Panel II: Indices & Scoreboards for Policy – Tools and Platforms

How should indices and scoreboards be easily communicated to the wider public?

European Digital City Index

Sidd Bannerjee
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Researcher, Nesta

September 29th, Ispra

www.digitalcityindex.eu

#digitalcityindex

Inspirational Quote

"…The balancing act between science and art is what makes

composite indicators so challenging…"

- Sidd Bannerjee

Overall Structure

European Digital Forum (EDF)

"think tank dedicated to empowering web entrepreneurs and growing Europe's digital economy"

SECRETARIAT

Nesta...

theLisboncouncil
making Europe fit for the future

MEMBERS / SPONSORS

European Commission

EUROPEAN INVESTMENT FUND

accenture
High performance. Delivered.

orange

BBVA

Telefonica

EDFx

€300k (Nesta component) from EC over 2 years
Nesta & LC only – no corporates

Digital Readiness Index

WP 2.1 within EDFx
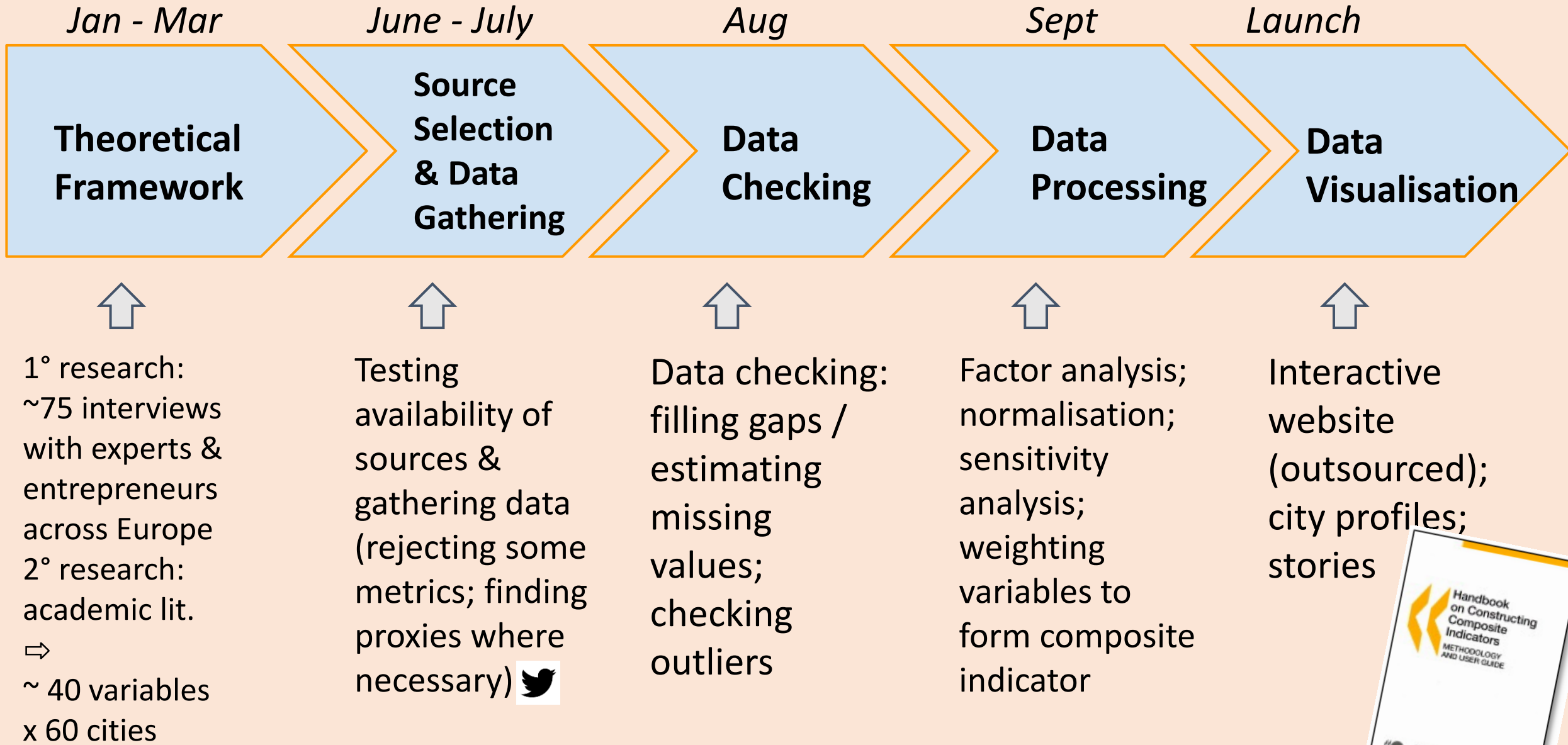(major, but not sole, deliverable)

Overview

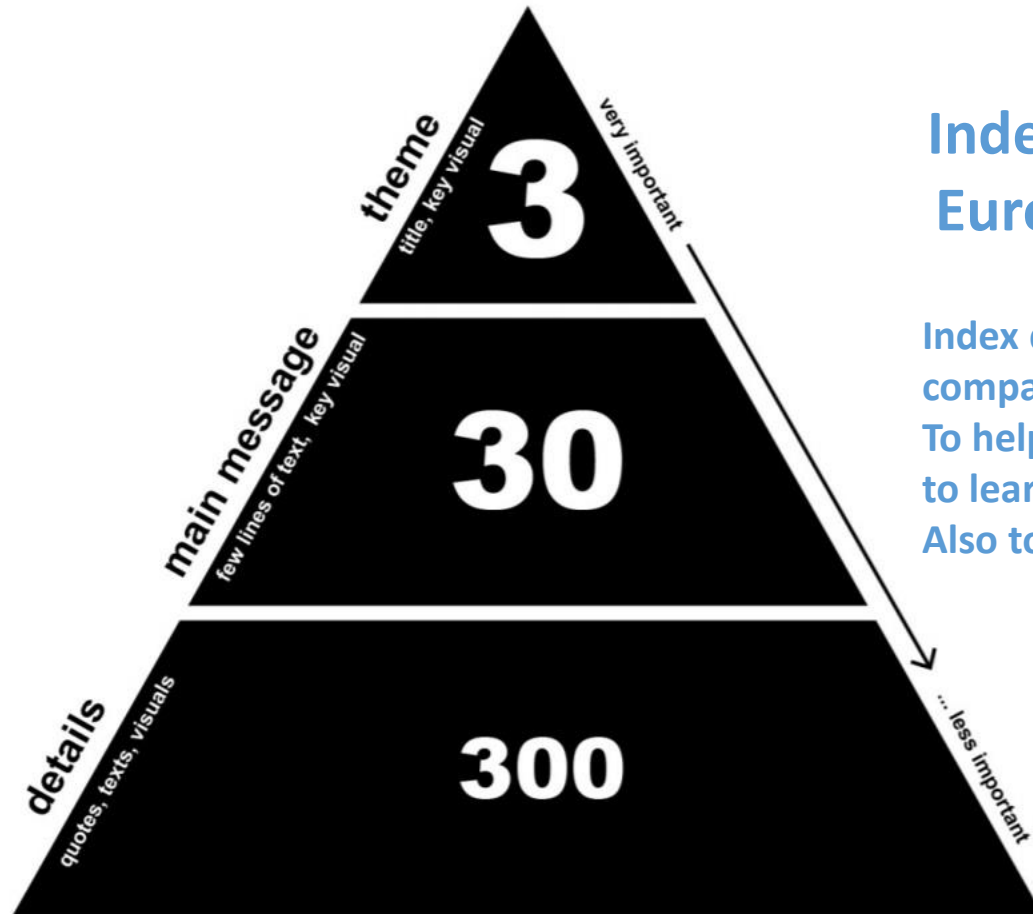| Vision	Mission	Audience
The European Digital City Index (EDCi) is among the <u>first city-level ecosystem mapping research projects that uses composite indicator methodology</u> to rank different European cities' support for digital startups and scale-ups.	Its ultimate purpose is to support digital entrepreneurship by providing a holistic and local view across Europe It is also a useful as a tool to benchmark city-level digital innovation. To that end, it includes <u>indicators which relate to various policy, economic, social/cultural, and technological factors</u> which can be used to evaluate the health of a startup ecosystem at the city level.	For **Startups, scale-ups, and large corporates** looking to partner with them - the index provides information about the strengths and weaknesses of local ecosystems, allowing them to plan accordingly. For **policy makers**, the index provides a tool to benchmark cities and decide where they may need to devote more resources.

HOOKS

How: The Long and Short

Jan - Mar	June - July	Aug	Sept	Launch
Theoretical Framework	**Source Selection & Data Gathering**	**Data Checking**	**Data Processing**	**Data Visualisation**

1° research: ~75 interviews with experts & entrepreneurs across Europe
2° research: academic lit.
⇨
~ 40 variables x 60 cities

Testing availability of sources & gathering data (rejecting some metrics; finding proxies where necessary)

Data checking: filling gaps / estimating missing values; checking outliers

Factor analysis; normalisation; sensitivity analysis; weighting variables to form composite indicator

Interactive website (outsourced); city profiles; stories

Communication Strategy

3-30-300 seconds rule
three layers for effective communication

theme — title, key visual — **3** — very important

main message — few lines of text, key visual — **30**

details — quotes, texts, visuals — **300** — ... less important

Index comparing the attractiveness of Europe's tech hubs for digital startups

Index describing "How do Europe's capital cities (& selected other hubs) compare in their attractiveness to digital startups?"
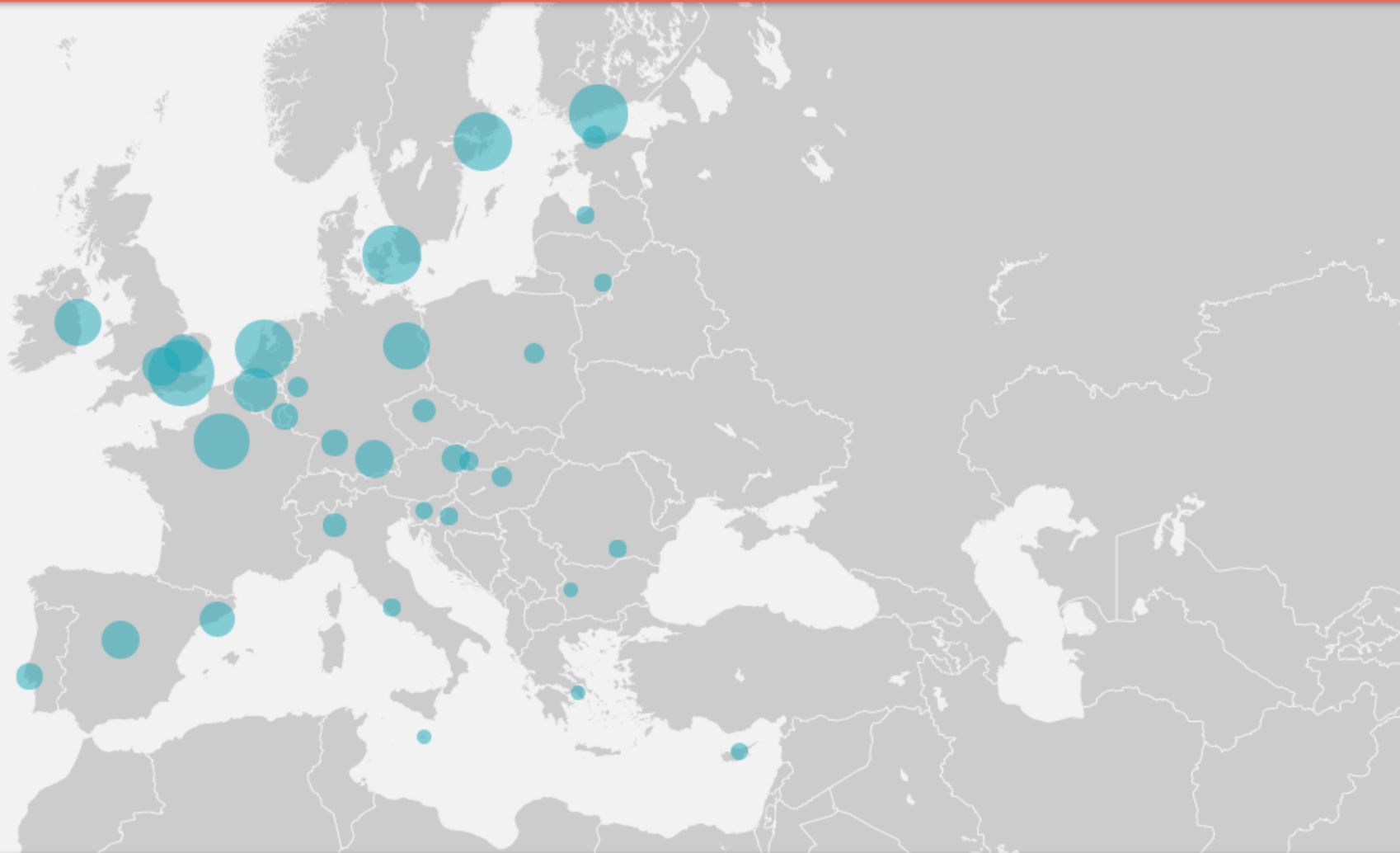To help policy makers identify existing and promising hubs of activity, in order to learn from their practices & benchmark their performance.
Also to help startups and scale-ups better plan….

European Digital City Index 2016

Theme	Variable	Indicator	Coverage	Source
Access to Capital	Availability of early-stage funding	Amount of seed and startup funding raised (€ thousands)	National	Invest Europe
	Availability of late-stage funding	Amount of later-stage funding raised (€ thousands)	National	Invest Europe
	Availability of growth funding	Amount of growth funding raised (€ thousands)	National	Invest Europe
	Availability of crowdfunding	Amount pledged towards Kickstarter projects (€ millions)	City level	**Crowdfunder.co.uk**
Entrepreneurial Culture	Willingness to take on risk	Percentage of people who disagreed with the statement: "One should not start a business if there is a risk it might fail"	Nuts 2	Eurobarometer
	Foreign population	Percentage of pop. that are native born w/ mixed background and foreign-born	National	**Eurostat**
	Online collaboration	Number of new active Github Users within the last 12 months	City level	**Ghtorrent.org**
	New-business density	Number of newly registered corporations per 1,000, ages 15-64	National	World Bank
	Absence of negative perception of entrepreneurship	Percentage of people who answered "Broadly favourable" to the question: "What is your overall opinion about the following groups of people? Entrepreneurs (self-employed, business owners)"	Nuts 2	Eurobarometer
	Trust	Median response to question: Generally speaking, would you say that most people can be trusted, or that you could not be too careful in dealing w/ people?	Nuts 2	Eurobarometer
	Engagement with digital startup ecosystem	Number of tweets with selected entrepreneurship related hashtags in the last year.	City level	**Followthehashtag**
	History of highly successful digital companies	Number of unicorns (startups valued at more than US$1 billion)	City level	GP Bullhound, **CB insights**
Mentoring & Managerial Assistance	Networking and mentoring events	Number of meetups/networking events per month in city	City level	Meetup.com
	Access to accelerators	Number of accelerators	City level	**Gust, Open Axel**
	Availability of early-stage assistance	Number of Business Angels	National	EBAN
Skills	Labour cost	Average salary for software developers (Web Designer, Web Developer, Business Development, Content Marketing, Sales Manager, Customer Support and Software Engineer) with 5 years experience; € per annum	City level	**Teleport.org**
	Access to graduates	Percentage of population aged 25-64 with tertiary (level 5 - 8) education attainment	Nuts 2	Eurostat
	Training to start a business	Average of basic and post school entrepreneurial education and training	National	GEM
	Access to ICT employees	Number of employees in ICT sector in thousand	Nuts 2	Eurostat
	Access to support employees	Number of Employees in Legal and Accounting Activities + Advertising and Market research + Office administrative, office support and other business support activities	Nuts 2	Eurostat
	English language skills	Percentage of city's population who can communicate in English	Nuts 2	Eurobarometer

European Digital City Index 2016

Theme	Variable	Indicator	Coverage	Source
Business Environment	Ease of doing business	Time and cost associated with doing business (Index ranking)	National	World Bank
	Cost of office space	Average rental cost or price of commercial property (€/Sqm/Year)	City level	Cushman & Wakefield
	Co-working spaces	Number of shared working spaces	City level	
	Public sector information and openness data	Public Sector Information Score	National	EU Digital Agenda
	Startup policy implementation	Startup Manifesto Policy Tracker - Data policy, protection & Privacy Score	National	EDF
Digital Infrastructure	Internet download/upload speed	Broadband speed (MB/Sec)	City level	Ookla
	Cost of broadband	Fixed broadband subscription charge ($ / Month)	National	ITU
	Mobile internet speed	Speed of mobile internet (MB/Sec)	City level	Ookla
	Availability of fiber internet	Number of fiber-to-the-home/building Internet subscriptions	National	ITU
Knowledge Spillovers	Quality of research institutions	Number of research institution per city in the top 200 best world universities	City level	QS World University Ranking
	Research & Development intensity (BERD)	Business R&D expenditure (Millions of PPS)	National	Eurostat
	Research & Development intensity (GERD)	Total intramural R&D expenditure (Millions of PPS)	Nuts 2	Eurostat
Market	Local online transactions	Percentage of population who ordered goods or services over the internet for private use in the past 12 month	Nuts 2	Eurostat
	Local demand for digital services	Percentage of enterprises having done electronic sales to their own country in the last calendar year for all enterprises, without financial sector (10 persons employed or more)	National	Eurostat
	Domestic Market Size	Domestic market size that is the sum of gross domestic product plus value of imports of goods and services, minus value of exports of goods and services, normalized on a 1–7 (best)	National	World Economic Forum
	Digital market Size	Aggregate revenue in the 'e-commerce' and 'e-services' national market in million of US$	National	Statista
	Size of potential mobile-based market	Number of active mobile-broadband subscriptions per 100 inhabitants	National	ITU
	Growth in local online transactions	Difference in the percentage of individuals who have purchased online between 2013 and 2014	Nuts 2	Eurostat
Lifestyle	Standard of living	Quality of life index score	City level	Numbeo
	Recreation	Score based on the availability of cultural institutions	City level	**Teleport.org**
	Cost of living	Cost of living index plus Rent Index Score	City level	Numbeo
Non-digital infrastructure	Commute	Traffic handling score	City level	**Teleport.org**
	Travel Connectivity	Score based on direct flight connections and train connectivity	City level	**Teleport.org**

8

Please visit: www.digitalcityindex.eu

Scope

- **2015 version**: 35 cities (28 EU capital cities + 7 digital innovation hubs)

- **2016 version**: 60 cities

- **Expansion** – was based on: public demand, greater availability of data from new partners, requests from country/city government officials and the European Commission.

- EDCi methodology now being explored for similar projects across the **EU, MENA** and potentially in other markets including **South America**.

Changes 2015 ⟶ 2016

New Cities	JRC Audit – Improving Methodological Robustness	New Variables & Improved Indicators
Belgium: Leuven; **Denmark:** Aarhus; **France:** Bordeaux, Lyon, Marseille, Strasbourg; **Netherlands:** Eindhoven, **The Hague, Utrecht**; **Germany:** Bonn, Darmstadt, Dresden, Dusseldorf, Frankfurt, Hamburg, Karlsruhe; **Sweden:** Gothenburg, Malmo, Uppsala; **UK:** Birmingham, Bristol, Cardiff, Edinburgh, Manchester; **Spain:** Valencia	**Standardization** • Denominated variables - From national to city level estimates **Normalization** • Outliers/Direction of indicators. **Correlation Structures** • Correlation structure of the indicators/themes **Statistical Tests** • Principal Component Analysis • Cluster analysis **Conceptual Choice and Checking** • Aggregation • Sensitivity analysis	**New Variables** - **Entrepreneurial Education** - **Lifestyle (cultural attractiveness of city)** **Improved Indicators** Indicators used in the 2015 Index were **not entirely geographically representative**: 1. Availability of Crowdfunding (using: Kickstarter) 2. Engagement with digital startup ecosystem (using: Twitter) 3. Networking/mentoring events (using: meetup.com) 4. Access to mentors (using: Linkedin) 5. Online collaboration (using: Github)

Impact - Launch

- **The European Digital City Index (EDCi)** was launched by Geoff Mulgan, the chief executive of Nesta, at **ICT 2015 – Innovate, Connect, Transform** in Lisbon on 21 October 2015.

- Broad media coverage: with the hashtag #digitalcityindex tweeted more than 1,900 times by high level policymakers, prominent media outlets and entrepreneurs including EU Vice-President **Andrus Ansip**, Belgian Deputy Prime Minister **Alexander de Croo**, Startup Delta head **Neelie Kroes**, and Italian digital champion **Riccardo Luna** (see next slide).

Impact – Social Media

Relevant influencer & Geographical coverage

EuropeanDigitalForum Retweeted

Neelie Kroes @NeelieKroesEU · Oct 21
For Digital Startups and Scale ups @StartupDelta has accomplished its goal: nrs 2 and 3 in Europe!

6 Paris	24 Warsaw
7 Berlin	25 Bratislava
8 Dublin	26 Nicosia
9 Brussels	27 Ljubljana
10 Munich	28 Rome
11 Cambridge	29 Vilnius
12 Madrid	30 Bucharest
13 Oxford	31 Zagreb
14 Barcelona	32 Riga

StartupDelta @StartupDelta
European Digital City Index 2015: Amsterdam nr 2 for startups, nr 3 for scaleups! bit.ly/1ME1Vzs

♻ 26   ★ 18

EuropeanDigitalForum Retweeted

Andrus Ansip @Ansip_EU · Oct 22
Check out where it's good to #startup and to #scaleup in EU: @edf_eu digitalcityindex.eu – congrats top scorers, keep it up challengers

♻ 12   ★ 12

EuropeanDigitalForum Retweeted

Ed Vaizey @edvaizey · Oct 23
#London tops list of best EU cities for #digital entrepreneurs nesta.org.uk/news/london-to… @nesta_uk

♻ 10   ★ 11

Geolocation

1 ——————— 156
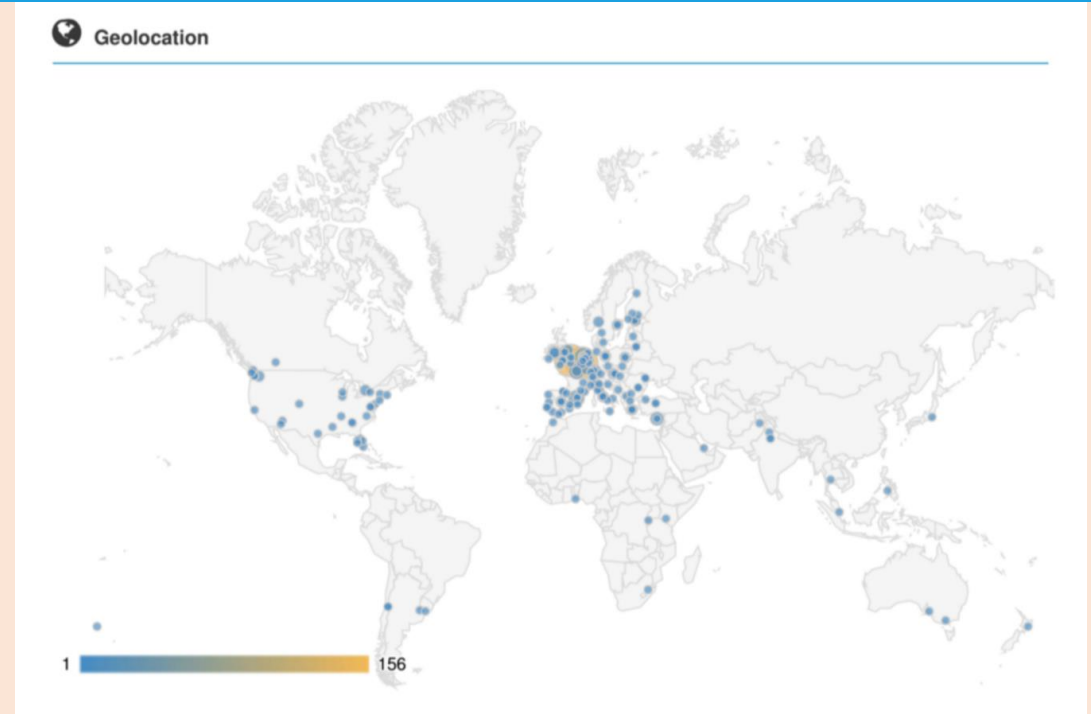
Digital Belgium Retweeted

Alexander De Croo @alexanderdecroo · Oct 22
Brussel in top-10 #DigitalCityIndex vooral dr toegang tot financiering. Expliciete vermelding #startupplan als troef

Digital Agenda @DigitalAgendaEU
London, Amsterdam, Stockholm - new European #DigitalCityIndex is out bit.ly/1M7ysgN #ICT2015 @nesta_uk

Impact – Dissemination

Press Coverage	Social Media	Quotes
• The EDCi received broad coverage from different print, online and broadcast media sources. • It has been covered dozens of times in publications such as **Forbes**, **the Telegraph** and the **Financial Times**; blogs such as **Tech.eu**, **startups.co.uk** and **CityMetric**. • It was also the subject of a unique Facebook Q&A moderated by **Maija Palmer of the Financial Times**.	**#digitalcityindex** 2015-10-13 10:36hrs - 2015-11-13 15:05hrs 💬 Total tweets: **1.301** 👤 Contributors: **1.003** 🌐 Total impressions: **3.843.593** 💬 Tweets / Contributor: **1,30** 👥 Total audience: **2.436.398** 🕐 Measured time: **31d** 👁 Impressions/Audience: **1,58** 🔁 Frequency: **41,72**	• "**Any entrepreneur thinking about cities for starting or expanding a business should double-check … the EDCI's listing [which are] quite helpful in that regard.**" - Freddie Dawson (forbes.com)

Press Coverage pie chart: International 45%, Trade 35%, National 13%, Regional 5%, Broadcast 2%

Legend: International, Trade, National, Regional, Broadcast
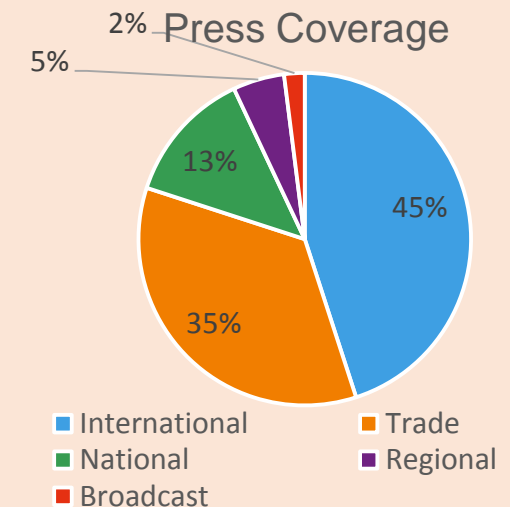
Website Usage Stats

Overview of EDCi Website Access Stats (Oct 2015 – Sept 2016)

Sessions
40,833
Users
30,408
Page Views
149,438
Pages/Session
3.66
Avg. Session Duration
00:02:17
Bounce Rate
9.81%
% New Sessions
74.44%

Top-25 country-wise visitors of EDCi Stats (Oct 2015 – Sept 2016)

Country	Visitors
United Kingdom	27,490(18.36%)
Germany	15,547(10.38%)
Netherlands	10,480(7.00%)
Spain	10,215(6.82%)
United States	6,439(4.30%)
France	6,262(4.18%)
Italy	5,857(3.91%)
Belgium	5,690(3.80%)
Poland	4,543(3.03%)
Russia	4,293(2.87%)
Greece	3,997(2.67%)
Ireland	3,144(2.10%)
Sweden	3,054(2.04%)
Portugal	3,044(2.03%)
Romania	2,649(1.77%)
Finland	2,526(1.69%)
Denmark	2,316(1.55%)
Hungary	2,024(1.35%)
Austria	1,973(1.32%)
Switzerland	1,838(1.23%)
Lithuania	1,565(1.04%)
Czech Republic	1,337(0.89%)
Luxembourg	1,321(0.88%)
Brazil	1,150(0.77%)
Croatia	1,102(0.74%)

Website Usage Stats

Primary Dimension: Country   City   **Continent**   Sub Continent

Secondary dimension ▼
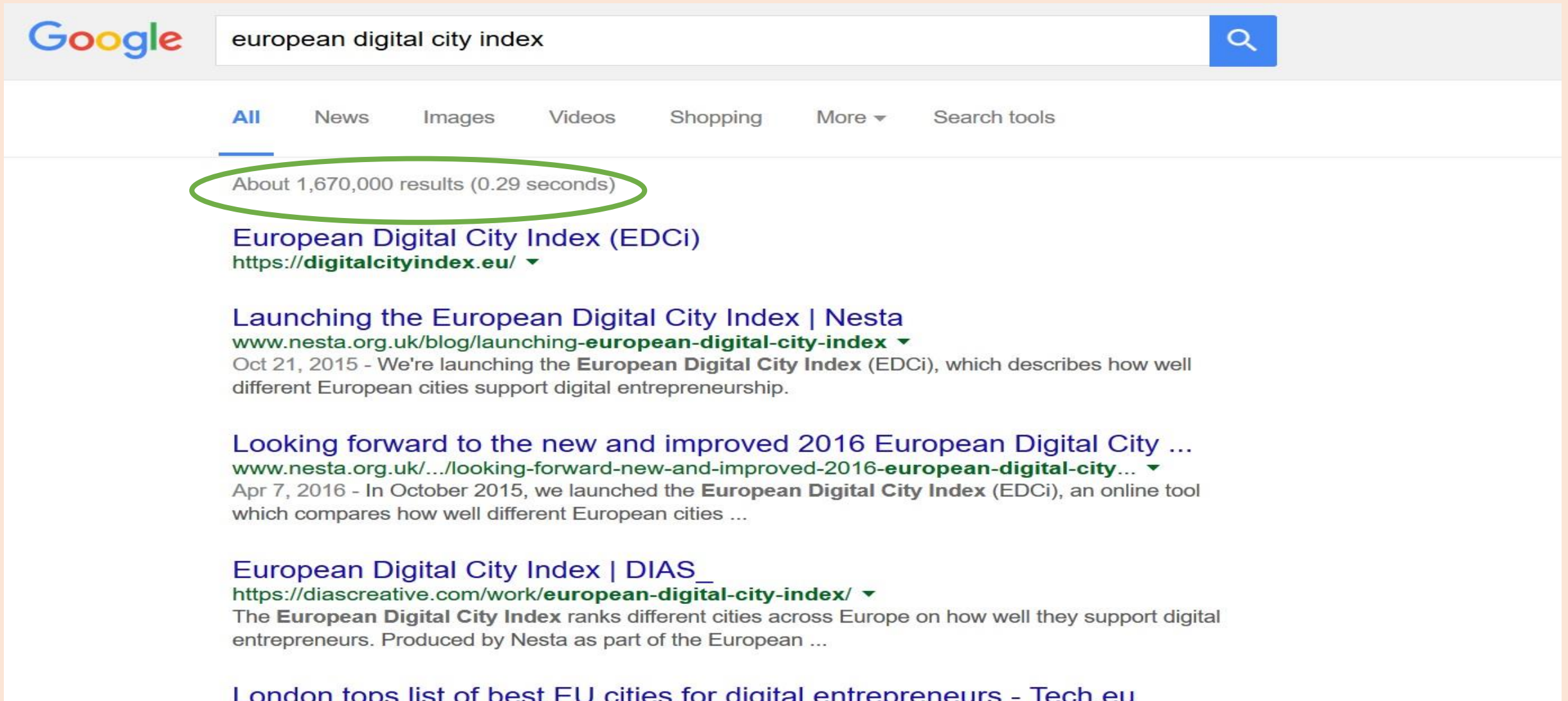
Continent	Sessions	% New Sessions	New Users	Bounce Rate	Pages/Session	Avg. Session Duration
	40,833 % of Total: 100.00% (40,833)	74.48% Avg for View: 74.44% (0.05%)	30,412 % of Total: 100.05% (30,397)	9.81% Avg for View: 9.81% (0.00%)	3.66 Avg for View: 3.66 (0.00%)	00:02:17 Avg for View: 00:02:17 (0.00%)
1. Europe	34,435 (84.33%)	73.75%	25,396 (83.51%)	7.84%	3.76	00:02:23
2. Americas	3,313 (8.11%)	82.31%	2,727 (8.97%)	18.68%	3.12	00:01:45
3. Asia	2,344 (5.74%)	70.48%	1,652 (5.43%)	17.24%	3.33	00:01:51
4. (not set)	296 (0.72%)	94.59%	280 (0.92%)	80.41%	1.60	00:00:40
5. Oceania	291 (0.71%)	76.98%	224 (0.74%)	8.25%	3.41	00:01:58
6. Africa	154 (0.38%)	86.36%	133 (0.44%)	13.64%	2.95	00:01:07

Search Engine Stats

Number of results for search "European Digital City Index" on Google

Impact – Dissemination

Maija Palmer
February 16

FT Debate: What makes a city good for start-ups?

Last November Nesta, the innovation charity, published a ranking of European cities based on how well they supported digital entrepreneurs. The findings were interesting, showing a marked difference between east and west - and to some extent between north and south. Despite good internet infrastructure and skills, many east European cities still struggle to create a successful startup environment. What are they missing?

We'd like to hear from entrepreneurs on what they look for in a city.

On Tuesday 23rd February at 1pm GMT, Siddharth Bannerjee, who led the European City Index project will be here on this group to answer questions. Please post questions or comments for him below.

What makes a city good for start-ups?

Join the debate on the FT's Tech Meets Money group on Tuesday, Feb 23rd 1pm GMT FT

London Rated Top European Digital Startup City: How A 'Best City For...' List Is Created

Freddie Dawson, CONTRIBUTOR
Covering the London start-up scene & how technology can improve lives FULL BIO ∨
Opinions expressed by Forbes Contributors are their own.

London topped the European Digital City Index (EDCI) as the best location for both digital startups and scaleups.

This is not the first time London has been ranked highly in this regard. However, the EDCI – from Nesta, a UK-based innovation charity – says it takes a slightly different approach. The EDCI focuses on digital entrepreneurship and the factors that help create startups – not outcomes such as the number of digital startups present in a city, Nesta explains.

The index can be customised to prioritise any of the variables used to judge cities and differentiates between what makes a good environment for startups (very young companies and individual entrepreneurs) and what makes a good environment for scale-ups – which it defines as rapidly growing firms with at least 10 employees.

Journalists are trained to present facts and figures in a way that the public easily grasps – so let them help you with dissemination!
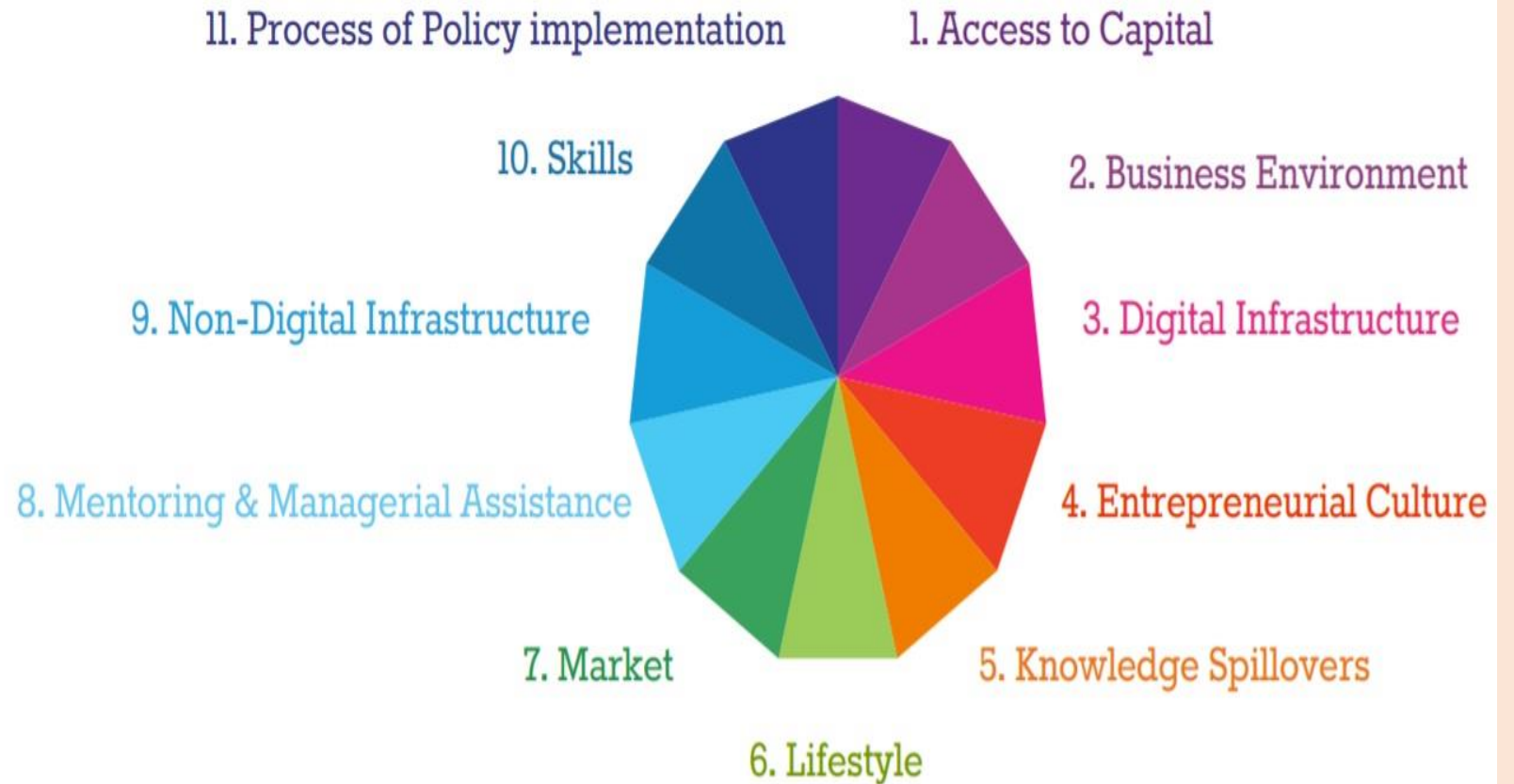
Impact – Policy (forthcoming policy guide based on the EDCi)

Testimonials - Good

RE: EDCi Updates - March 2016 Inbox x

Solla Navarro, David < ████████ > 📎 1 Mar
to me ▾

Congratulations on your index and on your opendata policy.
Regards

European Digital City Index (EDCi) Inbox x

Jung, Martin < ████████ > 📎 23/10/2015 ⭐ ↩ ▾
to me ▾

Dear Sirs,

I just saw you EDCi Index 2015. Congratulations for this work with well defined methodology and interesting results.

I was wondering, if it would be possible for to include the city of Hamburg in the next edition. Hamburg is the second biggest city in Germany with 1.8 million inhabitants and a strong economy. We also have a dynamic digital economy and startup scene.

What do you think?

Kind regards

Martin Jung
Abteilungsleiter Innovation und Geschäftsentwicklung

European Digital City Index 2016 - Netherlands - The Hague Inbox x

Anna Menenti < ████████ > 23/11/2015 ⭐ ↩ ▾
to me ▾

Dear sir/madam,

What an impressive job you have done in setting up the European Digital City Index, together with all partners! Regarding the Dutch cities, Amsterdam has been included and Eindhoven didn't make it. Was it due to Eindhoven's outliers in the data, or? The Hague is very much interested in being included in next year's index. We have a research department which can facilitate in retrieving the required data. I am not sure how solid our data is, but I am sure if we start working in an early stage on this we can manage to set up something valuable. Otherwise it will be a useful preparation for the indexes in the years to come.

I look forward hearing from you.

Kind regards,

Anna Menenti

Policy Advisor Economic Affairs

+31 70 353 3000 / +31 6 109 720 25

In office: Monday, Tuesday, Wednesday and Thursday

Municipality of The Hague

Department of Urban Development

Testimonials – Not So Good (and how to deal with it)

European Digital City Index 2015 Inbox x

22/10/2015

to me, Chris

Dear All,

I just checked your digital city index 2015 - you have collected and analysed huge amounts of data and have carried out outstanding work analysing it. However, my feeling is some of the data you have used in your analysis is incomplete or inaccurate.

For example, EVCA data on CEE is most certainly not correct - their CEE 2014 Statistics reports 1,936 million Euro invested in Seed and Startup stage companies in 2015 in Bulgaria, while actually only our fund has invested 3.5 million in Seed and Startup stage companies.

Furthermore, I believe Eurostat's data on *Access to ICT employees* is hugely understated; just as is *Mobile Internet Speed* data by Ookla (this being my opinion of an average user, getting 10GB per month of high-speed internet for five (5) euros.)

Just for information, Fundacity published their 2014 report ranking Bulgaria #4 in early stage investment and support in Europe (mind that Launchub numbers are not included in this report, and if added it will surpass Berlin by Amount Invested and will be in top 10 by # of startups). What is more, our internal research shows Sofia is now #3 by number of accelerated startups in Europe.

I suggest you consider updating your methodology and/or data sources, as these hurt the accuracy of your research findings and discredit your otherwise outstanding work.

Let me know if there is anyway we can help or support your future work.

Best regards,

EDFx Mailbox <edfx@nesta.org.uk>

15 Sep (13 days ago)

Thanks for your input [redacted], we will use many of those information to update the city profile for the 2016 version!

Regarding the position of Sofia in the ranking, I invite you to take a look at our methodology (available here). We use some pan-European data sets that cover each of the variable you mentioned (EVCi for access to finance, World Bank as well as office space cost + a co-working space count for business environment, ITU & Ookla for digital infrastructure, etc.). Unfortunately, relying on pan-European information may not account for some local factors of each ecosystem. If you'd like to have a chat about the index or propose any change feel free to give a shout!

Thanks again,
Chris
p.p. Yann

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16 Sep (12 days ago)

to me, Siddharth

Chris, I did see you use such sources and I totally understand the methodology applied. I agree - sometimes information there is not necessarily up to date, but it is as fair a way of doing such ranking as any.

Best,

Dilyab

Lessons

- Rankings provoke - in both a good & bad way!
~13k views in first 2 weeks; lots of jostling

- Always subjectivity in an index - but often hidden

- Can't always control media interpretation

- Data collection is always more of a pain in the neck than you think it will be…

- New Index – people are bound to blame Brexit for low UK city rankings even though all data was collected prior to the vote!

- Visualization:

  - **Customizer tool** - Merging interactivity and utility
  - Bubbles change size as you choose different parameters
  - Choosing the colors – harder than you may think!