Tables and Figures

Table 1. Corporations identified as participating in smart city projects in cities member of the RECI by the number of cities in which they are involved.

Corporation name	Headquarter city	Company's origin	Number of cities present
Telefónica	Madrid	Spanish	17
Acciona	Madrid	Spanish	8
Indra	Alcobendas (Madrid)	Spanish	8
Philips	Madrid	Non-Spanish	8
Iberdrola	Bilbao	Spanish	7
Tecnalia	Bilbao	Spanish	7
Endesa	Madrid	Non-Spanish	6
Abertis Telecom	Barcelona	Spanish	5
Ferrovial	Madrid	Spanish	5
IBM	Madrid	Non-Spanish	5
Vodafone	Madrid	Non-Spanish	5
Agbar	Barcelona	Non-Spanish	3
Ayesa	Sevilla	Spanish	3
Cisco	Madrid	Non-Spanish	3
CLECE	Madrid	Spanish	3
Hitachi	Barcelona	Non-Spanish	3
Microsoft	Madrid	Non-Spanish	3
Nissan	Barcelona	Non-Spanish	3
Orange	Madrid	Non-Spanish	3
Renault	Valladolid	Non-Spanish	3
Telvent (Schneider Electric)	Barcelona	Non-Spanish	3
Transporte de Londres (Transport for London)	Londres	Non-Spanish	3
ZABALA Innovation Consulting	Pamplona	Spanish	3
AIT	North Carolina (US)	Non-Spanish	2
ATOS Spain SA	Madrid	Spanish	2
B:SM	Barcelona	Spanish	2
B.I.M. Mobilitäts Consulting & Engineering	Graz (Austria)	Non-Spanish	2
Banco Santander	Madrid	Spanish	2
CIRCE	Zaragoza	Spanish	2
Deloitte	Madrid	Non-Spanish	2
EDF	Madrid	Non-Spanish	2
Elektro Ljubljana	Lujbliajna	Non-Spanish	2
Elektro Maribor	Maribor	Non-Spanish	2
ENEL	Madrid	Non-Spanish	2
Eptisa	Madrid	Spanish	2
Esri	Madrid	Non-Spanish	2
ETREL D.O.O	Lujbliajna	Non-Spanish	2
Eulen	Madrid	Spanish	2

Eurohelp	Bilbao	Non-Spanish	2
FCC	Madrid	Spanish	2
GasNatural Fenosa	Barcelona	Spanish	2
Gecko Navsat	Madrid	Non-Spanish	2
GMV	Madrid	Non-Spanish	2
IBIL (Repsol)	Barakaldo	Spanish	2
Idom	Bilbao	Spanish	2
Indal	Valladolid	Non-Spanish	2
Ingeteam Energy	Zamudio (Bilbao)	Spanish	2
INRIA	Paris	Non-Spanish	2
Mitsubishi	Madrid	Non-Spanish	2
MOBA (Mobile Automation)	Barcelona	Non-Spanish	2
NEC Europe	Madrid	Non-Spanish	2
Onyx Solar Energy S.L.	Ávila	Spanish	2
Pascual	Aranda del duero	Spanish	2
Repsol	Madrid	Spanish	2
Rupprecht Consult	Colonia	Non-Spanish	2
Schneider Electric GmbH	Barcelona	Non-Spanish	2
SIEMENS	Munich/Berlin	Non-Spanish	2
Sociedad Municipal de Suelo y Vivienda de Valladolid (VIVA)	Valladolid	Spanish	2
TMB	Barcelona	Spanish	2
Toshiba	Madrid	Non-Spanish	2
Transport & Travel Research Ltd	London	Non-Spanish	2
Transporte Público de Friburgo	Friburgo	Non-Spanish	2
TÜV NORD Mobility	Madrid	Non-Spanish	2
Urbiotica	Barcelona	Spanish	2
Veolia	Madrid	Non-Spanish	2
Xeridia	León	Spanish	2

Table 2. RECI city members by the number of corporations identified as participating in smart cities initiatives that were present in at least 2 cities of the network.

City name	Number of pairs of corporations present in at least two cities of the RECI	Population	Metropolitan Area	Region
Barcelona	16	1.604.555	Barcelona	Catalonia
Madrid	16	3.141.991	Madrid	Madrid
Palencia	16	79.595		Castilla-León
Valladolid[1]	16	303.905		Castilla-León
Málaga	15	569.130	Málaga	Andalusia
Pamplona	12	195.853		Nabarre
Santander	12	173.957		Cantabria
Vitoria	8	243.918		Basque Country
Zaragoza	8	664.953		Aragon
Sabadell	6	207.814	Barcelona	Catalonia
Albacete	5	172.121		Castilla-La Mancha
Fuengirola	5	77.525	Málaga	Andalusia
Majadahonda	5	70.800	Madrid	Madrid
A Coruña	4	243.870		Galicia
Palma de Mallorca	4	400.578		Balearic Islands
Sant Cugat del Vallés	4	87.830	Barcelona	Catalonia
Sevilla	4	693.878		Andalusia
Alcobendas	3	113.055	Madrid	Madrid
Castelló	3	171.669		Valencia (region)
Alzira	2	44,393		Valencia (region)
Cáceres	2	95.617		Extremadura
Gijón	2	274.290		Asturias
L'Hospitalet de Llobregat	2	252.171	Barcelona	Catalonia
Logroño	2	151.344		Rioja
Molina de Segura	2	69.331		Murcia
Móstoles	2	206.263	Madrid	Madrid
Murcia	2	439.889		Murcia
Rivas Vacia-madrid	2	81.473	Madrid	Madrid
Santa Cruz de Tenerife	2	203.811		Canary Islands

Santiago de Compostela	2	95.612		Galicia
Tarragona	2	131.255		Catalonia
Torrejón de Ardoz	2	126.934	Madrid	Madrid
Valencia	2	786.189	Valencia	Valenca (region)
Alcalá de Henares	1	198.750	Madrid	Madrid
Alcorcón	1	167.136	Madrid	Madrid
Ávila	1	58.358		Castilla-León
Burgos	1	177.100		Castilla-León
Ciudad Real	1	74.427		Castilla-La Mancha
Huelva	1	146.318		Andalusia
Huesca	1	52.239		Aragon
Lugo	1	98.134		Galicia
Marbella	1	139.537	Málaga	Andalusia
Motril	1	60.777		Andalusia
Ponferrada	1	66.884		Castilla-León
Toledo	1	83.226		Castilla-La Mancha
Torrent	1	80.107	Valencia	Valencia (region)
Alicante	0	59.567		Valencia (region)
Almería	0	194.203		Andalusia
Aranjuez	0	58.168	Madrid	Madrid
Arganda del Rey	0	54.533	Madrid	Madrid
Badajoz	0	149.892		Extremadura
Córdoba	0	327.362		Andalusia
Elche	0	227.312		Valencia (region)
Getafe	0	174.921	Madrid	Madrid
Guadalajara	0	83.391		Castilla-La Mancha
Jaén	0	115.395		Andalusia
La Laguna	0	152.843		Canary Islands
Las Palmas	0	379.766		Canary Islands
Mérida	0	58.971		Extremadura
Oviedo	0	221.870		Asturias
Paterna	0	67.340	Valencia	Valencia (region)
Pozuelo de Alarcón	0	84.558	Madrid	MAdrid
Puerto de Santa María, El	0	88.335		Andalusia
Salamanca	0	146.438		Castilla-León

Segovia	0	52.728	Castilla-León

Table 3. Pairs of cities that shared corporations involved in smart city projects[2].

Pair of cities	Number of shared corporations	Regional connection
Valladolid-Palencia	16	Regional (plus consortium)
Pamplona-Vitoria	9	None (both belong to historical Basque territories)
Barcelona-Madrid	8	Top-cities
Madrid-Málaga	7	Top-cities
Barcelona-Málaga	5	Top-cities
Fuengirola-Málaga	5	Metropolitan
Majadahonda-Zaragoza	5	None
Coruña-Pamplona	3	None
Albacete-Barcelona	3	None
Barcelona-Sabadell	3	Metropolitan
Madrid-Santander	3	None
Málaga-Palencia/Valladolid	3	None
Málaga-Sevilla	3	Regional/Top cities
Pamplona-Albacete	3	None
Sabadell-Palencia/Valladolid	3	None

[2] Palencia and Valladolid are computed as two separate cases to illustrate their connection, but given they share the Smart City initiatives they are considered as a single case when compared to the rest of the cities.

Table 4. Pairs of corporations that shared participation in three or more cities.

Pair of corporations	**Number of shared cities in which they are present**
Acciona-Iberdrola	4
Telefónica-Acciona	4
Telefónica-Endesa	4
Acciona-Phillips	3
Telefónica-CLECE	3
Phillips-CLECE	3
Endesa-Hitachi	3
Endesa-Renault	3
Nissan-Endesa	3
Telefónica-Iberdrola	3
Iberdrola-Transport for London	3
Teléfonica-Phillips	3
Nissan-Renault	3
Indra-Tecnalia	3

Table 5. Centrality and hierarchy in the RECI corporate networks

Corporation	ndegree	nbetweenness	ncloseness
Iberdrola	0.446	22.896	0.411
Telefónica	0.431	17.019	0.392
Acciona	0.262	3.177	0.367
Endesa	0.262	7.171	0.371
Philips	0.246	0.905	0.357
CLECE	0.231	0.000	0.351
GMV	0.231	0.000	0.351
IBIL (Repsol)	0.231	0.000	0.351
Indal	0.231	0.000	0.351
Onyx Solar Energy S.L.	0.231	0.000	0.351
Sociedad Municipal de Suelo y Vivienda de Valladolid (VIVA)	0.231	0.000	0.351
Toshiba	0.231	0.000	0.275
Transport & Travel Research Ltd	0.231	0.000	0.351
Transporte de Londres (Transport for London)	0.231	0.000	0.351
Transporte Público de Friburgo	0.231	0.000	0.351
Veolia	0.231	0.000	0.351
Xeridia	0.231	0.000	0.351
Nissan	0.200	2.908	0.363
Renault	0.200	2.908	0.363
Tecnalia	0.200	10.115	0.346
Vodafone	0.154	1.635	0.311
IBM	0.154	4.004	0.353
Hitachi	0.138	0.602	0.355
B:SM	0.108	0.000	0.302
B.I.M. Mobilitäts Consulting & Engineering	0.108	0.000	0.330
Elektro Ljubljana	0.108	0.000	0.330
Elektro Maribor	0.108	0.000	0.330
ETREL D.O.O	0.108	0.000	0.330
GasNatural Fenosa	0.108	0.000	0.302
Ingeteam Energy	0.108	0.000	0.330
Pascual	0.108	0.000	0.302
TMB	0.108	0.000	0.302
ZABALA Innovation Consulting	0.108	0.000	0.330
SIEMENS	0.092	0.000	0.340
Indra	0.077	2.881	0.327
Ferrovial	0.077	3.216	0.305
Telvent (Schneider Electric)	0.077	0.000	0.342
Ayesa	0.077	0.148	0.328
Mitsubishi	0.062	0.000	0.322
Eurohelp	0.046	0.000	0.275
Gecko Navsat	0.046	0.000	0.275
TÜV NORD Mobility	0.046	0.000	0.351
Abertis Telecom	0.046	0.397	0.320
Agbar	0.031	0.000	0.307
ATOS Spain SA	0.031	0.000	0.283

ENEL	0.031	0.000	0.319
Microsoft	0.031	0.163	0.319
AIT	0.015	0.000	0.273
Banco Santander	0.015	0.000	0.247
CIRCE	0.015	0.000	0.289
Cisco	0.015	0.000	0.301
FCC	0.015	0.000	0.301
INRIA	0.015	0.000	0.169
Schneider Electric GmbH	0.015	0.000	0.169
Deloitte	0.000	0.000	0.167
EDF	0.000	0.000	0.167
Eptisa	0.000	0.000	0.167
Esri	0.000	0.000	0.167
Eulen	0.000	0.000	0.167
Idom	0.000	0.000	0.167
MOBA (Mobile Automation)	0.000	0.000	0.167
NEC Europe	0.000	0.000	0.167
Orange	0.000	0.000	0.167
Repsol	0.000	0.000	0.167
Rupprecht Consult	0.000	0.000	0.167
Urbiotica	0.000	0.000	0.167
Gini coefficient	**0.51**	**0.90**	**0.129**

Table 6. Centrality and hierarchy in the RECI city networks.

City	ndegree	nbetweenness	ncloseness
Málaga	0.172	3.315	0.223
Barcelona	0.141	2.559	0.221
Madrid	0.125	1.723	0.219
Santander	0.125	2.729	0.221
Palencia	0.109	0.743	0.218
Valladolid	0.109	0.743	0.218
Pamplona	0.094	1.187	0.216
A Coruña	0.078	1.105	0.213
Fuengirola	0.063	0.033	0.214
Sabadell	0.063	0.000	0.213
Albacete	0.047	1.042	0.209
Cáceres	0.047	0.000	0.211
Sevilla	0.047	0.000	0.213
Zaragoza	0.047	1.042	0.213
Alcobendas	0.031	0.000	0.208
Palma de Mallorca	0.031	0.000	0.211
Castelló	0.016	0.000	0.208
Majadahonda	0.016	0.000	0.199
Rivas Vacia-madrid	0.016	0.000	0.199
Sant Cugat del Vallés	0.016	0.000	0.196
Santiago de Compostela	0.016	0.000	0.204
Torrejón de Ardoz	0.016	0.000	0.206
Vitoria	0.016	0.000	0.202
Alcalá de Henares	0.000	0.000	0.167

Alcorcón	0.000	0.000	0.167
Alicante	0.000	0.000	0.167
Almería	0.000	0.000	0.167
Aranjuez	0.000	0.000	0.167
Alzira	0.000	0.000	0.167
Arganda del Rey	0.000	0.000	0.167
Ávila	0.000	0.000	0.167
Badajoz	0.000	0.000	0.167
Burgos	0.000	0.000	0.167
Ciudad Real	0.000	0.000	0.167
Córdoba	0.000	0.000	0.167
El Puerto de Santa María	0.000	0.000	0.167
Elche	0.000	0.000	0.167
Getafe	0.000	0.000	0.167
Gijón	0.000	0.000	0.167
Guadalajara	0.000	0.000	0.167
L'Hospitalet de Llobregat	0.000	0.000	0.167
Huelva	0.000	0.000	0.167
Huesca	0.000	0.000	0.167
Las Palmas	0.000	0.000	0.167
Jaén	0.000	0.000	0.167
Logroño	0.000	0.000	0.167
Lugo	0.000	0.000	0.167
Marbella	0.000	0.000	0.167
Molina de Segura	0.000	0.000	0.167
Mérida	0.000	0.000	0.167
Móstoles	0.000	0.000	0.167
Motril	0.000	0.000	0.167
Murcia	0.000	0.000	0.167
Oviedo	0.000	0.000	0.167
Paterna	0.000	0.000	0.167
Ponferrada	0.000	0.000	0.167
Pozuelo de Alarcón	0.000	0.000	0.167
Salamanca	0.000	0.543	0.167
Santa Cruz de Tenerife	0.000	0.000	0.167
La Laguna	0.000	0.000	0.167
Segovia	0.000	0.000	0.167
Tarragona	0.000	0.000	0.167
Toledo	0.000	0.000	0.167
Torrent	0.000	0.000	0.167
Valencia	0.000	0.000	0.167
Gini coefficient	**0.79**	**0.883**	**0.058**