in them, was greater than what we'd observed elsewhere. But what we didn't know was why.

As CITIE notes, while there is a great range of approaches to encouraging entrepreneurship, there is no single silver bullet. However, there are principles that the best-performing city administrations share. Namely, they ensure very different policy areas are joined up, while championing innovation across departments. They are 'open by default'. And they operate more like start-ups than local government. In other words, they're open to fresh ideas, and they prototype, iterate and design around users.

CITIE's latest research, which I'm delighted to introduce here, focuses on the great Nordic technology hubs of Stockholm, Helsinki, Copenhagen and Oslo. It explores how these cities perform against one another, as well as against other European and global cities too. While Helsinki was the only one of the four to be rated a Tier 1 or 'Front Runner' city, alongside New York City and London (among others) in the 2015 CITIE analysis, each emerges with unique characteristics, whether it's the capacity and scale of Copenhagen's ecosystem, or Oslo's advocacy efforts around the world, or Stockholm's impressive investment in next generation talent.

Two decades have passed since we started Index Ventures, and our founding thesis, that great entrepreneurs can emerge anywhere, and that it's our job to go to them and not wait for them to come to us, still holds true. Today it's also clear that start-up activity in leading hubs has become self-sustaining and such cities are now encouraging others to follow their lead. Yet while our own experience confirms that increasing numbers of policymakers recognise the importance of innovation and entrepreneurship, they still need advice, such as that provided by CITIE's framework, not only on how to create the conditions for start-ups to thrive, but also how then to step out of their way.

## *Section one:* **AN INTRODUCTION TO CITIE**

### *Why a city's policy environment is important to innovation and entrepreneurship*

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

### *Why this is important for city leaders*

**Innovation is disproportionately driven by young, technology-intensive companies.<sup>2</sup>**

Over the past few years these new businesses are moving from suburban research parks to urban communities integrated into the heart of the city.<sup>3</sup> 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 per cent of high-growth companies created 50 per cent of the UK's employment growth.<sup>4</sup>

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 per cent higher than the employment growth rate in New York City and 14 per cent higher than the national average.<sup>5</sup>

#### **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 per cent of US 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.<sup>6</sup>

#### **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.

## *Why this is important for entrepreneurs*

### **C**ity government are a market opportunity for start-ups

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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.<sup>7</sup>

We live in an increasingly urbanised and digital world where the urban population is predicted to increase from 54 per cent to 66 per cent by 2020.<sup>8</sup> And by 2020, 80 per cent of the global adult population will own a smartphone.<sup>9</sup>

#### **City governments are increasingly acting as customers of innovation**

Bitcarrier was incubated in Barcelona, where the city government acted as first customer to their real-time wireless traffic product. This enabled the scaling of the company globally, and it 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.

#### **Policy changes can open up new opportunities for start-ups**

Small changes in the direction of a city government's policy environment can create new markets for start-ups, and in turn, new products and services for citizens.

Citymapper is a journey planner that takes open transport data and turns it into insightful, real-time travel advice for users, and is so successful that it can be found on over half of the smartphones in London.<sup>10</sup>

Created in London because of the availability of open transport data by Transport for London, Citymapper is now available in 21 cities and counting including New York, Berlin, Paris, Singapore and Toronto. However, it can only develop where a city government is progressive in embracing the potential of open data.

## What is CITIE?

**C**ity 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 the framework, diagnostic tool and case studies with city leaders further at: [www.citie.org.](http://www.citie.org.), and see Appendix for further detail on the research methodology.

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

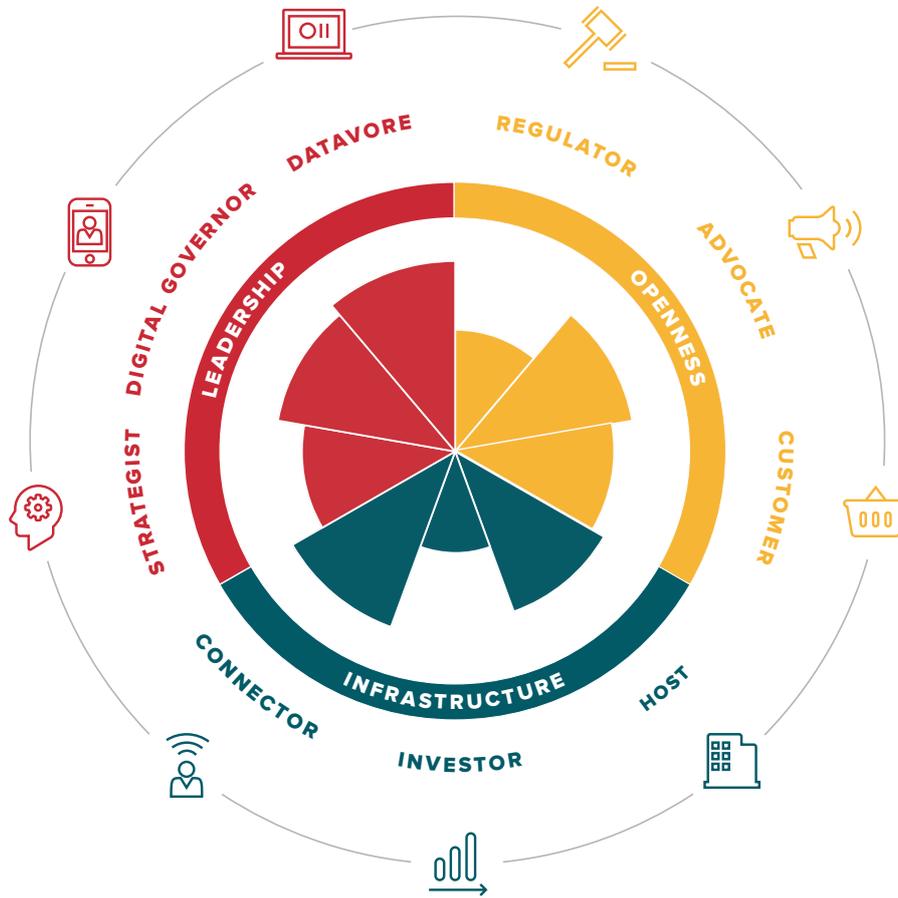
*A series of case studies for cities to learn about global best practice*

## Explaining the CITIE profile

A city government's performance is represented by its CITIE profile, and performance against each of the nine policy roles. There is no single pathway to success. The CITIE profile captures the relative strengths and weaknesses of a city government's

policy environment to support innovation and entrepreneurship, and provides a tool to understand priority areas for development, highlighting best practice from around the world.

Figure 2: The CITIE Framework



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

## Section two: THE ANALYSIS OF THE NORDIC CITIES

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*This section starts with an analysis of the Nordic region performance, and then an analysis of the four Nordic capital cities, Copenhagen, Helsinki, Oslo and Stockholm (Figure 3) against the CITIE framework, setting out their current strengths and weaknesses, along with tailored recommendations for each city, based on areas that other cities have prioritised as next step practice.*

Figure 3: Nordic cities assessed in this report

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## 2.1 NORDIC REGION PERFORMANCE

**Our analysis of the Nordic capital cities against the CITIE framework shows a consistently strong level of high performance, and demonstrates that smaller-scale cities are just as capable as larger cities of developing the policy and ecosystems to support innovation and a thriving entrepreneurial ecosystem.**

In the 2015 CITIE analysis, Helsinki, Amsterdam and Barcelona filled the top spots alongside New York City and London, again emphasising that size is not an indicator of potential in this area. Despite smaller and less dense city populations, the quality of relationships can be just as important in enabling a strong policy environment for innovation and entrepreneurship.

Figure 4 illustrates the Nordics cities average performance across the nine policy roles, whilst Figure 5 illustrates the Nordic cities maximum and minimum performance.

The relative strength of the region in the Infrastructure policy dimension, how the city government has optimised the city space to encourage innovation, highlights how all four Nordic cities have recognised the importance of foundational digital and physical connectivity. Entrepreneurs need to be able to move around the city with ease, and be able to access high-speed internet while they do so. Helsinki is leading best practice with its ‘mobility on demand’ solution that is helping redefine globally what is meant by mobility solutions. Initiatives such as Kutsuplus, an on-demand shared bus service, enables commuters to specify pick-up and drop-off points using their smartphones.

These cities are not just the hosts of the co-working spaces, incubators and accelerators that enable the rapid development and scaling of innovation,

but are beginning to actively engage in ensuring their success. The Stockholm Business Region, the business development agency of the City of Stockholm promotes the spaces available for entrepreneurs, and partners with key start-up bodies, like SUP46. Stockholm has also committed to addressing housing shortages, and privately led co-living spaces for entrepreneurs, such as HUS24, have inspired similar models like Nest in Copenhagen.

In open data there is a clear trend whereby Nordic cities, due to a closer relationship to their national governments, benefit from national initiatives, open data strategy and platform development. The city of Oslo’s data is published on a national portal, (data.norge.no) that is run by the Norwegian Agency for Public Management and eGovernment (Difi). All four cities draw on city-generated data to inform policy and support the publication of Open Data in the Datavore policy role. Copenhagen is internationally renowned for its approach to using city-generated data to inform and support targets, such as its target of carbon neutrality by 2025.

However, across the Nordic region, city governments have generally taken a passive approach to disruptive new business models such as Airbnb and Uber. Oslo has actively pursued Uber, reporting it to the police for operating an illegal taxi service, although no prosecutions have taken place, while in Copenhagen UberPop has been banned at the national level as unlicensed drivers are against the law. By contrast in Stockholm and Helsinki the service has been welcomed as long as it complies with existing regulations. Amsterdam’s attitude towards short-term lets shows a new attitude towards the city as Regulator, working closely with citizens and Airbnb to achieve a solution that has met both sides’ needs. It created a new category of accommodation ‘Private Rental’ which clarified homeowners’ responsibilities for short-term letting, and Airbnb now collects tourist taxes from hosts on their behalf to pay to the city.

Figure 4: Average CITIE profile for the four Nordic capitals

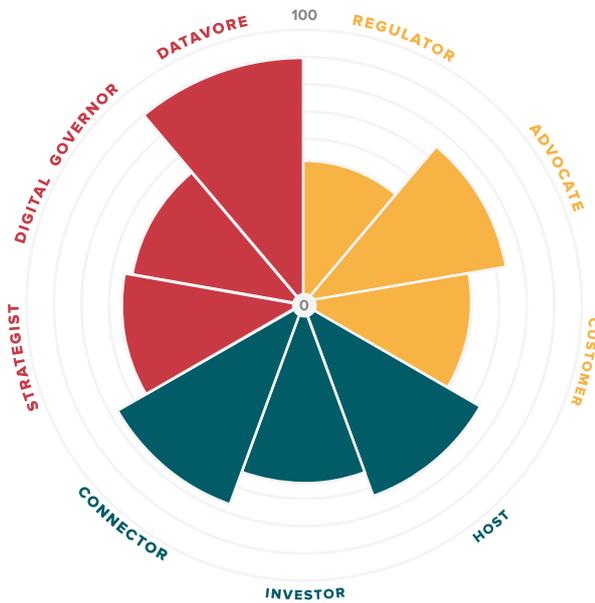
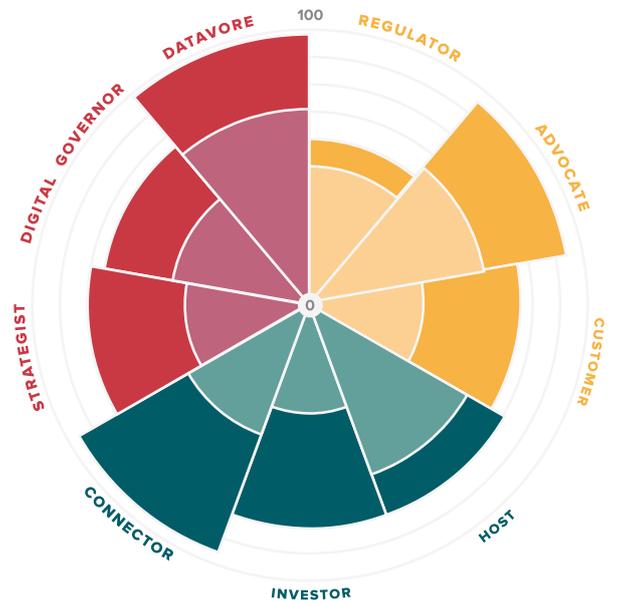


Figure 5: Maximum and minimum performance across the CITIE policy roles for the four Nordic capitals

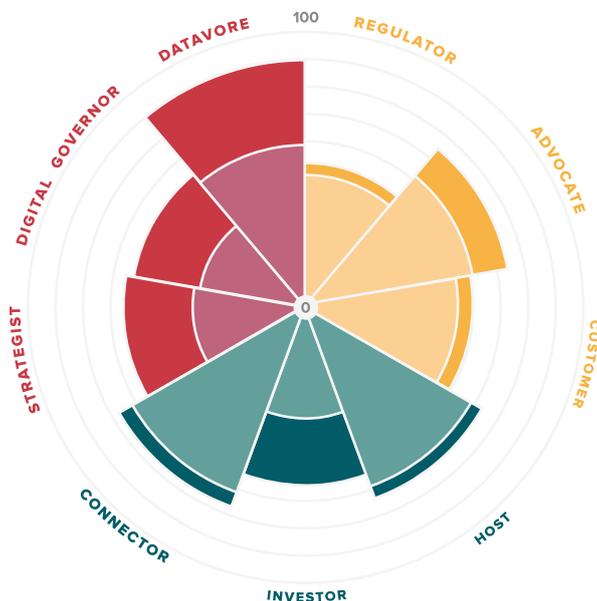


### The Nordic cities vs. European cities

When compared to European cities in the 2015 CITIE analysis (lighter profile), the Nordic cities on average perform strongly across all policy roles (Figure 6), and often out-perform their European counterparts by a significant margin, particularly across the leadership

roles. This consistency in the average of the Nordic city profiles is a reflection of their recognition of the importance of building up all nine policy roles, and how good policy in one area can support similar high standards in another.

Figure 6: Average performance of Nordic cities vs. European cities\*



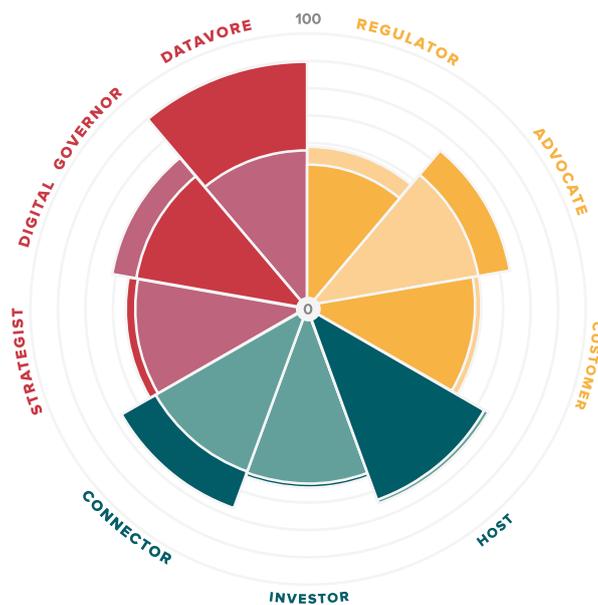
\* The European peer group comprises Amsterdam, Barcelona, Berlin, Brussels, Copenhagen, Helsinki, London, Moscow, Oslo, Paris, Prague, Stockholm, Tallinn, and Vienna.

## The Nordic cities vs. North American cities

When compared to the North American cities in the 2015 CITIE analysis (lighter profile), the Nordic cities on average perform well, out-performing on many of the policy roles (Figure 7) and only just being

marginally beaten on Regulator, Digital Governor and Customer. As a collective region, the Nordics is one of the strongest across all assessed by CITIE.

Figure 6: Average performance of Nordic cities vs. North American cities\*\*



\*\* The North American peer group comprises Boston, Chicago, Los Angeles, New York City, San Francisco, Seattle, Toronto and Vancouver

## Collective recommendations for the Nordic region

**Small tweaks to the policy environment of the Nordic region will ensure it remains a globally competitive location for innovation and entrepreneurship building on the already established strong foundations.**

CITIE has identified three areas that the region can focus on to get started:

1. Advocate the ambition and successes of local start-up and let the world know how good the Nordics cities are. Support local start-ups and entrepreneurs on the global stage to access international opportunities
2. Civic innovation can emerge from multiple places. The Nordic cities can work across geographic boundaries to build regional, European and international policy initiatives
3. Find a way to experiment with new business models that may be disruptive, but could enable new economic growth. This can begin with a series of 'no regrets' steps, such as social listening, participation in hackathons, running open innovation challenges, all of which will help the city government show how it can support emerging innovation.

## 2.2 COPENHAGEN

**The word ‘ease’ describes innovation in Denmark. The four steps to start a business take only 5.5 days,<sup>11</sup> and it takes only seven steps to transfer money to friends using Danske Bank’s free mobile payment app, MobilePay, even if you don’t have an account with them.**

Copenhagen is well-known as a city that has embraced innovation and is known globally as a ‘green capital’ and its Mayor was recently elected as Chair of the C40 Cities Climate Leadership Group. In 2014 the city received the World Smart City Award for Copenhagen Connecting’s digital infrastructure initiative, a project designed to progress the implementation of new smart city solutions and save an estimated DKK4 billion (€5.4 billion).<sup>12</sup> The city’s emphasis on innovative solutions to city problems is further underlined by its ambition to become a carbon neutral capital by 2025.

### *Performance against the CITIE framework*

#### **C**itizen experience has defined Copenhagen’s approach to innovation.

In 2013, the city, as part of its Smart City ambition began to publish its open data on data.dd.dk, inviting citizens, students, entrepreneurs and established companies to use the datasets. Convened around a single platform and open to anyone, the data is published under an open licence in a number of coding languages. Copenhagen also has real-time data with Counting Locations, that provides data from approximately 450 places in the city on average and current traffic conditions for both bikes and cars.

Copenhagen follows a strong national lead in digital self-service, where at the national level e-governance and paperless payments are centralised. There’s My Page for applications showing citizens a comprehensive view of their interactions with public authorities, eBooks for digital post and deposits, and the NemID digital signature for public websites and many banking services. NemID integrates into Copenhagen’s self-service requests, e.g. notifying of moving home.

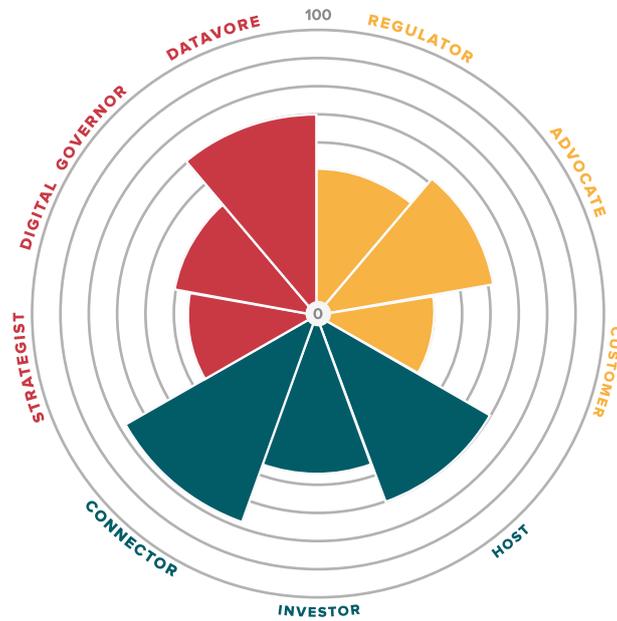
Beyond the digital, The Street Lab promises to convert the city into an urban lab, where citizen-centric solutions will emerge. Developed by the Copenhagen Solutions Lab, it’s the city’s incubator

for smart city solutions, mandated to work across city departments and with citizens and companies. The Smart City Street covering the area of the city hall square, Andersen Boulevard and Vester Volgade, will act as a designated space for prototyping solutions for issues such as mobility monitoring and city Wi-Fi.

Figure 8 illustrates Copenhagen’s CITIE profile.

There are notable yet isolated areas of good performance. Of the four Nordic capitals, Copenhagen compares most closely to Oslo and is some way behind the others in its performance. This is in sharp contrast to its global prominence as a tech cluster and highlights the opportunity for the city government to increase its support for this cornerstone of economic activity in the city. In the policy roles of Customer, Strategist, Digital Governor and Investor, there is considerable scope for improvement, first to be on a par with the other Nordic capitals, and to be leveraging all the policy levers at the city’s disposal to support the entrepreneurial community. Given the current strength of the existing community, it could be argued that further efforts in the CITIE policy roles would only serve to amplify the already significant positive benefits the community brings to the city.

Figure 8: Copenhagen CITIE profile



## Recommendations



### 1. STRATEGIST

Appoint a Chief Innovation Officer who can develop the city’s vision to ensure innovation stays at the top of the city’s agenda, and who can advocate for the city on the global stage. Despite Copenhagen’s international reputation as a ‘green’ capital, the city needs to explicitly brand itself as a centre of innovation.



### 2. CUSTOMER

Allow local entrepreneurs to gain first customer validation through the city by ensuring the city’s procurement is designed as a vehicle for innovative civic solutions, for example drawing on solutions emerging from the Smart City Street Lab.



### 3. INVESTOR

Explore avenues through the local curriculum and apprenticeships, to upskill the local workforce in skills and knowledge needed to support local industries. For example CoderDojo has a group in Copenhagen but is not actively supported by the city.

## 2.3 HELSINKI

**Helsinki was one of the top five performing cities in CITIE 2015, alongside New York City, London, Amsterdam and Barcelona. With a strong entrepreneurial and tech cluster, even after the demise of Nokia 2012, the country recently produced successes such as Rovio and Supercell. Even as Nokia began shedding jobs prior to its acquisition by Microsoft in 2013, the company was helping departing employees to found their own start-ups, so that by December 2012 former Nokia staff had set up 220 companies.<sup>13</sup>**

*Wired's* 2015 list of Helsinki's top start-ups included Fintech companies alongside gaming companies, a reflection of how the local innovation ecosystem is beginning to diversify from its traditional foundations in the communications sector. Voted the World Design Capital for 2012 by the International Council of Societies of Industrial Design, the city's strong design roots will only enhance its ability to build user experience into new innovations.

### *Performance against the CITIE framework*

**In Helsinki innovation is characterised by viewing the city as a platform.**

Civic innovation has been fostered by opening up city data and through active collaboration with the local ecosystem. Forum Virium Helsinki, the city's innovation unit, has been pivotal in this transformation, bringing together the city government, companies, entrepreneurs and citizens on initiatives such as Open Ahjo, CitySDK and Helsinki Loves Developers. Open Ahjo is, for example, an API and UI for developers to access the information used to make decisions in the city government.

Transparency and openness are defining the future of how the city interacts with its citizens, with all public spending now being logged online so that citizens can see what their city is spending money on. Through Kerro Kartalla ('Tell it to us on the map'), citizens can tag their opinions and observations on the city map on topics such as school children's afternoon activities. Ruuti enables 13 to 20-year-old Helsinki residents to submit their ideas, participate in discussions, comment on and support the ideas of others, get help for their own activities and join new groups.

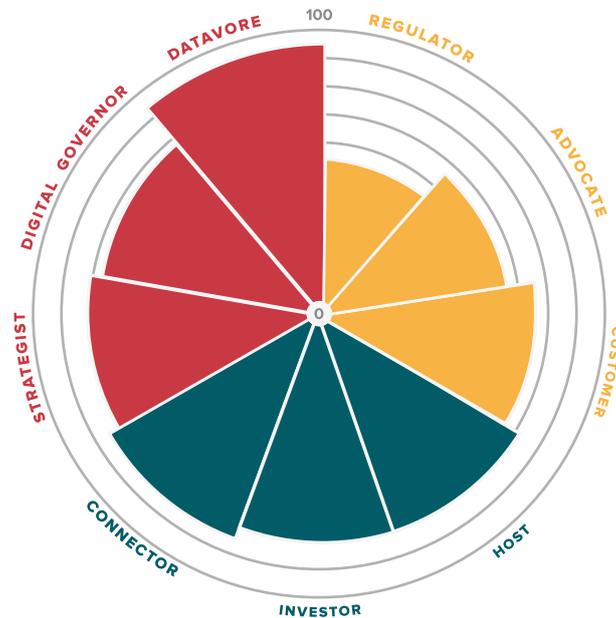
Helsinki's vision of mobility on demand, a fully integrated public and private transport 'one click' solution, carries the scale of ambition you would more typically expect from a tech start-up and is defining mobility as a service agenda globally. Helsinki aims to make car ownership redundant by offering citizens a 'mobility as a service' solution, enabling users to purchase their mobility packages, whether by bus, taxi, ferry or bike, or a combination of these, at a cheaper price with greater flexibility. 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.

Helsinki also rolled out Kutsuplus, an on-demand shared bus service that enabled commuters to specify pick-up and drop-off points using their smartphones. The ease of use and competitive pricing of Kutsuplus has attracted over 21,000 users to date.

Figure 9 illustrates Helsinki's CITIE profile.

Helsinki has one of the most consistent profiles of any of the cities assessed by CITIE, but though its performance in the Openness roles of Regulator, Advocate and Customer are respectable, these are areas that could be prioritised for improvement.

Figure 9: Helsinki CITIE profile



## Recommendations



### 1. ADVOCATE

*Celebrate success and explicitly brand and champion the city as a global centre of innovation and entrepreneurship. Build out from partnership successes like Slush and Smart City App Hack to expose local start-ups to international opportunities.*



### 2. REGULATOR

*Experiment with how the city can absorb disruptive business models into the daily fabric of the city. Despite leading in disrupting the concept of mobility solutions, the city has struggled to welcome other new mobility providers such as Uber into the city.*



### 3. HOST

*Build out from partnerships such as Slush and the Smart City App Hack to expose local start-ups to international opportunities, and continue to act as a matchmaker to ensure the future needs of the local ecosystem are met.*

## 2.4 OSLO

**The Norwegian sense of adventure is considered a key condition of entrepreneurship.<sup>14</sup> And technology-driven innovation in Norway is highly networked.**

The 2015 Norwegian Start-up Scene Report maps nine innovation hubs spread across Norway, and lists nine national community players and ten national events that aim to encourage innovation.<sup>15</sup>

### *Performance against the CITIE framework*

**The city of Oslo is in a rapid phase of learning and development.**

The Oslo Business Region is an initiative of the city government tasked with increasing the number of internationally competitive Norwegian start-ups. It has recognised that Oslo is not globally well-known for innovation and entrepreneurship, and struggles with the critical mass needed to compete on the international stage. In response the Oslo Region Brand Management Strategy is a commitment to develop an explicit brand for the city, and sets out Key Performance Indicators to track progress.

One initiative unique amongst nearly all cities in the CITIE analysis is the Oslo Innovation Embassy, an outpost model where Norwegian entrepreneurs can secure a desk in The Trampery in Hackney, London to learn from peers in a more mature start-up environment. The Oslo Lounge is a similar concept, but in Austin, Texas in the US, where pop-up events have helped to foster knowledge sharing between start-up communities. Further, in August 2015, Oslo invited The Trampery to advise on the set-up of an Innovation District in Tøyen. The district would focus on facilitating the growth-stage of new companies, and on attracting angel investment to start-ups located there.

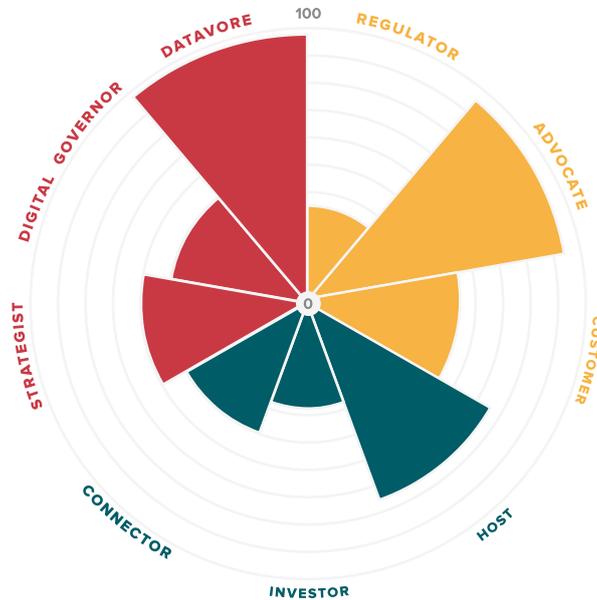
The city draws on its learning and acts as a knowledge hub for Oslo-based entrepreneurs. For example, innovation spaces like incubators and accelerators are promoted with an interactive, online map. The Oslo Business Region provides comprehensive, online information on financing, accounting, legal requirements and local networks.

The city is starting to draw in learning directly from its citizens. Alongside e-services for paying for waste collection and tax submissions, Fiks dette is an app that allows citizens to report problems directly to the city government, and Bymelding is a website service where citizens can report problems to the city.

Figure 10 illustrates Oslo's CITIE profile.

There are many policy roles where concerted efforts are needed if the city wants to be serious about supporting this sector of its economy. Oslo should consider how to define its vision, and then put in place the strategies and teams needed to deliver on this. Through this, other priority roles such as Investor might start to articulate themselves through a need for greater skills development of the local workforce. The city government may then seek a greater push for teaching coding and technology skills in its schools, and bridge the gap between universities and employment through the provision of technology partnerships.

Figure 10: Oslo CITIE profile



## Recommendations



### 1. INVESTOR

Attend to local skills needs to ensure a good supply of technical talent. The national government has recently prioritised the provision of programming education in schools – Oslo could run a pilot or consider providing technology apprenticeships for young people to gain work experience



### 2. HOST

Extend the city's 'soft landing' support from providing information and advice, to the provision of grants, and access to working space for new businesses in the city.



### 3. DIGITAL GOVERNOR

Build on the foundations of Fiks dette and Bymelding to explore how digital technologies can be used to curate citizen engagement in policymaking decisions.

## 2.5 STOCKHOLM

**O**n a per capita basis, the city is second after Silicon Valley as the most successful producer of technology companies valued at over \$1 billion. These include familiar household names such as Skype and Spotify, alongside the newer entrants to the tech unicorns club of Mojang (Minecraft), Klarna (online payments) and King (Candy Crush).<sup>16</sup>

Despite this success, the recent publication of the Swedish Start-up Manifesto 2015 has identified key initiatives to ensure Sweden benefits from start-up driven economic growth. They include the creation of a legal definition of 'start-up', for the government to favour SME solutions in The Public Procurement Act and the simplification of skilled immigration.<sup>17</sup>

The city of Stockholm has responded to the manifesto. The city has committed to addressing housing shortages, and privately led co-living spaces for entrepreneurs in the city such as HUS24, which have inspired similar models like Nest in Copenhagen.

### *Performance against the CITIE framework*

**T**he city of Stockholm has built a solid foundation to support the local entrepreneurial ecosystem.

People and plans are in place for the city to support innovation and entrepreneurship. The city appointed a Chief Information Officer, developed a strategy for the city (Vision 2030), set out a dedicated plan for e-services and technology ('e-sthlm'), and published an innovation strategy that sets out five development areas for the city, including better access to early-stage financing, and innovative procurement.

Procurement is being used as a way for the city to experiment with open innovation methods. Kista Science City with the City of Stockholm and the Swedish Transport Administration launched Sweden's first pre-commercial procurement (PCP) or 'lightweight competition' in 2012 to attract developers and entrepreneurs to solve transport problems. And in 2014 the city ran the Open Stockholm Award, inviting entrepreneurs to use the city's data to create solutions to city problems. This

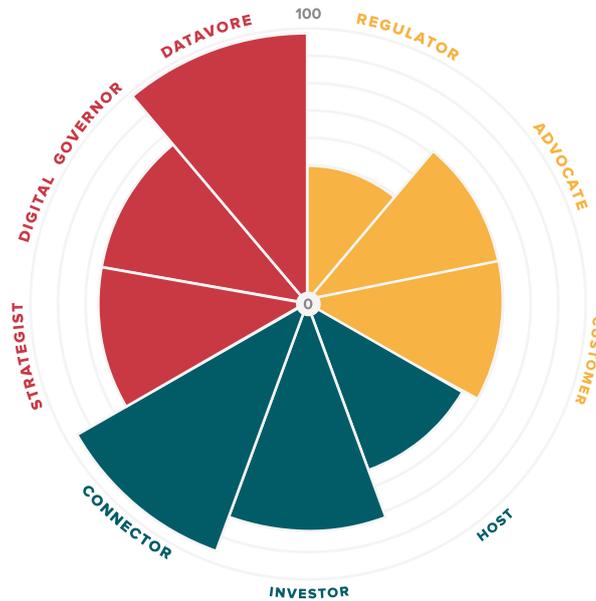
year the city sponsored DreamHack, the world's largest digital and gamers festival.

Local talent is being developed through city government supported initiatives. ELIS, Future Entrepreneurs and The Global Entrepreneurship Programme are school programmes that allow students to learn entrepreneurial skills. The city promotes organisations focused on entrepreneurship education, such as Tillvaxtverket's promotion of female entrepreneurship and Transfer which brings industry experts to teach school students about entrepreneurship.

Start-up Stockholm is the city's dedicated site for new businesses in the city, offering mentorship and workshops on specific topics, like how to manage a budget, as well as promoting co-working spaces such as Epicenter, Entrepreneurs Church, Impact Hub, Knackeriet, Things, The Castle and Coffice. The city is a partner of SUP46, a start-up hub backed by venture capital firms and private companies like Microsoft.

Figure 11 illustrates Stockholm's CITIE profile.

Figure 11: Stockholm CITIE profile



## Recommendations



### 1. HOST

*Extend the city's 'soft landing' support from providing information and advice, to the provision of grants, and access to working space for new businesses in the city.*



### 2. CUSTOMER

*Ensure the city acts as a first customer to local civic innovation, setting up the city urban fabric as a test-bed of innovation where new ideas, products and services can be prototyped.*



### 3. ADVOCATE

*Play a stronger role in supporting the city's local start-ups and entrepreneurs to gain international exposure.*

## APPENDIX 1

### The **CITIE** framework

**T**he CITIE framework provides a resource for city policymakers who want to develop policy to support innovation and entrepreneurship.

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.

It comprises nine roles that cities need to perform well if they want to provide the optimal conditions for innovation and entrepreneurship. These roles are set out earlier in Figure 2.

We tested how well 40 leading city governments performed 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.

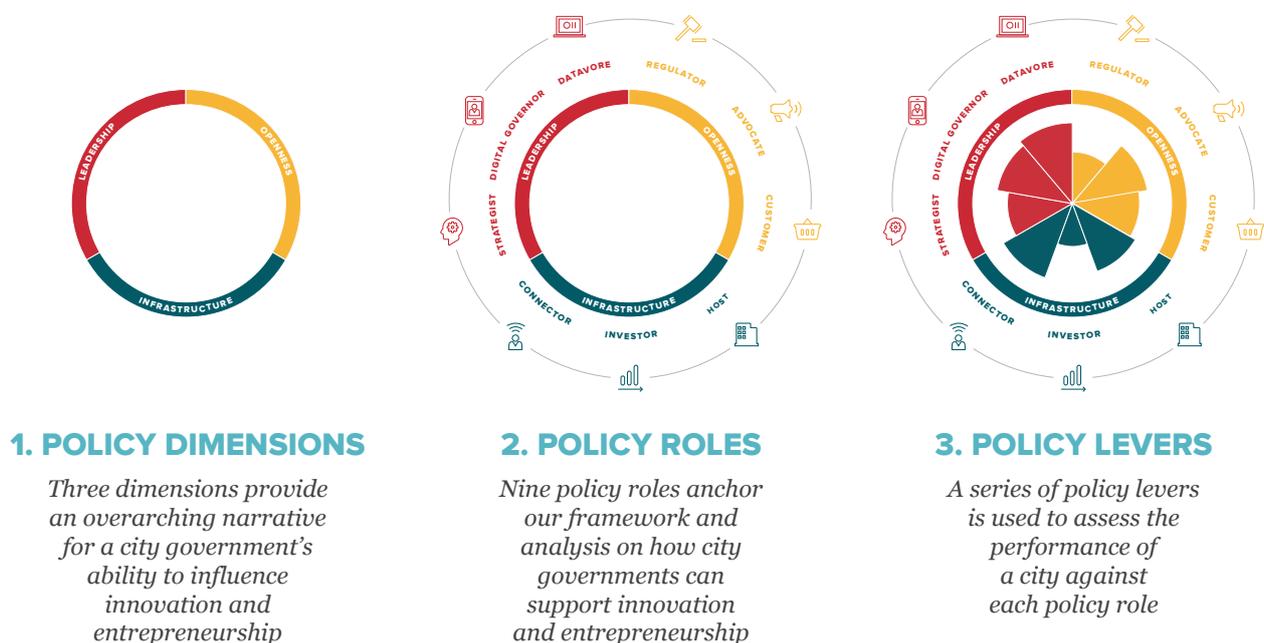
Taken collectively, these three levels of analysis comprise the CITIE framework. Figure 12 shows how they build on top of each other.

We assessed how well the Nordic capitals of Copenhagen, Helsinki, Oslo and Stockholm played each of these nine roles by measuring across the range of policy levers, allowing us to compare their performances to our dataset of 40 cities that we analysed earlier in 2015.

#### A note on the analysis

Copenhagen and Helsinki were analysed against the CITIE framework in the original 2015 analysis. This report has added Oslo and Stockholm to the CITIE framework and analysed them against the 40 cities in the original analysis.

Figure 12: Constructing the CITIE framework



## APPENDIX 2

### *Summary of the policy levers we looked for in city governments*

We looked for city governments who:

<b>REGULATOR</b>	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		
<b>ADVOCATE</b>	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
<b>CUSTOMER</b>	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
<b>HOST</b>	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
<b>INVESTOR</b>	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	
<b>CONNECTOR</b>	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	
<b>STRATEGIST</b>	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	
<b>DIGITAL GOVERNOR</b>	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		
<b>DATAVORE</b>	1. Use data analytics to optimise city services	2. Publish open data	3. Publish live data with appropriate APIs		

## ENDNOTES

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