



Data Article

Questionnaire dataset: The Greek Smart Cities - Municipalities dataset



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ABSTRACT

The dataset was formulated through field research in the Greek Municipalities. The survey was undertaken with an online questionnaire (available in Greek) and the contact person was the Chief Digital Officer or a person with similar responsibilities. The final sample is 252 out of a total of 325 Municipalities. Each respondent had to answer to 26 questions, including sub-questions, of different types (1) 5-point Likert scale, (2) rating scale, (3) closed type "Yes/no", (4) open-ended and (5) dropdown, and, depending on them, there are 3 types of variables (1) ordinal, (2) nominal, and (3) scale variables. The concepts included in the questionnaire are a) the level of integration and use of digital technologies, b) the difficulties and the challenges municipality authorities face when trying to implement a smart strategy and c) the level of diverse collaborations and partnerships which are necessary in order to develop a strategy. The data can be used to analyse the strategic capabilities of the Greek Municipalities under the three concepts evaluated in the questionnaire. The data's primary beneficiaries include researchers, public authorities, digital platforms entrepreneurs, smart city specialists and smart city entrepreneurs, as they can use the dataset to develop models against already known results, to identify factors important in an urban strategy and to further study the correlations between the different factors, design and draft an urban strategy on real data.

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Specifications Table

Subject	Management of Technology and Innovation
Specific subject area	Design and develop urban and smart city strategies
Type of data	Table
How the data were acquired	The data were collected using online questionnaire available in Greek via the Google platform. For cross-validation, the respondents were contacted, also, through e-mail, telephone, or face-to-face meetings.
Data format	The data is considered as mixed (raw and pre-processed). The dataset is in SPSS (.sav) and Excel file format (.xlsx), analysed and organised appropriately. It is available online (Mendeley Data repository).
Parameters for data collection	The questionnaire was addressed to the Mayor or Deputy Mayor, the Smart City Strategy Responsible, the Digital Strategy or Technology Affairs Officers or the Head of the ICT or Digital Department.
Description of data collection	The dataset was formed by collecting data from 252 out of a total of 325 Municipalities, using a digital questionnaire available in the Greek language. The concepts under study are: <ul style="list-style-type: none"> ■ the level of integration and use of digital technologies by the municipality and the local stakeholders in a city, ■ the difficulties and the challenges municipality authorities face when trying to implement a strategy ■ the level of diverse collaborations and partnerships which are necessary to develop a strategy
Data source location	Institution: Laboratory of Industrial and Energy Economics, National Technical University of Athens City/Town/Region: Athens, Zografou, Attiki Country: Greece
Data accessibility	Repository Name: Mendeley Data Title: Dataset on the questionnaire-based survey: DOI: 10.17632/mpwryygc4r.1 Direct URL to data: https://data.mendeley.com/datasets/mpwryygc4r/1
Related research article	Siokas, G., Tsakanikas, A., & Siokas, E. (2021). Implementing smart city strategies in Greece: Appetite for success. Cities, 108(March 2020), 102938. https://doi.org/10.1016/j.cities.2020.102938

Value of the Data

- The data can be used to analyse the strategic capabilities of the Greek Municipalities, under three thematic areas: (1) the difficulties and challenges Greek municipalities face when trying to implement a smart strategy, (2) the level of diverse collaborations and partnerships which are necessary to develop a smart urban strategy and (3) the level of integration and use of digital technologies by the local authorities and stakeholders in an urban ecosystem.
- The data's primary beneficiaries include researchers, public authorities, digital platforms entrepreneurs, smart city specialists and smart city entrepreneurs. Also, educators can use the datasets to obtain statistics training.
- The data in this article provides more details on the theoretical aspects of urban development in the digitalization era and creates a deeper understanding of the research issues that have been addressed in issues relating to smart city strategies.
- The interesting parties can use the dataset to develop models against already known results, to identify factors important in an urban strategy and to further study the correlations

between the different factors, design and draft of an urban strategy that includes smart city initiatives.

- The questionnaire that was developed can be used as an instrument for similar surveys in any other municipality in related research areas. The results can be used as a steppingstone for creating a more targeted questionnaire for a set of local municipalities in a country.
- The data in this article provide further understanding on the research methods that have been utilized and descriptive analytics can be employed to further understand rising trends, hidden patterns, and characteristics.

1. Data Description

This part of the article is divided in three sections. The first section provides the general specifications of the dataset and the questionnaire. The second section refers to the respondents' characteristics and the third section refers to the Distribution characteristics.

1.1. Dataset specifications

This article is associated with a questionnaire in portable document format (.pdf) and a dataset file [1] given in both SPSS file (.sav) and Microsoft Excel format files, as a supplementary material. The files of the dataset were provided in two different file types to help the interesting party choose the best type for its calculations.

In more detail, the data files contain the respondents' answers to the questionnaire. Each respondent had to answer to 26 questions with relevant sub-questions. The file dataset has 252 entries of encoded answers. The questionnaire had four types of questions: (1) 5-point Likert scale, where 1 for "Not at all" and 5 for "Maximum", (2) rating scale questions, where 1 for "Not provided" and 4 for "The whole process is complete electronically", (3) closed type questions "Yes/no", where 1 for "Yes" and 2 for "No", (4) open-ended questions and (5) dropdown questions. Data interpretation comments are available in the SPSS file. The dataset has ordinal, nominal, and scale variables, depending on the question. Regarding the variables, the questions are the variables and the answers provided by the participants are provided in the supplementary materials. More details regarding the variables are shown in the [Table 1](#). In more detail, the 5-point Likert scale questions are in the table positions 6-19, 31-147 and 154-171, the rating scale questions are in the table positions 20-30, the closed type questions are in the table positions 148 and 150-153, the open-ended questions are in the table positions 149 and 175-177 and the dropdown questions are in the table positions 5 and 172-174. Additionally, the number 9999997.00 corresponds to a missing value.

Regarding the questionnaire, the original questionnaire was provided in Greek, which is the respondents' native language. For the purposes of the article, the questionnaire was translated to English in the supplementary material [1]. Additionally, the questionnaire was not anonymous during the collection process. The main demographics of the representatives were collected at the end of the questionnaire. At this point, the degree of suitability or adequacy of each respondent-executive for the representative's participation in the research and the degree of reliability of the collected data is ensured. Each respondent was informed via email that his/her answers would be used as a part of a Ph.D. research and agreed to that by filling in the questionnaire. All the participants could answer the questionnaire anonymously. But for privacy reasons the respondents' names and the population of each entry were excluded from the file to maintain privacy and not to allow any indirect link to the respondent.

Table 1
The description of the dataset.

Position	Variable	Label	Measurement Level	Type	Values
1	ID	Municipality's Entry Code in the Database	Ordinal	Numeric	
2	nomos	Former Prefecture (Kapodistrias Program)	Nominal	String	
3	Per	Region	Nominal	String	
4	Per_En	Regional unit	Nominal	String	
5	category	Categorization of Municipalities (Based on their characteristics and central role)	Nominal	Numeric	1-Municipalities of metropolitan centres (Athens and Thessaloniki) 2-Municipalities - Capitals of former prefectures 3-Regional Continental & Island Municipalities 4-Small Municipalities (mainland & island Municipalities)
6	A_1_1	To what extent the Municipality uses a call centre to receive/exchange information from/with citizens/businesses?	Scale	Numeric	1-Not at all 2-Low 3-Moderate 4-High 5-Maximum
7	A_1_2	To what extent the Municipality uses e-mail to receives/exchanges information from/with citizens/businesses?	Scale	Numeric	
8	A_1_3	To what extent the Municipality uses a digital form for filling in data and data via the internet to receive/exchange information from/with citizens/businesses?	Scale	Numeric	
9	A_1_4	To what extent the Municipality uses social media (e.g., Facebook, Twitter, LinkedIn, etc.) to receive/exchange information from/with citizens/businesses?	Scale	Numeric	
10	A_1_5	To what extent the Municipality uses a mobile application to receives/exchanges information from/with citizens/businesses?	Scale	Numeric	
11	A_1_6	To what extent is the use of the bot system (automatic response system) utilized so that the Municipality receives/exchanges information from/with citizens/businesses?	Scale	Numeric	
12	A_2	The Municipality has established a Wi-Fi network in public places for its citizens to use freely	Nominal	Numeric	
13	A_3_1	To what extent the Municipality uses Cloud Data and Computing services in its (internal & external) operations?	Scale	Numeric	
14	A_3_2	To what extent the Municipality uses Social Networks in its (internal & external) functions?	Scale	Numeric	
15	A_3_3	To what extent the Municipality uses electronic resource management tools in its (internal & external) operations?	Scale	Numeric	
16	A_3_4	To what extent the Municipality utilizes the use and maintenance of one and/or more database (s) in its (internal & external) operations?	Scale	Numeric	
17	A_3_5	To what extent the Municipality utilizes the maintenance, use and access to open data to/for the citizens in its (internal & external) functions?	Scale	Numeric	
18	A_3_6	To what extent the Municipality collects geographical data and makes it available to the citizens in digital form in its (internal & external) functions?	Scale	Numeric	
19	A_3_7	To what extent the Municipality use the data collection systems in its (internal & external) operations?	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
20	A_4_1	Note the level of integration of digital services provided by the Municipality to citizens and businesses for the issuance of individual & family certificates.	Ordinal	Numeric	1-Not provided 2-Relevant information is provided 3-A part of the process is done electronically 4-The whole process is completed electronically
21	A_4_2	Note the level of integration of digital services provided by the Municipality to citizens and businesses for the registration/deletion/change of data in the municipal registers.	Ordinal	Numeric	
22	A_4_3	Note the level of integration of digital services provided by the Municipality to citizens and businesses for the payment of bills	Ordinal	Numeric	
23	A_4_4	Note the level of integration of digital services provided by the Municipality to citizens and businesses for requests and permits for urban issues	Ordinal	Numeric	
24	A_4_5	Note the level of integration of digital services provided by the Municipality to citizens and businesses for business start-up and/or start-up licenses	Ordinal	Numeric	
25	A_4_6	Note the level of integration of digital services provided by the Municipality to citizens and businesses for requests to Health and Social Care agencies	Ordinal	Numeric	
26	A_4_7	Note the level of integration of digital services provided by the Municipality to citizens and businesses for requests for services for People with Disabilities (PWDs)	Ordinal	Numeric	
27	A_4_8	Note the level of integration of digital services provided by the Municipality to citizens and businesses for requests/platforms for participation in education/vocational training programs (e-learning) for citizens	Ordinal	Numeric	
28	A_4_9	Note the level of integration of digital services provided by the Municipality to citizens and businesses for the dissemination/information on advertisements and information programs for jobs, employment promotion, etc.	Ordinal	Numeric	
29	A_4_10	Note the level of integration of digital services provided by the Municipality to citizens and businesses for access to Electronic and Digital Libraries	Ordinal	Numeric	
30	A_4_11	Note the level of integration of digital services provided by the Municipality to citizens and businesses for requests for participation/information on actions related to Sports/Culture/Entertainment	Ordinal	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
31	A_5_1	To what extent does the Municipality provide information about the municipality through the website or through an application/s for mobile devices	Scale	Numeric	1-Not at all 2-Low 3-Moderate 4-High 5-Maximum
32	A_5_2	To what extent does the Municipality publish news through the website or through an application/s for mobile devices	Scale	Numeric	
33	A_5_3	To what extent does the Municipality have the ability of submitting complaints through the website or through an application/s for mobile devices	Scale	Numeric	
34	A_5_4	To what extent does the Municipality have the ability of submitting an application for problem solving through the website or through an application/s for mobile devices	Scale	Numeric	
35	A_5_5	To what extent does the Municipality post the decisions of municipal collective bodies through the website or through an application/s for mobile devices	Scale	Numeric	
36	A_5_6	To what extent does the Municipality post the financial data of the Municipality through the website or through an application/s for mobile devices	Scale	Numeric	
37	A_5_7	To what extent does the Municipality carry out the operation of a citizen/business consultation platform through the website or through a mobile application (s)	Scale	Numeric	
38	A_5_8	To what extent does the Municipality carry out the process of procuring equipment through the website or through an application/s for mobile devices	Scale	Numeric	
39	A_6_1	To what extent does the Municipality exchange information (bidirectional) with the National Municipal Register and the central information systems of the Public Administration?	Scale	Numeric	
40	A_6_2	To what extent does the Municipality exchange information (bidirectional) with the Land Registry and the central information systems of the Public Administration?	Scale	Numeric	
41	A_6_3	To what extent does the Municipality exchange information (bidirectional) with the TAXISnet Certifications/Approvals and Applications from and to the tax office and the central information systems of the Public Administration?	Scale	Numeric	
42	A_6_4	To what extent does your Municipality exchange information (bidirectional) with the GIS Platform and the central information systems of the Public Administration?	Scale	Numeric	
43	A_6_5	To what extent does the Municipality exchange information (bidirectional) with KIMDIS and the central information systems of the Public Administration?	Scale	Numeric	
44	A_6_6	To what extent does the Municipality exchange information (bidirectional) with the e-KEP and the central information systems of the Public Administration?	Scale	Numeric	
45	A_6_7	To what extent does the Municipality exchange information (bidirectional) with e-Town Planning and the central information systems of the Public Administration?	Scale	Numeric	
46	A_6_8	To what extent does the Municipality exchange information (bidirectional) with EFKA and the central information systems of the Public Administration?	Scale	Numeric	
47	A_6_9	To what extent does the Municipality exchange information (bidirectional) with HERMES and the central information systems of the Public Administration?	Scale	Numeric	
48	A_7_1	To what extent the Municipality provides the possibility of electronic submission of bids by citizens/companies for job application in the Municipality or in Municipal services	Scale	Numeric	
49	A_7_2	To what extent the Municipality provides the possibility of electronic submission of bids by citizens/companies for a request for equipment supply	Scale	Numeric	
50	A_7_3	To what extent the Municipality provides the possibility of electronic submission of tenders by citizens/companies for a request for execution of projects, works, studies and services	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
51	A_8	Do municipal employees, during their trips for official purposes, use any kind of mobile electronic device and/or software in their work?	Nominal	Numeric	
52	A_9	The material required for the conduct of the Municipal Councils (or e.g., Dropbox) is posted or sent electronically so that a number of pages are not printed	Nominal	Numeric	
53	B_1	To what extent do you think you have understood the concept of Smart/Smart City?	Scale	Numeric	
54	B_2_1	Does your municipality have a comprehensive digital strategy for e-government?	Nominal	Numeric	
55	B_2_2	Does your Municipality have a comprehensive digital strategy for Smart Cities?	Nominal	Numeric	
56	B_3_1	To what extent does your Municipality take into account the functions related to its internal business needs for the formulation of the following digital strategy	Scale	Numeric	
57	B_3_2	To what extent does your Municipality take into account the functions related to the needs of the citizens for the formulation of the digital strategy that follows	Scale	Numeric	
58	B_3_3	To what extent does your Municipality take into account the functions related to the needs of the local economy for the formulation of the following digital strategy	Scale	Numeric	
59	B_3_4	To what extent does your Municipality take into account the functions related to the needs of local agencies and organizations for the formulation of the digital strategy that follows	Scale	Numeric	
60	B_4_1	To what extent do you consider that Efficacy plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
61	B_4_2	To what extent do you consider that Efficiency plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
62	B_4_3	To what extent do you consider that Sustainability plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
63	B_4_4	To what extent do you consider that Equality and Equality play an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
64	B_5_1	To what extent do you consider that the Lack of suitable partners/internal resources plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
65	B_5_2	To what extent do you consider that the Requirement for further education and understanding of modern tools plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
66	B_5_3	To what extent do you consider that the Lack of relevant experience plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
67	B_5_4	To what extent do you consider that the Technical Constraints - Lack of Infrastructure play an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
68	B_5_5	To what extent do you consider that the Movement from pilot projects to larger projects plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
69	B_5_6	To what extent do you consider that the Geographical Area - Extended networks plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
70	B_5_7	To what extent do you consider that the Wider Environment plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
71	B_5_8	To what extent do you consider that financial constraints and resource constraints play an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
72	B_5_9	To what extent do you consider that the Legal Environment plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
73	B_5_10	To what extent do you consider that Security - GDPR plays an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
74	B_6_A_1_6_1	Evaluate the importance of the Government and the e-services regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
75	B_6_A_1_6_1_1	Evaluate the importance of the Information Systems Upgrade regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
76	B_6_A_1_6_1_2	Evaluate the importance of Creating one-stop services in relation to projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
77	B_6_A_1_6_1_3	Evaluate the importance of the Services to the citizens through the internet regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
78	B_6_A_1_6_1_4	Evaluate the importance of the Tools for active participation of the citizens regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
79	B_6_A_1_6_1_5	Evaluate the importance of the Social Inclusion Tools regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
80	B_6_A_1_6_1_6	Evaluate the importance of Human Resources Management Systems and internal operation organization regarding the projects that are in the immediate planning or carried out in your Municipality	Scale	Numeric	
81	B_6_A_1_6_2	Evaluate the importance of Urban planning, transport, and quality of life regarding the projects that are in the immediate planning or carried out in your Municipality	Scale	Numeric	
82	B_6_A_1_6_2_1	Evaluate the importance of Air Quality Control Sensors in relation to projects that are under immediate plan or are being carried out in your Municipality	Scale	Numeric	
83	B_6_A_1_6_2_2	Evaluate the importance of Vehicle Fleet Management Systems in relation to projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
84	B_6_A_1_6_2_3	Evaluate the importance of Digital Mapping Systems in relation to projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
85	B_6_A_1_6_2_4	Evaluate the importance of Geographic Information Systems (GIS) regarding projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
86	B_6_A_1_6_2_5	Evaluate the importance of the Tools for access and management of social services regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
87	B_6_A_1_6_2_6	Evaluate the importance of the Civil Protection and Immediate Evacuation Plans in relation to the projects that are in the immediate plan or are being implemented in your Municipality	Scale	Numeric	
88	B_6_A_1_6_2_7	Evaluate the importance of Noise Pollution Sensors (noise levels) in relation to projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
89	B_6_A_2_6_1	Evaluate the degree of implementation of the Government and e-services regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
90	B_6_A_2_6_1_1	Evaluate the degree of implementation of the Information Systems Upgrade regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
91	B_6_A_2_6_1_2	Evaluate the degree of implementation of the Creation of one-stop services regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
92	B_6_A_2_6_1_3	Evaluate the degree of implementation of the Services to the citizens through the internet regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
93	B_6_A_2_6_1_4	Evaluate the degree of implementation of the Tools for active participation of the citizens regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
94	B_6_A_2_6_1_5	Evaluate the degree of implementation of the Social Inclusion Tools regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
95	B_6_A_2_6_1_6	Evaluate the degree of implementation of the Human Resources Management Systems and the organization of internal operation regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
96	B_6_A_2_6_2	Evaluate the degree of implementation of the Urban planning, transport, and quality of life regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
97	B_6_A_2_6_2_1	Evaluate the degree of implementation of the Air Quality Control Sensors regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
98	B_6_A_2_6_2_2	Evaluate the degree of implementation of the Vehicle Fleet Management Systems regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
99	B_6_A_2_6_2_3	Evaluate the degree of implementation of the Digital Mapping Systems regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
100	B_6_A_2_6_2_4	Evaluate the degree of implementation of the Geographic Information Systems (GIS) regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
101	B_6_A_2_6_2_5	Evaluate the degree of implementation of the Access Services and Social Services Management Tools regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
102	B_6_A_2_6_2_6	Evaluate the degree of implementation of the Plans for civil protection and immediate evacuation of areas regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
103	B_6_A_2_6_2_7	Evaluate the degree of implementation of the Noise Measurement Sensors (noise levels) regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
104	B_6_B_1_6_3	Evaluate the importance of Energy and resource management in relation to projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
105	B_6_B_1_6_3_1	Evaluate the importance of Energy Consumption and Energy Saving Measurement Systems regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
106	B_6_B_1_6_3_2	Evaluate the importance of Telemetry Systems for remote controls regarding projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
107	B_6_B_1_6_3_3	Evaluate the importance of the Utilization of RES systems regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
108	B_6_B_1_6_3_4	Evaluate the importance of the Installation of Smart lighting management in public buildings and public spaces regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
109	B_6_B_1_6_4	Evaluate the importance of the Environment regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
110	B_6_B_1_6_4_1	Evaluate the importance of the infrastructure and installations of solid waste treatment units regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
111	B_6_B_1_6_4_2	Evaluate the importance of the Internet system for managing waste bins with sensors that enables the Municipality to perceive the amount of waste per collection point regarding the projects that are in the immediate plan or are being carried out in your	Scale	Numeric	
112	B_6_B_1_6_4_3	Evaluate the importance of the Citizens/Citizens Awareness Programs in the sense of recycling regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
113	B_6_B_1_6_4_4	Evaluate the importance of the Plans and policies for the issue of recycling regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
114	B_6_B_1_6_4_5	Evaluate the importance of the Mechanism for the collection and utilization of recyclable material regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
115	B_6_B_1_6_5	Evaluate the importance of the Economy, education & innovation regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
116	B_6_B_1_6_5_1	Evaluate the importance of the Attractive environment for the establishment of new businesses regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
117	B_6_B_1_6_5_2	Evaluate the importance of Collaborative formations regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
118	B_6_B_1_6_5_3	Evaluate the importance of Creating a new business incubator in relation to the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
119	B_6_B_1_6_5_4	Evaluate the importance of Collaboration with university research teams regarding projects that are under direct plan or are being carried out in your Municipality	Scale	Numeric	
120	B_6_B_1_6_5_5	Evaluate the importance of the Citizens' Education and Skills Development Programs regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
121	B_6_B_1_6_6	Evaluate the importance of Infrastructures regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
122	B_6_B_1_6_6_1	Evaluate the importance of Fibber Optic Networks in relation to projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
123	B_6_B_1_6_6_2	Evaluate the importance of the 4th or 5th generation Networks regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
124	B_6_B_1_6_6_3	Evaluate the importance of Infrastructure for wireless internet (Wi-Fi) regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
125	B_6_B_1_6_6_4	Evaluate the importance of the electronic signs regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
126	B_6_B_2_6_3	Evaluate the degree of implementation of the Energy and management of natural resources regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
127	B_6_B_2_6_3_1	Evaluate the degree of implementation of the Energy Consumption and Energy Saving Measurement Systems regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
128	B_6_B_2_6_3_2	Evaluate the degree of implementation of the Telemetry Systems for remote controls regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
129	B_6_B_2_6_3_3	Evaluate the degree of implementation of the Utilization of RES systems regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
130	B_6_B_2_6_3_4	Evaluate the degree of implementation of the Installation of Smart lighting management in public buildings and public spaces regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
131	B_6_B_2_6_4	Evaluate the degree of implementation of the Environment regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
132	B_6_B_2_6_4_1	Evaluate the degree of implementation of the infrastructures and installations of solid waste treatment units regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
133	B_6_B_2_6_4_2	Evaluate the degree of implementation of the Internet system for waste management with sensors that enables the Municipality to perceive the amount of waste per collection point regarding the projects that are in the immediate plan or are being carried o	Scale	Numeric	
134	B_6_B_2_6_4_3	Evaluate the degree of implementation of the Citizens/Citizens Awareness Programs in the sense of recycling regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
135	B_6_B_2_6_4_4	Evaluate the degree of implementation of the Recycling Plans and policies regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
136	B_6_B_2_6_4_5	Evaluate the degree of implementation of the Mechanisms for the collection and utilization of recyclable material regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
137	B_6_B_2_6_5	Evaluate the degree of implementation of the Economy, education & innovation regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
138	B_6_B_2_6_5_1	Evaluate the degree of implementation of the Attractive environment for the establishment of new businesses regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
139	B_6_B_2_6_5_2	Evaluate the degree of implementation of the Cooperative formations regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
140	B_6_B_2_6_5_3	Evaluate the degree of implementation of the Creation of the incubator of new businesses regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
141	B_6_B_2_6_5_4	Evaluate the degree of implementation of the Cooperation with research teams of universities regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
142	B_6_B_2_6_5_5	Evaluate the degree of implementation of the Citizens' Education and Skills Development Programs regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
143	B_6_B_2_6_6	Evaluate the degree of implementation of the infrastructures regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
144	B_6_B_2_6_6_1	Evaluate the degree of implementation of the Fiber Optic Network regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
145	B_6_B_2_6_6_2	Evaluate the degree of implementation of the 4th or 5th generation Network regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
146	B_6_B_2_6_6_3	Evaluate the degree of implementation of the infrastructures for wireless internet (Wi-Fi) regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	
147	B_6_B_2_6_6_4	Evaluate the degree of implementation of the electronic signs regarding the projects that are in the immediate plan or are being carried out in your Municipality	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
148	B_7_1	In the last three years, the Municipality has participated in research regarding the projects that are in the immediate planning or are carried out in your Municipality	Nominal	Numeric	1-Yes 2-No 3-No not know
149	B_7_2	If yes, how many of these are Smart Cities related projects?	Scale	Numeric	
150	B_8_1	In the last year, has your Municipality organized and/or participated in innovative events or actions as Co-/Organizer?	Nominal	Numeric	1-Yes 2-No
151	B_8_2	In the last year, has your Municipality organized and/or participated as its Representative in innovative events or actions as a guest speaker?	Nominal	Numeric	
152	B_8_3	In the last year, has your Municipality organized and/or participated in innovative events or actions as Simple Participation/Monitoring & information?	Nominal	Numeric	
153	B_8_4	In the last year, has your Municipality organized and/or participated in innovative events or actions as a Participation with a specific role?	Nominal	Numeric	
154	B_9_1	Regarding data collection and management policy, to what extent do you consider posting of digital data (e.g., data collection from sensor, digitalization of public documents) to play an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	1-Not at all 2-Low 3-Moderate 4-High 5-Maximum
155	B_9_2	Regarding data collection and management policy, to what extent do you consider access of the Municipality and the residents to digitally readable datasets of high value data (or datasets) (e.g., cooperation with local organizations for systematic collection and distribution of data) to play an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
156	B_9_3	Regarding data collection and management policy, to what extent do you consider provision of integrated services through the utilization of data (e.g., indexing, storage, search, and availability) to play an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
157	B_9_4	Regarding data collection and management policy, to what extent do you consider informing citizens and stakeholders about protection policy (e.g., seminars for young entrepreneurs in terms of managing their customer data) to play an important role in your Municipality in the direction of the "Smart City"?	Scale	Numeric	
158	C_1_1	To what extent does your Municipality cooperate with large companies (> 250 people) for investment projects related to "Smart Cities"?	Scale	Numeric	
159	C_1_2	To what extent does your Municipality cooperate with Small and Medium Enterprises (SMEs) (<249 people) for investment projects related to "Smart Cities"?	Scale	Numeric	
160	C_1_3	To what extent does your Municipality collaborate with academics and research bodies for investment projects related to "Smart Cities"?	Scale	Numeric	
161	C_1_4	To what extent does your Municipality cooperate with local teams (e.g., NGOs) for investment projects related to "Smart Cities"?	Scale	Numeric	
162	C_1_5	To what extent does your Municipality cooperate with other municipalities in Greece and/or abroad for investment projects related to "Smart Cities"?	Scale	Numeric	
163	C_1_6	To what extent does your Municipality cooperate with public bodies for investment projects related to "Smart Cities"?	Scale	Numeric	
164	C_2_1	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its associates: Available as a space for experimenting with prototypes and new technologies?	Scale	Numeric	

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Table 1 (continued)

Position	Variable	Label	Measurement Level	Type	Values
165	C.2.2	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its associates: Disposal of human resources?	Scale	Numeric	
166	C.2.3	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its associates: Provision of material resources?	Scale	Numeric	
167	C.2.4	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its partners: Strengthening and development innovative plans on old infrastructure?	Scale	Numeric	
168	C.2.5	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its associates: Possibility of Applying architectural design?	Scale	Numeric	
169	C.2.6	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its associates: Development of innovative applications?	Scale	Numeric	
170	C.2.7	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its associates: Connection with different bodies?	Scale	Numeric	
171	C.2.8	To what extent is your Municipality involved in your collaborations with the different bodies in the collaborative projects? Does the Municipality offer to its partners: Development of a competitive environment?	Scale	Numeric	
172	D.2	Level of Education	Ordinal	Numeric	1-Compulsory education 2-Secondary education 3-Technical education 4-University education 5-Postgraduate education 6-Doctoral degree
173	D.3	Specialization by education	Ordinal	Numeric	1- Informatics 2- Electrical Engineer - Computer Engineer 3- Other type of engineering degree 4- Physics/Mathematics/Chemistry 5- Economy/Administration 6- Political & Humanities 7- Environmental & Agricultural Sciences 8- Legal studies 9- Technical professions 10- Other
174	D.4	Current position in the Municipality	Ordinal	Numeric	1- Chief Elected Official 2- Head of Information and Communication Technologies Unit 3- Executive of the Information and Communication Technologies Unit 4- Chief Administrative Officer 5- Manager/executive of another unit
175	D.5	Years of work experience in the Municipality	Scale	Numeric	
176	D.5.1	Years with the specific responsibility	Scale	Numeric	
177	D.5.2	Years in this service	Scale	Numeric	

1.2. Respondents' characteristics

The analysis of the demographic characteristics of the executives begins with the presentation of (1) the level of education of the representative of the Municipality, (2) the representative's specialty field of training, (3) the position the representative holds and (4) the representative's years of work in the Municipality, both in the specific competence and in the respective service. More specifically, it seems that 80% of the executives have completed higher education (university education, postgraduate and doctoral studies) and 39.6% of them have obtained a postgraduate degree. In addition, 10.8% and 7.6% of executives are of technological and secondary education, respectively. Results on their expertise are also presented. In more detail, 46.2% of the respondents are related to technological fields (26.9% of the respondents have a degree in the field of ICT and 19.3% have an engineering background). Finally, the distribution of the executives who responded to the survey is constituted from 9.9% who are the competent elected, 26.2% are the Head of the ICT Unit, 13.1% are executives of the ICT Unit and 6.7% are summoned by the mayor to deal with ICT and relevant issues.

1.3. Distribution characteristics

A total of 252 out of a total of 325 Municipalities participated in the survey (Table 2). This represents a population coverage of 79% (8,524,731 in total 10,813,386) for Greece (based on the census data of 2011).

The smallest Municipalities (5,001 to 20,000 inhabitants) and the very small Municipalities (up to 5,000 inhabitants) are represented by 80% and 78%, respectively. The medium (20,001 to 60,000 inhabitants) and large municipalities (from 60,001 and more inhabitants) of the country are each represented by 76%. More specifically, the very small Municipalities correspond to 15% of the sample (15% in the total of the Greek Municipalities), the small Municipalities to 36% (35% in the total of the Greek Municipalities), the medium Municipalities to 33% (34% in the total of the Greek Municipalities) and the large Municipalities at 15% (16% in the total of the Greek Municipalities). Table 3 presents four categories of the Municipalities that were created based on the related research article [2]. Each category may have 2 or more population classes since there is significant variance in the population coverage. Some very small Municipalities could however be capitals while other island municipalities may have a larger size, and not be a capital in their area.

Table 2
The distribution of the municipalities across the 13 Greek regions.

Name of Region in Greece	Municipalities		Percentage
	Total	Participating	
Eastern Macedonia and Thrace	22	16	73%
Attica	66	50	76%
North Aegean	9	7	78%
Western Greece	19	14	74%
Western Macedonia	12	7	58%
Epirus	18	16	89%
Thessaly	25	21	84%
Ionian Islands	7	4	57%
Central Macedonia	38	25	66%
Crete	24	17	71%
South Aegean	34	29	85%
Peloponnese	26	23	88%
Central Greece	25	21	84%
Total average	325	250	77%

Table 3Presentation of the population order by category of Municipality ($N = 252$).

Category	Population Class	Distribution structure (Percentage)		Population	
		Category (Total)	Population Class (Distribution)	Minimum	Maximum
Municipalities of metropolitan centres (Athens & Thessaloniki)	Large Municipalities (>60,001)	41	23 (56.1%)	25.389	664.046
	Medium to large Municipalities (25,001 - 60,000)	(16%)	18 (43.9%)		
Municipalities - Capitals of former prefectures	Large Municipalities (> 60,001)	34	15 (44.1%)	13.105	213.984
	Medium to large Municipalities (20,001 - 60,000)	(14%)	18 (52.9%)		
	Small to Medium Municipalities (5,001-20,000)		1 (3.0%)		
Regional Continental & Island Municipalities	Large Municipalities (> 60,001)	113	1 (0.7%)	10.063	94.181
	Medium Municipalities (20,001 - 60,000)	(45%)	81 (55.5%)		
	Small Municipalities (5,001 - 20,000)		64 (43.8%)		
Small Municipalities (mainland & island)	Very small Municipalities (<= 5,000)	64	38 (59.4%)	185	9.693
	Small Municipalities (5,001 - 20,000)	(25%)	26 (40.6%)		

2. Experimental Design, Materials and Methods

- The structure of the questionnaire:
 - Combination and exploitation of various theoretical approaches and different econometrical tools.
 - The questionnaire was developed based on three main concepts: (Topic 1) the level of integration and use of digital technologies by the municipality and the local stakeholders in a city, (Topic 2) the difficulties and the challenges municipality authorities face when trying to implement a strategy and (Topic 3) the level of diverse collaborations and partnerships which are necessary to develop a strategy.
 - Topic 1: The section records the specific characteristics of the electronic and digital actions of each municipality regarding projects and activities related to ICT. Through this unit, the level of use of ICT by the employees and the residents of the Municipality at various stages of their daily operation is evaluated. Regarding the technical characteristics of this section, it consists of a set of nine (9) central questions, accompanied by their sub-questions, and they are 5-point Likert scale, rating scale or closed type questions “Yes/no”.
 - Topic 2: This sector aims to understand the existence of a comprehensive digital strategy for “Smart Cities”. The strategy is studied at two stages: (1) the level of importance during the planning phase and (2) the degree of implementation of the corresponding project. The section consists of eight (8) questions accompanied by corresponding sub-questions in 5-point Likert scale, closed type questions “Yes/no” and open-ended questions.
 - Topic 3: The third section refers to the types and characteristics of collaborations that the Municipality is involved for the implementation of projects related to its urban development. This section consists of two (2) questions separated by sub-questions of the Likert scale format.
 - Based on the structure of the questionnaire, one additional section was included. At the end, a set of 7 screening questions were applied to filter and verify the respondents’ rate.
- Data collection:
 - A structured questionnaire was sent to all Municipalities (N = 325) across all regions of Greece.
 - The survey lasted from November 2018 to April 2019.
 - The data were acquired using an online questionnaire based on the Google platform.
 - 252 municipalities answered the questionnaire successfully (77% of the total targeted population).
- Data method:
 - The data were collected using online questionnaire available in Greek via the Google platform. For cross-validation, the respondents were contacted, also, through e-mail, telephone, or face-to-face meetings.
 - The contact person was either the Mayor or Deputy Mayor, the Smart City Strategy Responsible, the Digital Strategy or Technology Affairs Officers or the Head of the ICT or Digital Department.
 - The survey was conducted by the Laboratory of Industrial and Energy Economics at the National Technical University of Athens, Greece (NTUA).

Ethics Statement

We agree upon standards of expected ethical behaviour for all parties involved in the act of publishing. Our paper presents an accurate account of the work performed and an objective discussion of its significance. Thus, the degree of suitability or adequacy of each respondent-executive for the representative’s participation in the research and the degree of reliability of

the collected data is ensured. The underlying data is represented accurately in the article. Each respondent was informed via email that his/her answers would be used as a part of a Ph.D. research and agreed to that by filling in the questionnaire. All the participants could answer the questionnaire anonymously. No personal data or any other type of information that links the answers to a specific participant were provided for publication.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT Author Statement

Georgios Siokas: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Visualization, Project administration; **Aggelos Tsakanikas:** Resources, Supervision, Writing – review & editing.

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Supplementary Materials

Supplementary material associated with this article can be found in the online version at doi:[10.1016/j.dib.2021.107716](https://doi.org/10.1016/j.dib.2021.107716).

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