

Digitalization- the future is today

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In cooperation with:



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Pandemic accelerated the rise of smart cities

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In the pandemic era, ensuring a healthy, safe, and prosperous future for citizens has been a burning imperative for city leaders. But with city budgets under pressure, it also has been their biggest challenge. COVID-19 has served as a stress test for cities as businesses and services were shut down and medical facilities stretched to their limit



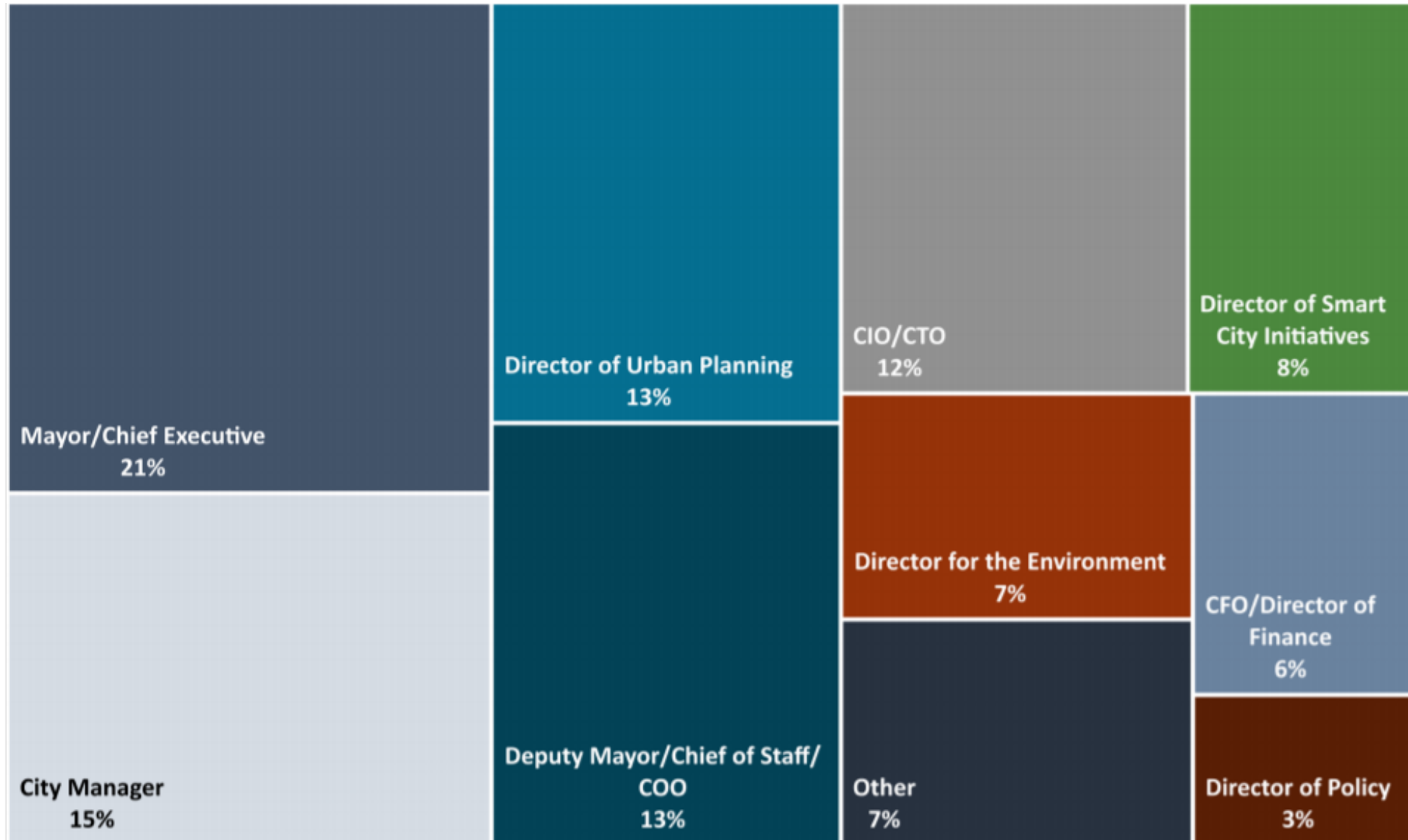


“The challenges we faced with the pandemic—the need for a good health system, a good education system, less inequalities, and a more resilient economy—were already on the agenda. The pandemic just made us believe more in the agenda”

Miquel Rodriguez Planas, 2030 Agenda Commissioner, Barcelona City Council

Survey in 167 cities carried out

(published 30 March 2021)

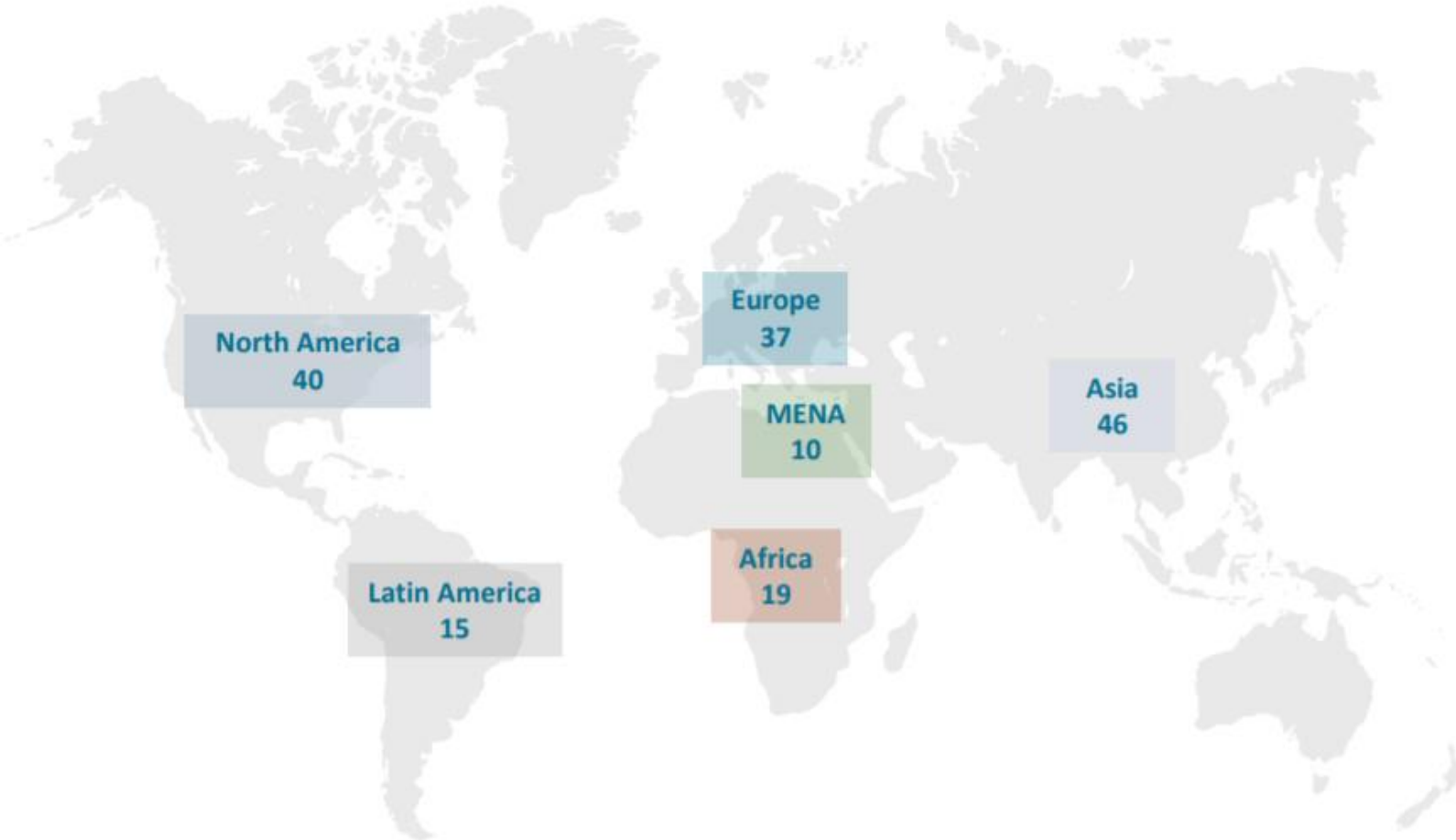


Research methodology



Survey area: 167 cities by geographical coverage

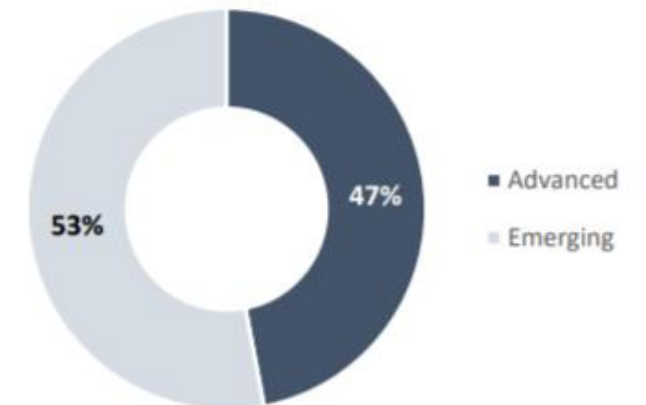
Number of cities by region



By population

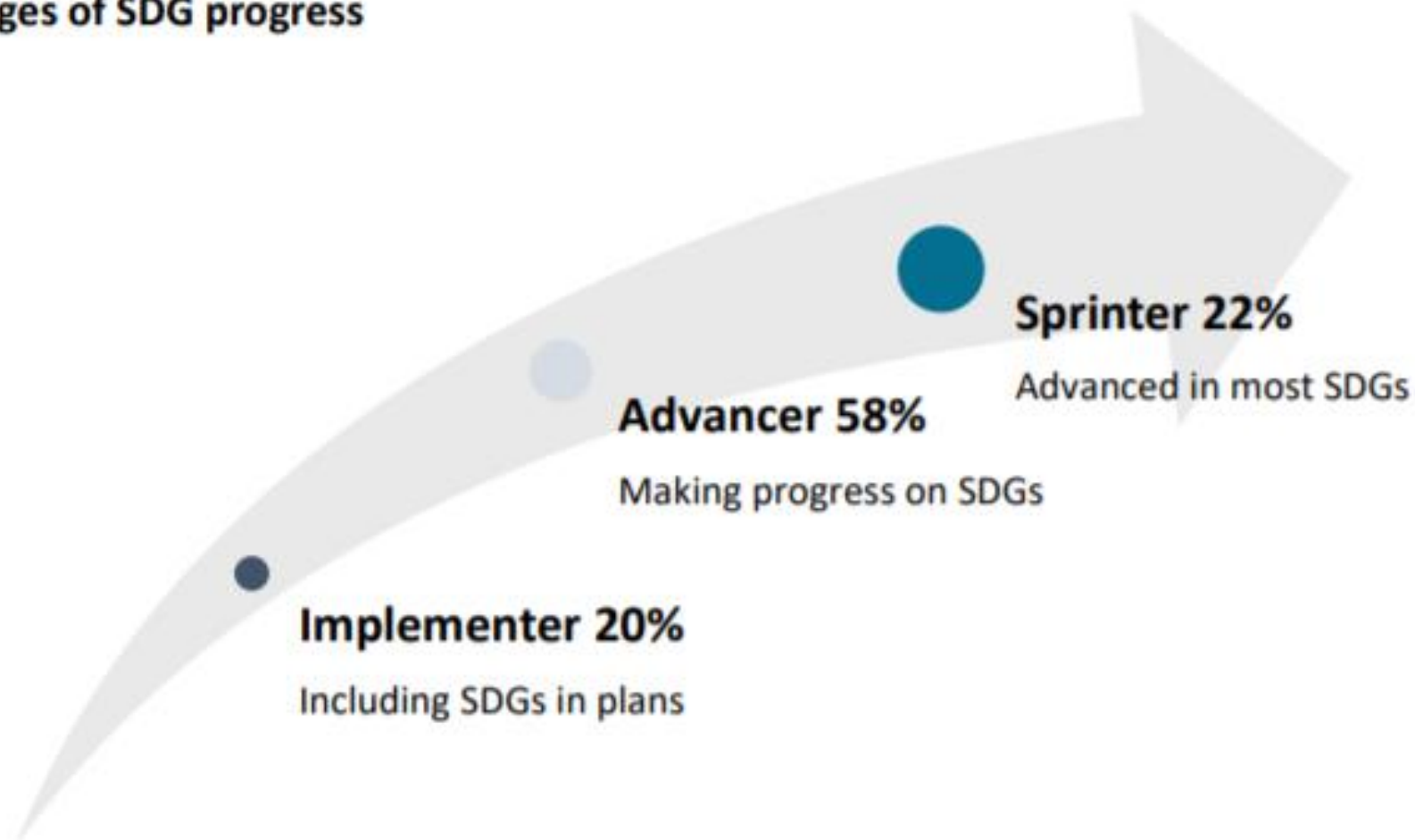


By level of development



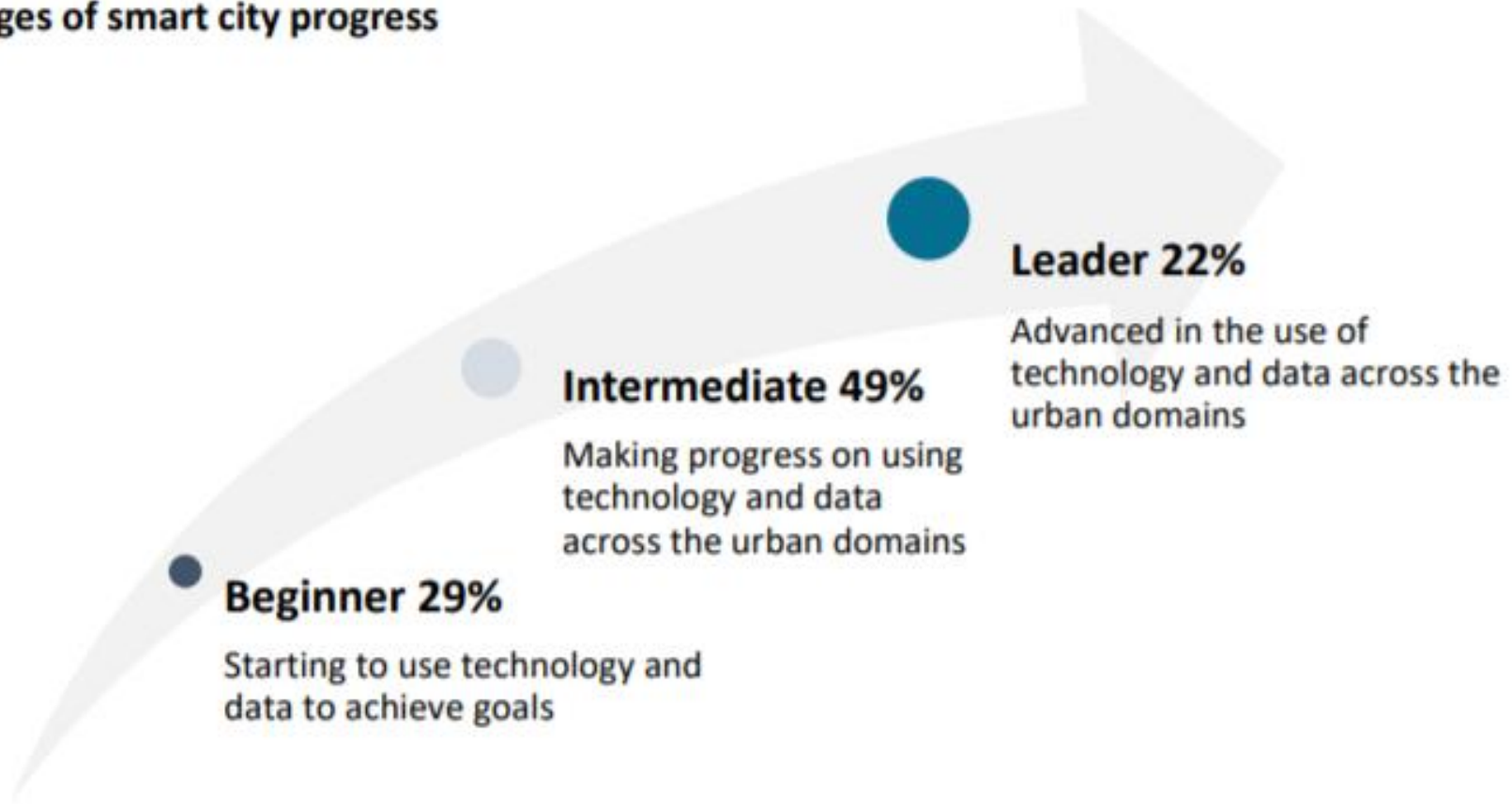
Cities were categorized in three stages of SDG progress

Three stages of SDG progress



Cities were categorized in three stages of Smart city progress

Three stages of smart city progress



Key findings of the survey (1)

When smart and sustainable meet: Cities 4.0

What sets Cities 4.0 apart?

They are further ahead in smart city initiatives

On average, they widely deploy 14 smart city projects vs. an average of seven for others

They have superior infrastructure

Better public transportation, roads, parks, healthcare, and digital connectivity

They have made the greatest progress on nearly all SDGs

On average, 86% have made progress across all SDGs vs. 62% of all cities

Smart meets sustainable: 20 cities



Cities 4.0

Aarhus	Los Angeles
Athens	Madrid
Baltimore	Moscow
Barcelona	New York
Berlin	Orlando
Birmingham	Paris
Boston	Philadelphia
Copenhagen	Singapore
Helsinki	Tallinn
London	Vienna

Key findings of the survey (2)

Cities categorized by SDG progress

Sprinter (22%)		Advancer (58%)						Implementer (20%)	
Aarhus	Mexico City	Abu Dhabi	Chengdu	Honolulu	Monterrey	Raleigh, NC	Tunis	Allentown	Kampala
Accra	Montevideo	Addis Ababa	Chennai	Istanbul	Montreal	Reykjavik	Vancouver	Bamako	Kano
Amman	Moscow	Adelaide	Chicago	Jakarta	Munich	Rio de Janeiro	Victoria	Benin City	Kinshasa
Athens	Mumbai	Ahmedabad	Cincinnati	Jerusalem	Nanjing	Riyadh	Warsaw	Blantyre	Kochi
Baltimore	New York	Almaty	Colima	Kansas City	Nashville	Rotterdam	Washington, DC	Cairo	Lagos
Barcelona	Orlando	Amsterdam	Columbus	Kigali	Newark	San Antonio	Wuhan	Changchun	Lahore
Berlin	Osaka	Asuncion	Dehradun	Kuala Lumpur	Ningbo	San Diego	Xiamen	Chongqing	Libreville
Birmingham	Paris	Atlanta	Denver	Kuwait City	Oakland	San Francisco		Cotonou	Lusaka
Bogota	Philadelphia	Auckland	Detroit	Liege	Oslo	San Jose		Dalian	Monrovia
Boston	Pittsburgh	Austin	Doha	Lima	Panama City	Santiago de Chile		Dar es Salaam	Pearland
Bratislava	Quebec	Bangkok	Dublin	Lisbon	Phnom Penh	Seattle		Guiyang	Pune
Buenos Aires	Sao Paulo	Beijing	Edmonton	Ljubljana	Phoenix	Seoul		Harare	Qingdao
Copenhagen	Singapore	Belgrade	Ekurhuleni	Lucknow	Portland	Shanghai		Hefei	San Juan
Helsinki	Stockholm	Brantford	El Paso	Ludhiana	Porto	St Petersburg		Ibadan	Tianjin
Kyiv	Suzhou	Bucharest	Fukuoka	Manama	Prague	Tbilisi		Jaipur	Toyama
London	Tallinn	Busan-Ulsan	Galway	Manchester	Quezon City	Toronto		Jena	Yangon
Los Angeles	Tokyo	Calgary	Hangzhou	Manila	Quito	Touba		Jiaozuo	
Madrid	Vienna	Canberra	Hanoi	Mariupol	Rabat	Tulsa		Jinan	

Cities in bold are also classified as Cities 4.0.

Key findings of the survey (3)

Cities categorized by smart city progress

Leader (22%)		Intermediate (49%)					Beginner (29%)		
Aarhus	Los Angeles	Accra	Denver	Kyiv	Pittsburgh	Suzhou	Ahmedabad	Jena	Quezon City
Abu Dhabi	Madrid	Addis Ababa	Doha	Lisbon	Portland	Tokyo	Allentown	Jinan	San Jose
Amsterdam	Montreal	Adelaide	Edmonton	Ljubljana	Porto	Tulsa	Almaty	Kampala	San Juan
Athens	Moscow	Amman	Ekurhuleni	Lucknow	Pune	Victoria	Bamako	Kigali	Tbilisi
Atlanta	New York	Asuncion	El Paso	Ludhiana	Quebec	Warsaw	Bangkok	Kochi	Tianjin
Auckland	Orlando	Austin	Fukuoka	Manama	Quito		Benin City	Lagos	Touba
Baltimore	Paris	Beijing	Guiyang	Manila	Rabat		Blantyre	Lahore	Toyama
Barcelona	Philadelphia	Belgrade	Hanoi	Monterrey	Raleigh		Brantford	Libreville	Tunis
Berlin	Prague	Bogota	Harare	Montevideo	Reykjavik		Changchun	Liege	Wuhan
Birmingham	Rotterdam	Bratislava	Hefei	Mumbai	Rio de Janeiro		Chongqing	Lima	Xiamen
Boston	Seattle	Bucharest	Honolulu	Munich	Riyadh		Colima	Lusaka	Yangon
Chicago	Seoul	Buenos Aires	Jakarta	Nanjing	San Antonio		Cotonou	Manchester	
Columbus	Singapore	Busan-Ulsan	Jerusalem	Nashville	San Diego		Dalian	Mariupol	
Copenhagen	Tallinn	Cairo	Jiaozuo	Newark	San Francisco		Dar es Salaam	Mexico City	
Detroit	Toronto	Calgary	Kano	Oakland	Santiago de Chile		Dehradun	Monrovia	
Dublin	Vancouver	Canberra	Kansas City	Osaka	Sao Paulo		Galway	Ningbo	
Helsinki	Vienna	Chengdu	Kinshasa	Oslo	Shanghai		Hangzhou	Pearland	
Istanbul	Washington	Chennai	Kuala Lumpur	Panama City	St Petersburg		Ibadan	Phnom Penh	
London		Cincinnati	Kuwait City	Phoenix	Stockholm		Jaipur	Qingdao	

Cities in bold are also classified as Cities 4.0.

Key findings of the survey (4)

Cities are focusing on the SDGs around people and prosperity

% of cities including SDGs in their plans

77%

average percentage of cities that include each of the SDGs in their plans

PEOPLE

End poverty and hunger in all forms and ensure dignity and equality

- No poverty (91%)
- Good health and well-being (89%)
- Quality education (86%)
- Gender equality (77%)
- Zero hunger (75%)

PLANET

Protect our planet's natural resources and climate for future generations

- Life on land (83%)
- Clean water and sanitation (78%)
- Life below water (77%)
- Responsible consumption and production (69%)
- Climate action (64%)



PROSPERITY

Ensure prosperous and fulfilling lives in harmony with nature

- Decent work and economic growth (86%)
- Industry, innovation, and infrastructure (79%)
- Sustainable cities and communities (78%)
- Affordable and clean energy (72%)
- Reduced inequalities (60%)

PEACE

Foster peaceful, just, and inclusive societies

- Peace and justice strong institutions (78%)

PARTNERSHIPS

Revitalize the global partnership for sustainable development

- Partnerships for the goals (71%)

Key findings of the survey (5)

SDG scorecard: Where have cities made the most progress?

SDGs		Population*			Economic development		SDG leadership			
	All	Small	Medium	Large	Advanced	Emerging	Implementers	Advancers	Sprinters	Cities 4.0
No poverty	82%	80%	79%	91%	84%	81%	53%	88%	100%	90%
Decent work and economic growth	74%	72%	79%	66%	89%	60%	41%	80%	88%	85%
Quality education	70%	72%	70%	66%	82%	59%	38%	75%	88%	85%
Good health and well-being	70%	77%	69%	60%	90%	52%	29%	77%	81%	95%
Sustainable cities and communities	67%	74%	64%	60%	81%	55%	35%	77%	69%	70%
Industry, innovation, infrastructure	66%	75%	61%	60%	87%	48%	18%	77%	69%	95%
Life on land	65%	77%	60%	51%	87%	44%	18%	74%	75%	90%
Clean water and sanitation	63%	71%	58%	57%	82%	45%	18%	71%	88%	80%
Gender equality	61%	65%	60%	57%	77%	47%	9%	70%	81%	90%
Affordable and clean energy	57%	57%	55%	60%	63%	51%	35%	55%	81%	85%
Responsible consumption, production	56%	55%	54%	63%	61%	52%	32%	57%	69%	85%
Partnerships for the goals	56%	57%	54%	60%	67%	47%	29%	59%	69%	80%
Peace and justice strong institutions	56%	69%	49%	46%	73%	41%	24%	58%	88%	80%
Life below water	55%	49%	61%	54%	57%	53%	41%	52%	69%	85%
Zero hunger	53%	58%	58%	34%	77%	32%	6%	59%	81%	85%
Climate action	50%	37%	55%	66%	35%	64%	56%	42%	69%	65%
Reduced inequalities	47%	46%	51%	40%	63%	32%	18%	48%	63%	75%
Average	62%	64%	61%	58%	74%	51%	29%	66%	78%	84%

* Small = 600,000 to 1m inhabitants; medium = 1m to 5m inhabitants; large = 5m to 10m inhabitants.

Q6a: Which of the SDGs are included in your city's plans and on which of them has your city made considerable progress? blue=high, gray=low

Key findings of the survey (6)

European cities lead the way, while African cities trail behind

Less		Moderate		More	
Africa		Asia		Europe	
Climate action	58%	No poverty	91%	Good health	95%
Partnerships	47%	Decent work	74%	Decent work	92%
Life on land	42%	Quality education	72%	Clean water	86%
Good health	42%	Climate action	67%	Sustainable cities	86%
Quality education	42%	Life on land	67%	Industry, innovation	84%
Decent work	42%	Good health	61%	No poverty	86%
No poverty	42%	Sustainable cities	59%	Quality education	84%
Average	33%	Average	58%	Average	77%
Latin America		MENA		North America	
No poverty	87%	No poverty	100%	Industry, innovation	90%
Sustainable cities	60%	Affordable & clean energy	90%	Good health	85%
Gender equality	60%	Partnerships	90%	Sustainable cities	85%
Responsible consumption	60%	Industry & innovation	80%	Decent work	85%
Decent work	53%	Gender equality	80%	Life on land	85%
Climate action	53%	Quality education	70%	No poverty	83%
Average	47%	Average	63%	Average	71%

Key findings of the survey (6)

SDG sprinters take five key steps to ensure

Five steps to SDG sprinter success



“Cities are about people, not gadgets. We should be mindful of diversity, equity, and inclusion to ensure that any techniques or technology are based on improving quality of life for all.”

Karen Lightman, Executive Director, Metro21: Smart Cities Institute, Carnegie Mellon University

Key findings of the survey (7)

The impact of the pandemic

Top external disruptions

81%

Pandemic
and its repercussions

46%

Decline
in economic growth

28%

Rising digital
expectations of citizens

25%

Climate change

23%

Lack of resources

18%

Shifting demographics
and diversity

18%

Social unrest

The pandemic's lasting impacts

69% Reconsider
urban planning & use
of space

54% Rethink mobility
& transportation

54% Accelerate the
shift to online
healthcare

53% Permanently
change how people
live, work, socialize,
& travel in cities

36% Expose the
weaknesses in cities'
operational
continuity
capabilities

Key findings of the survey (8)

The pandemic heightened the SDG imperative

The pandemic made the social good a higher priority for more than one-third of cities around the world. The number is even higher in Europe, where it has prompted 43% of cities to do further soul searching

“The pandemic will upturn traditional urban development models and compel cities to reimagine mobility, health infrastructure, housing, education, energy consumption, and more. It has laid bare the inequities in access and has impacted disadvantaged communities more. Along with inclusion, addressing these systemic inequities in the current urban development model will be critical for cities.”

Michael Flynn, Global Government & Public Services Financial Advisory Leader, Deloitte

Pandemic impacts

36%

The pandemic has stimulated new thinking about our priorities to build the social good.

28%

The COVID-19 health crisis has made the SDGs a higher priority for our city.

18%

Our SDG program has helped our city to respond to the COVID-19 pandemic.

14%

The pandemic has led to environmental benefits that our city is striving to maintain.

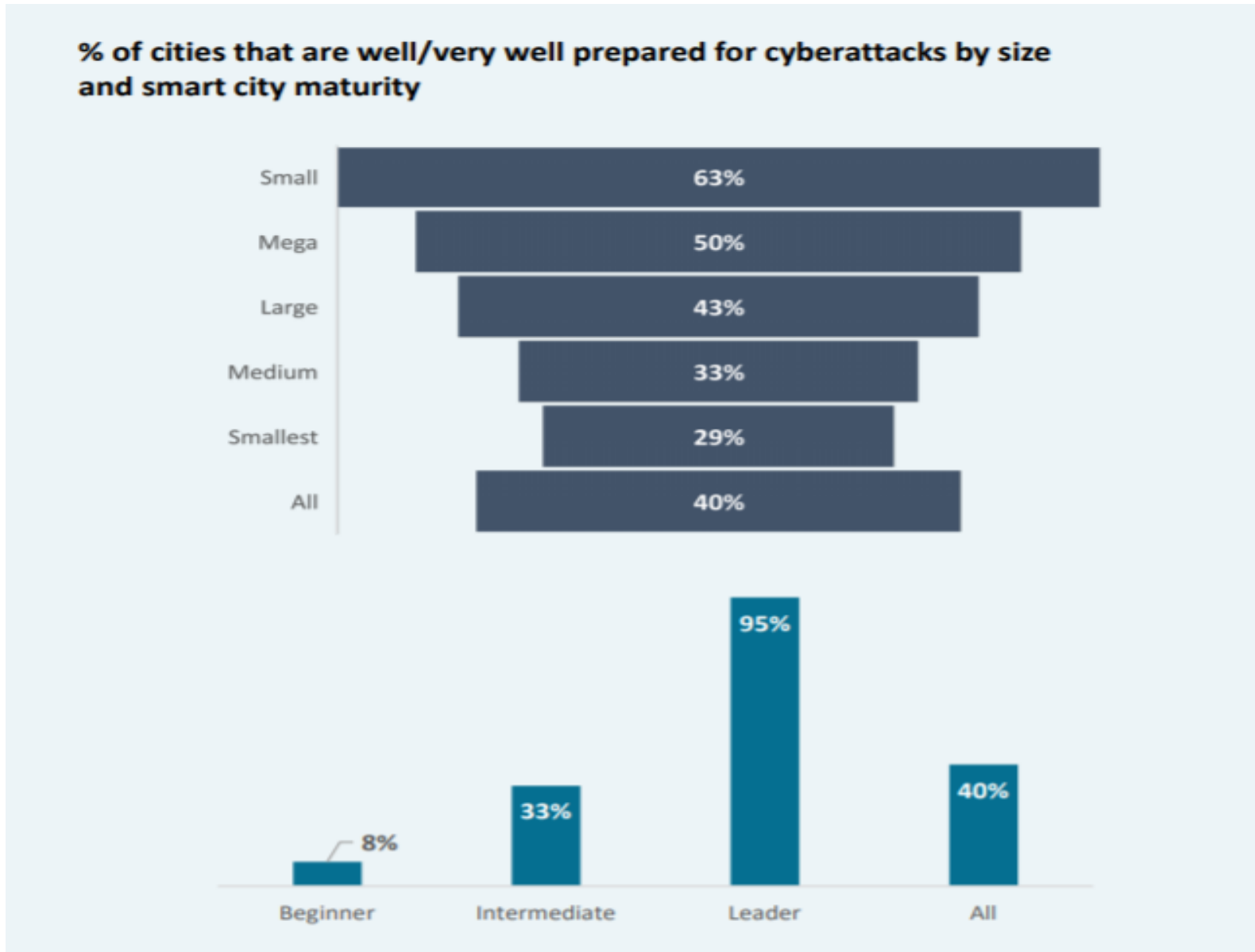
Key findings of the survey (9)

COVID-19 highlighted the value of smart city programs



Key findings of the survey (10)

Pandemic also underscored the need for cybersecurity



Key findings of the survey (11)

Where do smart city leaders invest more in cybersecurity?

Areas where smart city leaders invest more

	Leader	All	Difference
Prioritize assets & create access control policies	68%	49%	19%
Disaster recovery, response, & event management technology	46%	31%	15%
Cybersecurity training for staff	54%	40%	14%
Protect critical infrastructure, including security testing	49%	35%	14%
Develop incident response & recovery plan	43%	29%	14%
Augment staff with outside specialists or outsourced functions	32%	23%	9%
End-point security, such as securing mobile devices & laptops	19%	12%	7%
Cloud & network security	70%	65%	5%
Hire more cybersecurity specialists & staff	78%	76%	2%

Digitalization solutions for cities

Digitalization trajectory



Supporting the city's areas of focus



Housing



Mobility



Modernization



Financial
Sustainability



Employee
Experience

Enabling the foundational elements for a Digital City



Digital Platforms

Deliver City services
over digital platforms



Data

Drive Effective Outcomes
Through the Use of City and
Third Party Data



Workforce Enablement

Connected Workforce to
Collaborate Across the City to
Improve Service Delivery



Internet of Things

Connectivity and
Management of Physical
Devices That Are Integral to
Service Delivery

Supporting the city's areas of focus



Digital Services

Improving customer service through increased digital self-serve functionality as a lower cost, more readily available channel.



Work & Asset Management

Integrated Enterprise Work and Asset Management, improving service levels, automating cross-divisional processes, optimizing asset utilization..



Human Resources Transformation

Modernizing the Human Resources function to be more efficient, integrated, to deliver more timely and quality advice and services to divisions



Procurement & Supply Chain Transformation

Investments to transform procurement and supply chain processes to drive efficiencies, reduce cycle times and improve quality of service to City divisions



Finance Transformation

Timely, simplified access to accurate financial management capabilities to drive measurable strategic planning and quantified performance management.



Time & Attendance and Payroll Transformation

Integrated staff scheduling with electronic time reporting and automated payroll processing functionality.



Employee Productivity

Provide City employees with technology tools and intuitive IT process that enable and increase productivity.

Key findings

Lessons from COVID-19

Key findings

The unequal impact of global crises

- Global crises have very differentiated territorial local impact
- The recent global crises illustrate this in different ways:
 - The global health crisis (COVID-19) represents not just a pandemic but a “syndemic”: a new virus interacting with other non-communicable diseases clustering health outcomes in a very differentiated way
 - The global climate crisis has a very differentiated local impact based on an array of physical, economic and social conditions
 - Urgent need for a reassessment of the role of regional/local policies

Key findings

Why regional policies? Lessons from COVID-19?

- Both the health and climate crises have been characterized by strong local/regional clusters of “infection”
- When confronted with crises, it is regional knowledge and governance power that matter. E.g. Germany's relative success in dealing with COVID-19 has a lot to do with the decentralized nature of the German health care system, enabling individual Länder/regions to respond to the crisis on the basis of more local knowledge in a more effective way
- The European Green Deal will require in its implementation local knowledge, innovation and mitigation skills of local entrepreneurs and regional/local authorities. They have better knowledge on the local situation and are in a better situation to make decisions locally
- At the same time, global (financial) markets are now also shifting in the direction of sustainability putting political pressure on introducing global/national taxation regimes reflecting sustainability
- The EGD drive combining Resources-Regulation-Reforms for a common objective creates many knowledge spill-overs and network externalities for regional actors in the EU
- This provides a new framework for innovation at regional/local level, in short for S4+

Key findings

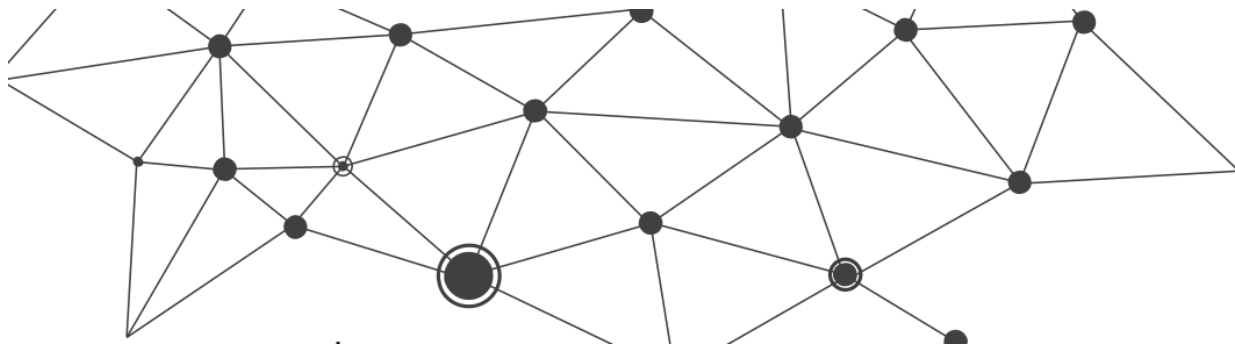
How? Avoiding local climate lockdowns

There are numerous ways in which place-based innovation for sustainability could be filled in at regional/local level

- A more **local mission strategy** mobilizing citizens as actors: “from yellow to green jackets”. Cities as the invisible atoms of the EU witnessing changes on a daily basis.
- A **broader transition strategy** depending on the region’s current industrial system focusing on transformative change towards sustainability
- An entrepreneurial **diffusion strategy** (re-)attracting external talent, knowledge and leading firms with green-digital expertise giving them local testbeds to develop circular economy processes/products. Such strategies will in parallel reinforce the local innovation system and absorptive capacity
- A complementary **value chain strategy**, depending on the region’s geographical location focusing on connecting local firms with strategic European value chains in clean-tech, digital, circular, bioeconomy



"An **innovative**
City that **lives**,
works &
plays"



Дякую!

Рахмат!

Շնորհակալություն!

Спасибо!

Gracias!

Didi madloba!

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Dziękuję!

Salamat!

Faleminderit!

Благодаря!