



Appendix 5 – Table A2 Profile of Twenty-Five Benchmark Smart Cities

Rank and	Smart City Definition (D),	Terms and Digital	Fab, Living or
Initiatives	Type (T), and Vision(V)	Platforms	Urban Labs
First place			
	D: Not found.	Fields: Economy,	
Amsterdam		Environment, Living,	Amsterdam
(NL)	Phase 1: 2009 – 2011 focused on	Governance, People	Energy City Lab
In 1994:	energy efficiency. Phase 2: 2012 –		
Virtual Digital	2014 focused on energy efficiency and	Goal: Efficiency, QoL,	Circle Lab
City (De Digital	internet-related applications (Capra	Sustainability	
Stad-DDS)	2014, p. 40).	TA: Technology	Amsterdam
		Other: Apps, Open	Smart Citizens
Since 2009:	V1: In 2020, Amsterdam will be one of	Innovation, Stakeholders	Lab
Amsterdam	the most sustainable cities in the		
Smart City	world (Osieck, 2011 p. 155)	Digital Platforms to Engage	FabLab
Program		Citizens: Amsterdam Smart	Amsterdam
In 2015:	T: Open Innovation Platform.	City Platform, Amsterdam	
IBM Smart City		Participatie, Amsterdam	Living Lab
Challenge (SCC)	V2: An open innovation platform that	Smart Citizens Lab,	Circular
Winner	brings together innovation	CityData, Smart Health	Buiksloterham,
Since 2019:	professionals from government,	Amsterdam site,	
Amsterdam	companies, knowledge institutions,	Budgetmonitoring,	Living Lab
Climate	and civil society organizations to	Amsterdam Smart City	Sloterdijk III
Neutral2050	shape the city and region of the future.	Living Lab, GVB app, LEAP,	
RoadMap	(Amsterdam Smart City, 2022)	MyCleanCity app,	Waag Research
Local		Amsterdam Data Platform	Labs
Government and		data.amsterdam.nl/	
Private Sector			





Rank and	Smart City Definition (D),	Terms and Digital	Fab, Living or
Initiatives	Type (T), and Vision(V)	Platforms	Urban Labs
Second place	D: Not found, but it is pioneering in the	Fields: Economy, People,	
Singapore	concept of Smart Nation (Quélin and	Living, Governance	
1986: National IT	Smadja, 2021 p. 18)	Goal: Efficiency, QoL	Sustainable
Plan	j., F)	TA: Technology	Living Lab (SL2)
2006:	T: Digital Society, Economy, and	Others: Business, Digital	8 (
Wireless@SG	Government.	Economy, Society,	MPA Living Lab
2011: eGov2015	V: Smart Nation is a transformed	Government, Collaboration	C
Master Plan	Singapore where people will be more	Digital Platforms to Engage	PSA Living Lab
2012: Jurong	empowered to live meaningful and	Citizens:	
Lake District won	fulfilled lives, seamlessly enabled by	Smart Nation Platform, My	Jurong Port
IBM SCC	technology , that offers exciting	Info, SingPass, Health Hub,	Living Lab
Since 2014:	opportunities for all. It is where	Hello Lump Posts, SGSecure	
Smart Nation	businesses can be more productive and	App, eCitizen, OneService	NTU Smart
Initiative	take advantage of new opportunities in	App, CityLab	Nation
National, Local,	the digital economy. (Singapore	Singapore Data Gov	Translation Lab
Private	Government, 2018)	https://data.gov.sg/	
Third Place	D: The general term used to discuss	Fields: Economy, Env., Gov.,	
London (UK)	how cities across the globe are sharing	Living, People	
Since 2013:	information and making use of	Goal: Efficiency,	CitizenLab
Smarter London	technology to work more efficiently	Sustainability, QoL	
Plan	(Greater London Authority, 2013 p.	TA: Connection,	Smart Mobility
	58).	Technology, Information	Living Lab
Won the ODI	T1: Smart	Others: Collaborative,	(SMLL)
Annual Open	V1: A city that uses the creative power	Responsive, Data, City,	
Data Award 2015	of data and new technologies to serve	Digital, Resilient	Energy Systems
	London and improve Londoners' lives	Digital platforms: Talk	Catapult Living
Since 2018:	(Greater London Authority, 2013 p. 13;	London, Citymapper, Report	Lab
Smarter London	2016 p. 10)	It, London Living Streets,	
Together	T2: Collaborative, Connected, and	City Lab, Live Park, Citizen	
Roadmap	Responsive city.	Lab, Safe & The City App,	University of





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Local, Private,	V2: Integrates digital technologies and	London Datastore	Greenwich
National	uses city-wide data to the needs of	data.london.gov.uk/	Living Lab
	respond to our citizens (Greater	Transport For London (TfL)	
	London Authority, 2018)	Open Data	
		http://bit.ly/3EMB7SJ	
	D1: Any local government that	Fields: Economy,	
	leverages technology solutions to	Environment, Governance,	
Fourth place	promote public health, safety and	Living, People	
New York	welfare, and improves quality of life	Goal: Efficiency,	
(USA)	for the residents of the municipality ,	Sustainability, QoL	
	especially traditionally underserved	TA: Connection, Technology	NYCx Co-Lab
Since 2007:	and under-resourced communities (NY	Others: Data, Digital City,	
PlanNYC	State, 2020).	Digital Industry, Digital	
	D2: A local government that uses	Economy, Open	Urban Future Lab
Since 2011:	technology and planning practices to	Government.	
Digital City	generate better outcomes for its	Digital platforms:	
Roadmap	residents through the use of data.	NYC Engage, NYC Open	Urban Innovation
NYP	(NYC (2021)	Data, NYC 311, Participatory	Lab
	T1: Digital City; V1: be recognized as	Budgeting, Urban Innovation	
Since 2015:	the world's top-ranked Digital City,	Lab, Cowlines App,	
OneNYC	based on indices of Internet access,	Nextdoor App, Mytown App,	
	Open Government, citizen	NYC Open Data	
Since 2022:	engagement, and digital industry	https://opendata.	
OneNYC 2050	growth (NYC, 2011)	cityofnewyork.us/data/	
	T2: Connected City; V2: Ensure all		
OTI Strategic	New Yorkers have access to		
Plan	effectively engage with the digital		
Local initiative	economy and society (NYC OTI, 2022		
	p. 10)		





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RegionT3: Innovation ecosystem for Green and Digital Transition.HelsinkiSmartRegion websiteLabSince 2014:V3: Until 2021, to be the world's most functional city. In addition, HelsinkiHelsinki Regional Infoshare Forum Virium HelsinkiMobilityLabSmart & Cleanfunctional city. In addition, HelsinkiForum Virium HelsinkiHelsinkiHelsinkiaims to be the city in the world that makes the best use of DigitalizationDigital FormsHelsinkiMetropolitanmakes the best use of Digitalization FixMyStreetWaste Management SystemImage: Comparison of the mathematication of the mathematication of the mes until 2030: Citizens's City, StrategyOpen Data ServiceHelsinki Citythemes until 2030: Citizens's City, StrategyOpen Data ServiceImage: Comparison of the tity://ri.fi/en_gb/Local, Private,Modernization.(Helsink SmartImage: Comparison of the tity://ri.fi/en_gb/	Since 2012 (?)	and international companies. (SITRA,	Digital Platforms to Engage	
and Digital Transition.websiteSince 2014:V3: Until 2021, to be the world's mostHelsinki Regional InfoshareMobilityLabSmart & Cleanfunctional city. In addition, HelsinkiForum Virium HelsinkiHelsinkiHelsinkiaims to be the city in the world thatDigital FormsHelsinkiMetropolitanmakes the best use of DigitalizationWaste Management SystemImage: Clean fixed systemArea(Helsinki, 2017 p. 16).FixMyStreetImage: Clean fixed systemSince 2017:V4: Not clear but focuses on threemySMARTLifeHelsinki Citythemes until 2030: Citizens's City, StrategyOpen Data ServiceStrategyClimate Neutrality, and Industrialhttps://tri.fi/en_gb/Local, Private,Modernization. (Helsink SmartImage: Climate system system	Helsink Smart	2015)	Citizens:	Helsinki Living
Since 2014:V3: Until 2021, to be the world's mostHelsinki Regional InfoshareMobilityLabSmart & Cleanfunctional city. In addition, HelsinkiForum Virium HelsinkiHelsinkiHelsinkiaims to be the city in the world thatDigital FormsHelsinkiMetropolitanmakes the best use of DigitalizationWaste Management SystemImage: Comparison of the most of the most of the most of the mes until 2030: Citizens's City,Motoren Data ServiceStrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Image: Comparison of the mes until 2030: Citizens's City,Local, Private,Modernization. (Helsink Smart)Image: Comparison of the mes until 2030: Citizens's City,Image: Comparison of the mes until 2030: Citizens's City,StrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Image: Comparison of the mes until 2030: Citizens's City,StrategyModernization. (Helsink Smart)Image: Comparison of the mes until 2030: Citizens's City,Image: Comparison of the mes until 2030: Citizens's City,StrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Image: Comparison of the mes until 2030: Citizens's City,Modernization.Modernization.Image: Comparison of the mes until 2030: Citizens's City,Image: Comparison of the mes until 2030: Citizens's City,Modernization.Modernization.Image: Comparison of the mes until 2030: Citizens's City,Image: Comparison of the mes until 2030: Citizens's City,Motorenization.Image: Comparison of the mes until 2030: Citizens's City,Image: Comparison of the mes until 2030: Citizens's Cit	Region	T3: Innovation ecosystem for Green	Helsinki Smart Region	Lab
Smart & Cleanfunctional city. In addition, HelsinkiForum Virium HelsinkiHelsinkiHelsinkiaims to be the city in the world thatDigital FormsDigital FormsMetropolitanmakes the best use of DigitalizationWaste Management SystemImage: Comparison of the systemArea(Helsinki, 2017 p. 16).FixMyStreetImage: Comparison of the systemSince 2017:V4: Not clear but focuses on threemySMARTLifeImage: Comparison of the systemHelsinki Citythemes until 2030: Citizens's City,Open Data ServiceImage: Comparison of the systemStrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Image: Comparison of the systemLocal, Private,Modernization. (Helsink Smart)Image: Comparison of the systemImage: Comparison of the system		and Digital Transition.	website	
Helsinkiaims to be the city in the world that makes the best use of Digitalization MetropolitanDigital FormsArea(Helsinki, 2017 p. 16).Waste Management SystemSince 2017:V4: Not clear but focuses on three themes until 2030: Citizens's City, StrategymySMARTLifeBinate Neutrality, and Industrial Local, Private,Modernization.https://hri.fi/en_gb/	Since 2014:	V3: Until 2021, to be the world's most	Helsinki Regional Infoshare	Mobility Lab
Metropolitanmakes the best use of DigitalizationWaste Management SystemArea(Helsinki, 2017 p. 16).FixMyStreetSince 2017:V4: Not clear but focuses on threemySMARTLifeHelsinki Citythemes until 2030: Citizens's City,Open Data ServiceStrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Local, Private,Modernization. (Helsink Smart	Smart & Clean	functional city. In addition, Helsinki	Forum Virium Helsinki	Helsinki
Area(Helsinki, 2017 p. 16).FixMyStreetSince 2017:V4: Not clear but focuses on threemySMARTLifeHelsinki Citythemes until 2030: Citizens's City,Open Data ServiceStrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Local, Private,Modernization. (Helsink Smart	Helsinki	aims to be the city in the world that	Digital Forms	
Since 2017:V4: Not clear but focuses on threemySMARTLifeHelsinki Citythemes until 2030: Citizens's City,Open Data ServiceStrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Local, Private,Modernization. (Helsink Smart	Metropolitan	makes the best use of Digitalization	Waste Management System	
Helsinki Citythemes until 2030: Citizens's City, StrategyOpen Data ServiceStrategyClimate Neutrality, and Industrial Modernization. (Helsink Smarthttps://hri.fi/en_gb/	Area	(Helsinki, 2017 p. 16).	FixMyStreet	
StrategyClimate Neutrality, and Industrialhttps://hri.fi/en_gb/Local, Private,Modernization. (Helsink Smart	Since 2017:	V4: Not clear but focuses on three	mySMARTLife	
Local, Private, Modernization. (Helsink Smart	Helsinki City	themes until 2030: Citizens's City,	Open Data Service	
	Strategy	Climate Neutrality, and Industrial	https://hri.fi/en_gb/	
and Region Region, 2022)	Local, Private,	Modernization. (Helsink Smart		
	and Region	Region, 2022)		





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Rank and	Smart City Definition (D), Type (T),	Terms and Digital	Fab, Living or
Initiatives	and Vision(V)	Platforms	Urban Labs
	Not found local definition, but national		
	D1: A platform to improve the quality		
	of life of citizens, enhance the		
6 th) Seoul (SK)	sustainability of cities, and foster new		
	industries by utilizing innovative		
Since 2011:	technologies of the fourth industrial	Fields: Economy,	
Smart Seoul 2015	revolution era. (South Korea Ministry	Environment, People, Living	
	of Land, Infrastructure and Transport,		
Since 2016:	2019 p. 5)	Goal: Quality of Life,	
Global Digital	D2: A sustainable city where various	Sustainability	Magok Smart
Seoul 2020	city services are provided based on city		City Living Lab
Master Plan	infrastructure constructed by	TA: Technology, ICT,	(MLL)
	converging and integrating		
Since 2018:	construction technologies,	Others: Digital, Innovation,	Living Lab in
Smart City	information and communications	Platform, Global	Seoul Innovation
Strategic Plan	technologies, etc. to enhance its		Park
	competitiveness and livability (South	Digital Platforms to Engage	
In 2019: Magok	Korea MOLIT, 2021).	Citizens:	Seongdaegol
Smart City Living	V1: By 2015, Seoul will become a city		Living Lab
Lab	that best applies Smart Technologies,	Seoul Smart City Platform	
	thought which we will make real your		Yonsei
Since 2021:	slogan, 'Seoul, a city of happy citizens	Safety e-Report	University's
Smart Seoul	and a city beloved by the world' (Seoul		Information
Smart City &	Metropolitan City, 2011 p. 2)	Mvoting App and Site	System Lab
Digitalization	T1: Smart Government		
Master Plan	V2: By 2020, a digital Seoul made by	Open Data Seoul	
Local, Private,	citizens for better economy lives to	https://data.seoul.go.kr/	
National	become a global digital leader (Seoul		
	Metropolitan Government, 2016 p. 5)		
	T2: Connected, Digital		





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	V3: Seoul, Leading the Future of		
	Digital Transformation as a Global		
	Smart City (Seoul Metropolitan		
	Government, 2021)		
	D1: not found, but the smart city	Fields: Environment,	
	initiatives focused on environmental	Governance, Living, People	
7 th) Copenhagen	issues that are related to the		
(DK)	commitment to carbon neutrality	Goal: Efficiency,	Copenhagen
	(Quélin and Smadja, 2021 p. 14)	Sustainability, Quality of	Solutions Lab
In 2012:	T1: Carbon Neutral	Life	
CPH 2025	V1: Make the city carbon neutral by		Copenhagen
climate plan	2025, and in doing creating a greener,	TA: Technology, Connection	Living Lab
	more sustainable, and more livable		
In 2013:	capital city, as well as supporting	Other: Living Laboratory,	Copenhagen
Won IBM SCC	growth (C40 Knowledge, 2017; Quélin	Data, PPP, Stakeholders	Street Lab
Denmark Digital	and Smadja, 2021).		
Growth	D2: not found; T2: Connected; V2: Be	Digital Platforms to Engage	DOLL Living
	the best urban environment and a	Citizens:	Lab
Since 2013:	unique urban life .		
Copenhagen	Goals related to Green and Blue	Copenhagen Solutions Lab	EnergyLab
Connecting	Capital, World best city for cyclists,		Nordhavn
	carbon neutral capital, clean and	Copenhagen Citizen Service	
Greater	healthy city. Almanac (n.d.); Holm		Energy & Water
Copenhagen	Carlsen (2014).	Copenhagen City Data	- Greater
Smart City (?)	D3: A living laboratory for testing	Exchange	Copenhagen
	smart technologies to address the		Living Lab
Local & Private	challenges of urbanization and	WeSolve Better Together site	
	climate change. Unique access to data	and App	Living Lab
	and efficient public-private sector		Strandvejen
	partnerships to attract many	Open Data DK	
	multinationals. (Copenhagen Capacity,	Opendata.dk/	
	n.d.) T3: Living Lab V3: not found.	City-of-copenhagen	





Rank and	Smart City Definition (D), Type (T),	Terms and Digital	Fab, Living or
Initiatives	and Vision(V)	Platforms	Urban Labs
	D: An urban area that has become	Fields: Economy,	
	more efficient and/or more	Environment, Living, People.	
8 th) Oslo (NO)	environmentally friendly and/or more	Goal: Efficiency, Sust., QoL	Living Lab
(?)	socially inclusive using digital	TA: Connection, Tec.	Vollebekk
	technologies (Nordic Smart City	Others: Open, Innovation,	
Not found	Network, 2021 p. 6)	Digital.	Oslo Living Lab
organized	T: Open, Connected, Sustainable,	Digital platforms:	
information	and Innovative	Futurebuilt, Urban Sharing,	Smart Security
	V: It is an urban development vision	Oslo Toll Ring	Lab
	to improve the lives of citizens by	Smart Oslo Accelerator	
	being open, connected, sustainable,	Oslo Statistics Bank	
	and innovative. (Nordic Smart City	statistikkbanken.oslo.	
	Network, n.d.)	kommune.no/webview/	
9 th) Vienna (AT)	D1: A city that faces the challenges in	Fields: Environment, Living,	
	the wake of decreasing resource	People	
Since 2011:	consumption combined with rising		
The Big Smart	demands (Stadt Wien, 2015 p. 6).	Goal: Sustainability, QoL	
City Wien	T1: Livable City; V1: In 2050, Vienna		
Initiative	is a vibrant metropolis and one of	TA: Technologies	Aspern Smart
	Europe's most attractive cities. Goals:	Others: Resource	City Living Lab
Since 2014:	To offer optimum quality of life,	Conservation, Social	
Smart City Wien	combined with the highest possible	Innovation, Technical	Siemens Living
Framework	preservation of resources, to all	Innovation	Lab Process
Strategy	citizens. This can be achieved through		Industries
	comprehensive innovations. (Stadt	Digital platforms:	
Reviewed 2022:	Wien, 2015 p. 16 and p. 19).	The Smart City Wien	Smart City Lab
Smart Climate	D2: The smart city never loses sight of	websi+B24te	
City Strategy	the "human dimension"; a city that		
Vienna	places the focus on the needs of the	junges.wien.gv.at	
Local	local people. The development of a		





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	sustainable and livable city is only	ALBin Project	
	successful if everyone benefits, and		
	everyone is able to play their part.	Digital School project	
	T2: Sustainable, Livable City		
	V2: a city where life is good, but not at	The Vienna City Bike System	
	the expense of the environment and		
	thus of future generations . Vienna	MA 48 Waste App	
	uses the opportunities that social	Open Government Data	
	innovations and new technologies	(OGD) Wien Platform	
	bring with them actively and prudently	digitales.wien.gv.at/	
	to achieve the goals. (Stadt Wien,	open-data/	
	2020; 2022p 21)		
	D: One in which information and	Fields: Economy,	
	communication technology facilitates	Environment, Mobility,	
	improved insight into and control over	People.	
	the various systems that affect the lives		
	of residents. (Cuddy et al., 2014).	Goal: Efficiency,	
10 th)	T: Connected City	Sustainability	
Washington,	V: A city to connect its communities,		The Lab @ DC
D.C.	build economic strength, protect the	TA: Connection, ICT	
(USA)	natural environment , and maintain the	Other: Infrastructure,	UrbanPlan
	safety and security of its	Transportation System	
Since 2016:	infrastructure.		Virginia Tech
Smart DC	Goal: to become a connected city that	Digital Platforms to Engage	Urban Living
Initiative	benefits all components of the	Citizens:	Lab
	transportation systems-agencies,	OCTO website	
National	users, and infrastructure-and that the	311DC App	
	transportation systems support the	My DC Water App	
	district' systems and broader goals	Washington Open Data	
	(Washington District Department of	https://data.wa.gov/	
	Transportation, 2016 p. 1 and p. 25)		
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Rank and	Smart City Definition (D), Type (T),	Terms and Digital	Fab, Living or
Initiatives	and Vision(V)	Platforms	Urban Labs
		Fields: Economy, Env.,	
	D: A city that connects people,	Governance, Living, People	
	organizations, and infrastructure in	Goal: Efficiency,	
	such a way that social, ecological, and	Sustainability, QoL	
	economic added value is created. The	TA: Connection, ICT,	
	networking of data, sensors, and	Technology	Reallabor
11 th) Zurich	applications allows new and more	Other: Applications, Data,	Hunziker Areal
(ZH)	efficient solutions for the users of	Stakeholders, Networking,	
	urban infrastructures, as well as for	Sensor, Collaborative	Hunziker Areal
Since 2018:	those who operate them. Good		Living Lab
Strategic Smart	networking with the population	Digital platforms:	
City Zürich	strengthens opportunities for	The Smart City Zurich	Smart City Lab
	participation and contact with the	website, City Lab, The	
Local Initiative	administration (Zurich City, 2018 p.	Zurich Pedestrian Navigation	
	4)	System, Pikmi on-demand	
		transport service, ZüriMobil	
	T: Connected, Collaborative, and	app, My account,	
	Digital City	Zurich Open Data	
	V: Not found.	data.stadt-zuerich.ch/	
12 th) Berlin (DE)	D1: Cities which achieve a	Fields: Economy,	CityLAB Berlin,
Since 2015:	significantly higher or stable quality of	Environment, Governance,	
Smart City	life while using the same or a lower	Living, People	Citizens Create
Strategy Berlin	level of resources. This can only be	Goal: Efficiency,	Climate
2017:	achieved by means of an urban	Sustainability, QoL	Knowledge
Launch of Smart	management which, by using	TA: Connection, ICT,	
City Charter:	innovative information and	Technology	Climate Art Lab
Making Digital	communication technologies	Other: Digital, Integration,	
Transformation at	T1: Smart Administration, E-	Network, Resources, Urban	EUREF Campus
the local level	Government	Management, Innovation,	
sustainable		Cooperative, Resilient, Open,	My-Co Place





	V1 (?): Smart Berlin is both a place to	Inclusive	
2021	live and an economic area which		SAI-Lab
Strategic	develops sustainably through the	Digital Platforms to Engage	
framework Smart	systematic and intermodal	Citizens:	
City Berlin	deployment of innovative		
	technologies, materials, and	Berlin.de	
Since 2022:	services (Berlin Senate Department		
Digital Together:	for Urban Development and the	Berlin App	
Berlin	Environment, 2015 p. 5)		
Strategy	D2: Smart city is Livable, Lovable,	Berlin Citizen Participation	
	Diverse, Open, Participatory,	Platform	
UE, Private and	Inclusive, Climate neutral, Resource		
Local Initiatives	efficient, Competitive, Open-	Berlin Living Lab	
	Minded, Innovative, Responsive,		
	Sensitive, Safe, and freedom	Open Data Berlin	
	enhancing city. (BBSR and BMUB,	https://daten.berlin.de/	
	2017 p. 25)		
	D3: "smart" means tackling challenges		
	sustainably, with a focus on the		
	common good and working		
	collaboratively, and all the while		
	shaping change processes in a resilient		
	manner.		
	T2: Livable, Digital		
	V2: A sustainable, community-		
	oriented, resilient and cooperative		
	city (Berlin State, n.d; 2022)		
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Rank and	Smart City Definition (D), Type (T),	Terms and Digital	Fab, Living or
Initiatives	and Vision(V)	Platforms	Urban Labs
	D: Is one that uses information and	Fields: Governance, Living,	
	communications technology to	Economy, Environment	
13 th) Sydney	enhance its livability, workability,	Goal: Sustainability QoL	Intergener8
(AU)	and sustainability. (City of Sydney,	TA: ICT. Technology	Living Lab
	2020 p. 55; Bane, 2022)	Other: Data, Collaborative,	
Since 2020:	T1: Dynamic, Digital, Responsive	Resilient, Innovation, Work	Infosys Sydney
Smart City	V1: Its vision is a dynamic, responsive		Living Lab
Strategy	city, harnessing technology and data	Digital platforms:	
Framework	to enable collaborative innovation	Sydney Your Say website,	Sydney Science
	and create a thriving, inclusive, and	City of Sydney Data hub, The	Park Living
Digital strategy	resilient future for all. (City of Sydney,	City of Sydney App,	CSIRO Urban
	2020a p. 12)	cityofsydney.nsw.gov.au	Living Lab
Local Initiative	T2: Innovative, Livable	City of Sydney Data Hub	
	V2: Sydney to continue to be one of the	data.cityofsydney.nsw.	
	most innovative and livable cities in	gov.au	
	the world. (City of Sydney, 2020b)		
14 th) Taipei	D: Government as a	Fields: Economy,	
(Taiwan)	Platform; City as a Living	Environment, Governance,	
In 2008: The	Lab, focusing on one core	Living, Mobility, People.	
Institute for	vision (Livable+Sustainable)	Goal: Efficiency,	
Information	plus seven fields: Smart	Sustainability, QoL	
Policy	Security, Building,	TA: Information, Technology	
established	Transportation, Education,	Other: Innovation,	
Living Lab	Health, Environment, and	Stakeholders (PPP), Security,	Fablab Dynamic
	Economy. (Taipei City	Living Lab, Platform	
In 2013: Won	Government, n.d.)	Digital platforms:	Taipei Smart City
IBM SCC	T: Platform, Living Lab	Living Lab, Tapei Navi,	Living Lab
	V: As part of National Vision:	Taipei CooC-Cloud, The	
Since 2016:	Smart technologies are applied to solve	Taipei Smart Parking	JCA Living Lab
Taipei Smart City	the pain points of local government	System, Smart Taipei	





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Project	and civilians, boost cross-domain	website, Open Platform for	Living Lab +
Management	industry collaboration, and achieve	Government Information of	
Office	local and industrial innovation.	the New Taipei City.	
Since: 2020	(Taiwan Ministry of Digital Affairs,	https://data.ntpc.gov.tw/	
Taipei Smart City	n.d.)	Taipei City Data Big	
1+7 Framework		Platform	
National, Local		https://data.taipei/	
and Private			
Initiative			
15 th) Barcelona	D1 and V1: 'To become a self-	Fields: Economy,	City Lab
(ES)	sufficient city of productive	Governance, People,	Barcelona
	neighborhoods at human speed,	Environment	
Since 2000:	within a hyper-connected zero		Fab City Hub
22@Barcelona	emissions metropolitan area' (Olivella,	Goal: Efficiency,	Barcelona
Project	2012; Ferrer, 2017 p. 73; T. Miao and	Sustainability, QoL	
2008Urban Lab	Phelps, 2019 p. 14)		Fab Lab
	T1: Self-sufficient, hyperconnected,	TA: Connection, Technology	Barcelona
Since 2011:	urban lab		
IT Strategy		Others: Innovation, City,	Data City Lab
aligned to EU	D: Not found	Stakeholders	
Horizon Strategy	T2: Digital, Sovereing City		22@LIVING
Smart City	V2: not clear, but there is this	Digital platforms:	Lab
Strategy	declaration: Barcelona aspires to		
Smart City Expo	evolve the Smart City Agenda towards	Aplicaciones.bcn	The Healthcare
and World	becoming a digital sovereign city,	Barcelona in your pocket	Living Lab
Congress	empowering citizens to discuss and	Decidim Barcelona	Catalonia
	articulate their own priorities, set	Governance Model	(HCLLC)
Since 2015:	direction, and decide upon ethical uses	Participa.barcelona	
Barcelona Digital	of technological innovations with	Wesolve - Better Together	The Library
City Plan	clear social impact and public return.	app	Living Lab –
EU, Local, and	(Ajuntament Barcelona, 2019 p. 5).	Open Data BCN	Barcelona (L3)
Private			





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Rank and	Smart City Definition (D), Type (T),	Terms and Digital	Fab, Living or
Initiatives	and Vision(V)	Platforms	Urban Labs
16 th) Toronto			
(CA)		Fields: Economy, People,	
In 2016:		Environment	
TRBoT created		Goal: Efficiency,	
the Smart Cities		Sustainability, QoL	
Working Group		TA: Connection, Information	Future Living
In 2017, the	D: Is a city that improves access to	Other: City, Data	Lab
Canada	information and data, to help it	Digital platforms:	
Government	become an economically, socially, and	ConnectTO program	Google Quayside
launched the	environmentally connected	The City of Toronto website,	Sidewalk
Smart City	community. (City of Toronto, 2017).	the Trip Planner app, The	Toronto
Challenge		MyWaterToronto Portal,	
In 2018:	T: Connected Community	The 311 Toronto App,	University of
Toronto Smart		Cowlines App, Cycle Now	Toronto Living
City Challenge	V: not found	app, Garbage Day App,	Lab
Submission		Transit App,	
Connected		Toronto Open Data	
Community		https://open.toronto.ca/	
Smart City		Open Data Master Plan 2018-	
Project (?)		2022	
National & Local			
17 th) Paris (FR)	D: A City that develops common	Fields: Economy, People,	Agrilink
Since 2010:	services, applications, and goods that	Environment, Governance,	
Urban Lab	meet the basic needs of its inhabitants	Living	3E-Paris
Since 2015:	and their quest for well-being. It is an		Periurban Lab
Paris Smart and	innovative approach based on a	Goal: Sustainability, QoL	
Sustainable Plan	medium and long-term global and		La Fabrique
– Looking ahead	systemic vision of the city to improve	TA: Connection, Technology	du Futur
to 2020&Beyond	the quality of life by leveraging three		





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	major catalysts to transform urban life :	Other: Open City,	Liberté Living
	deepening social ties and creating	Applications, Data	Lab
Local and Private	value, rethinking urban		
Initiative	infrastructures, and capitalizing		
	on technological revolutions,		
	especially digital technologies.	Digital Platforms to Engage	Le Rosa Lab –
	(Mairie de Paris, 2015 p. 5)	Citizens:	Fabrique de La
	T: Connected, Open, Sustainable		Ville Creative et
	City	Budget Participatif	Durable
	V: Our vision of Smart and		
	Sustainable Paris is based on three	Data.gouv.fr	Universcience
	major pillars: the open city,, the		Living Lab
	connected city and the sustainable	Réinventer Paris	
	city. Each one of these brings value and		
	resources to the comprehensive	Open Data Paris	
	approach that will help develop the	https://opendata.paris.fr/	
	new trajectory of this 21st-century		
	metropolis. Data use and governance		
	will also influence these three		
	dimensions for the city of tomorrow.		
	(Mairie de Paris, 2015 p. 25)		
18 th) Madrid	D: Holistic vision of a city that applies	Fields: Economy, People,	Madrid
(ES)	ICTs to improve the quality of life and	Environment, Governance,	International Lab
Since 2015:	accessibility of its inhabitants and	Living, People	
Madrid	ensures sustainable economic, social		The Internet of
Intelligence	and environmental development in	Goal: Efficiency,	Things
Project (MiNT)	permanent improvement. (MINETAD,	Sustainability, QoL	Laboratory of the
Since 2022:	2015 p. 3)		City of Madrid
Madrid Digital	In partnership with IBM, in 2015,	TA: ICTs, Technology	(IoTMADLab)
Capital -	Madrid Intelligence Project (MiNT)		
Transformation	was implemented to improve urban	Other: Open, Inclusive,	Madrid Urban
Strategy for the	services and the quality of citizens'	Digital Transformation	Lab





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City of Madrid	services, to make the city more		
	sustainable (IBM, 2014).	Digital Platforms to Engage	Observatorio de
Private, Local	T: An Open, Inclusive, Digital , and	Citizens:	La Ciudad
and UE	Sustainable City		
	V: a strategy to continue being a city	Decide Madrid	The Madrid
	benchmark in the digital field,		Smart Lab
	designed for all people and companies	Getafe Participa	
	that are part of Madrid, for its	SmartAppCity	
	neighborhoods and districts, and for the	Open Data Madrid Portal	
	City Council itself, as a key driver of	datos.madrid.es/portal/	
	the digital transformation of the	site/egob/	
	capital (Ayuntamiento de Madrid, 2022		
	p. 4-7)		
	Not found a local definition, but		
	national.		
	D1: A platform to improve the quality	Fields: Economy,	Busan Innovation
19 th) Busan (SK)	of life for citizens, enhance the	Environment, Governance,	Fab Lab
	sustainability of cities, and foster new	Living, People	
In 2017: won	industries by utilizing innovative	Goal: Efficiency,	Busan EDC
IBM SCC	technologies of the 4 th Industrial	Sustainability, QoL	Village
	Revolution era. (South Korea Ministry	TA: Technology	
Since 2018:	of Land, Infrastructure and Transport,	Other: Platform, Innovation,	
Busan Eco Delta	2019 p. 5)	Digital, Augmented, Robot,	Busan's IoT
City: A National	T: Digital, Augmented, and Robotic	4 th Industrial Revolution,	Living Lab
Smart City	City (Busan Metropolitan City, n.d.)	International Leadership	
Project	Definition of the project: Three		Busan Network
	(Digital, Augmented, and Robot	Digital Platforms to Engage	of Living Lab
Local, Private,	City) future city operation platforms,	Citizens:	(BNoLL)
National	where all citizens will benefit from		
	balanced opportunities and inclusive	Busan Eco Delta Smart City	
	growth as a mecca of the future	Portal	
	industry and improve the quality of	www.busan.go.kr/eng/	





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	life of citizens, including education,	ecodelta01	
	culture, safety, and environment	Busan Open Data Portal	
	(South Korea Ministry of Land,	data.busan.go.kr/	
	Infrastructure, and Transport, 2021).		
	V: a place of innovative and	Busan Metropolitan City Big	
	international leadership for future	Data Platform	
	living where nature, people and	bigdata.busan.go.kr/	
	technology come together.	City-Bot	
	D: A real-time, connected, and data-		
	driven city. (Smart Dublin, n.d. p. 3)	Fields: Economy,	
20 th) Dublin (IE)		Governance, Living, People	
	T: Open, Connected, and Engaged		
Since 2012:	City.	Goal: Efficiency, QoL	
Intel Labs			
Europe, Dublin	Open to promote economic	TA: Connection, Data,	I-CHANGE
City Council and	development through open data, open	Innovation	Dublin Living
Trinity College	government, and open innovation.	Other: Real-time, Data	Lab University
start Sustainable	Connected to drive efficiencies	Driven, Open, Engage	College Dublin
Connected Cities	through connected networks ,		(UCD)
	connected infrastructure, and	Digital Platforms to Engage	
In 2014: Won	connected city region. Engaged to	Citizens:	iSCAPE Dublin
IBM Smart City	engage with entrepreneurs, citizens,	Smart Dublin website	Living Lab
Challenge	researchers, and business to solve		
	city region challenges.	Dublin Dashboard	Dublin Coastal
Since 2016:	(Dublin City Council, n.d. p. 2)	Smart Dublin Public Trello Board	City Living Lab
Smart Dublin		See.Sense	
Program	V: To be a world leading open,	Smart Dublin Challenges	
	connected, and engaged Smart City		
Local and Private	Region to live in, work in and visit.	Open Data Dublinlinked	
Initiatives	(Smart Dublin, n.d. p. 6)	data.smartdublin.ie/	





Rank and	Smart City Definition (D), Type (T),	Terms and Digital	Fab, Living or
Initiatives	and Vision(V)	Platforms	Urban Labs
21 st) Melbourne	D: Not found.	Fields: Economy,	
(AU)	T: City as a System (ARUP, 2010 p.	Environment, People	
In 2015:	12). A City Lab (City of Melbourne,	Goal: Efficiency,	Future Self and
Won IBM Smart	n.d.)	Sustainability, QoL	Design Living
City Challenge	V: To enhance the aspects of our city	TA: Technology, Connected	Lab
In 2021:	that make us uniquely Melbourne, and	Other: City, Innovation,	
Economic	intelligently prepare for the changing	Open Data, System	Infosys
Development	needs of the community, the		Melbourne
Strategy 2031	environment, and the economy. (City	Digital platforms:	Living Lab
	of Melbourne, n.d.)	Participedia, CityLab	
Community	T2: Digitally Connected City,	FreeWifi, Melbourne	RMIT Healthy
Engagement	adapting to connectivity as a	Conversations,	Liveable Cities
Policy	knowledge-enabled Smart City	Neighborhood Portals	Lab
Melbourne	V2: By 2031 the City of Melbourne	http://bit.ly/3YgrXoz	
neighborhood	will be a global leader in creating jobs		Swinburne
planning	and enterprises that focus on the needs	Melbourne Open Data	Living Lab
framework	of the future.	data.melbourne.vic.	
Local & Private	City of Melbourne (2021 p. 6)	gov.au/pages/home/	
	D: Is one that efficiently and ethically	Fields: Economy,	
	uses secure technologies, data, &	Environment, Governance,	
22nd) Los	resources to improve quality of life	Living, People	
Angeles (USA)	and sustainability for residents,	Goal: Efficiency,	
	businesses, and visitors.	Sustainability, QoL	Urban Movement
Since 2020		TA: Connection,	Lab
SmartLA 2028	T: Digital, and Connected City	Technology, Data,	
strategy		Other: Stakeholders,	UCLA CityLAB
	V: The City of Los Angeles envisions a	Resources	
Local and Private	high digital and connected city in	Digital platforms: MyLA311,	
Initiative	2028.	LA Metro Transit app, Vision	
	City of Los Angeles (2020 p. 3; p. 5)	Zero LA, Open Data Portal,	





		Cowlines App, LA Open	
		Data - https://data.lacity.org/	
	D: a framework for using data,	Fields: Economy,	
	digital technology, civic and policy	Environment, Living,	
	innovation to enhance the quality of	Mobility, People	
23 rd) San	life for all residents, making cities	Goal: Efficiency,	
Francisco (USA)	more effective, efficient, equitable	Sustainability, QoL	
	and responsive (City and County of	TA: Connected, Technology	Create + Build
Since 2016:	San Francisco, n.d., p. 4)	Other: Framework, Data,	
San Francisco	T: Connected and Shared City.	Digital, Culture of Sharing,	San Francisco
Smart City	V: to make more shared choices	EV, Autonomous Vehicles	Smart City
Challenge	available so that people of all	Digital Platforms to Engage	Institute
	backgrounds can easily get around	Citizens:	
National and	without needing to own a car. By	San Francisco Smart City	The Urban
Local Project	promoting shared options, we will	website	Prototyping Lab
	ensure that more people can access	SF311 app, SFWifi, SFPark,	
	affordable, safe, clean, and reliable	Cowlines App, Nextdoor app,	
	transportation than ever before. (City	OpenDataSF	
	and Council of San Francisco, 2016)	datasf.org/opendata/	
	D: People Centric. It should be built	Fields: Economy, Living,	
24 th) HK (China)	upon the needs of the people, and the	People	
Since 2018:	benefits should be seen and felt by	Goal: Efficiency, QoL	
HK Smart City	residents and visitors (HK Innovation	TA: Technology	CMASS iSPACE
Blueprint 1.0	and Technology Bureau, 2017 p.2)	Other: Innovation	
	T: World-class smart city.	Digital Platforms to Engage	HKUST
Since 2021:	V: Embrace innovation and	Citizens:	Sustainable
HK Smart City	technology to build a world-famed	Smart City Dashboard,	Smart Campus,
Blueprint 2.0	Smart HK characterized by strong	iMSmart App, Geospatial	Geospatial Lab
	economy and high quality of life. (HK	Lab, MyObservatory,	
Local	Innovation and Technology Bureau,	HKSmart City website.	
	2017 p.3; 2020 p. 3)	Open Data HK	
		https://data.gov.hk/en/	





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Initiatives	and Vision(V)	Platforms	Urban Labs
	The Strategy mentioned two definitions	Fields: Economy,	
	according to Ville de Montréal (2015 p.	Environment, Governance,	
	10) and Open North (2018 p. 40)	Living, People	Living Lab de
	D1: Effective integration of physical,		Montréal
	digital, and human systems in the built	Goal: Efficiency,	
25 th) Montreal	environment to deliver a sustainable,	Sustainability, and QoL	Cité-ID Liv-ing
(CA)	prosperous, and inclusive future for its	TA: ICT, Information	Lab
	citizens (BSI, 2014).	Other: Digital, System,	
Since 2014:	D2: Systems of people interacting with	Integration,	Concordia
Montreal Smart	and using flows of energy, materials,	Communication, resilience.	University's
and Digital City	services, and financing to catalyze		Creative
Strategy	sustainable economic development,	Digital platforms:	engAGE Living
	resilience, and high quality of life;		Lab (ELL)
Local and Private	these flows and interactions become	Montreal Smart City website,	
	smart through making strategic use of	Je fais Mtl	Rehabilitation
	information and communication		Living Lab in the
	(European Innovation Partnership on	Civic Tech Montréal, MTL	mall
	Smart Cities and Communities, 2013).	Connect. Montreal BIXI app,	(RehabMaLL)
	T: Smart and Digital City		
	V: By 2017, Montreal will be the	Montreal Open Data	
	world's leading smart city.	donnees.montreal.ca/	