OpenDCO: Open Data City Officer

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Project Stakeholder Database

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1. Document Metadata

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Abstract:

The Open Data City Officer (OpenDCO) project emphasizes the integration of open data in urban governance, fostering transparency, accountability, and participatory decision-making. Success hinges on diverse stakeholders who contribute varied expertise and resources. Key stakeholders include government entities, municipal bodies, private sector companies, academic institutions, community groups, and citizens. OpenDCO stakeholders fall into categories such as Government and Municipal Authorities, Private Sector Companies, Community Organizations, and Citizens. These stakeholders play essential roles in setting policies, delivering services, and utilizing open data to improve urban life. Stakeholder identification followed a mixed research methodology, incorporating a systematic literature review and data collected through engagement activities such as workshops and surveys. This database documents the diversity of stakeholders and highlights strategies for maximizing their involvement in the OpenDCO project.

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2. Introduction

The Open Data City Officer (OpenDCO) project is a forward-thinking initiative designed to promote transparency, civic engagement, and innovation within urban environments by utilizing open data. In an era where cities are becoming increasingly complex, the need for effective data governance is paramount. OpenDCO addresses this challenge by making urban data publicly available, enabling various stakeholders to collaborate and develop data-driven solutions that improve city life.

Open data, in this context, refers to freely accessible information provided by government and municipal bodies, covering areas such as public services, transportation, infrastructure, and environmental monitoring. The availability of this data is crucial for fostering transparency, accountability, and collaboration among key stakeholders, including government entities, private sector companies, academic institutions, community organizations, and citizens. By leveraging open data, these groups can collectively contribute to the development of smarter, more efficient, and more resilient cities.

The stakeholders involved in OpenDCO play diverse but complementary roles. Government and municipal authorities are responsible for managing and releasing the data, ensuring it is secure, reliable, and accessible. The private sector brings innovation by creating applications and services that utilize this data to address urban challenges, from optimizing transportation systems to improving waste management. Academic institutions contribute through research and analysis, helping to unlock the full potential of open data. Meanwhile, community organizations and citizens are essential participants, using the data to advocate for greater transparency, improve local decision-making, and ensure that public services align with the needs of the community.

At its core, the OpenDCO project seeks to empower stakeholders by giving them the tools to make informed decisions. By enabling citizens to access and utilize data, the project fosters greater civic participation and encourages collaboration between the public and private sectors. This participatory approach not only improves urban governance but also ensures that the benefits of open data are distributed equitably across society.

In conclusion, the OpenDCO project represents a shift towards data-driven urban governance. By engaging a broad range of stakeholders, the project aims to create more inclusive, transparent, and efficient cities that can better meet the needs of their residents. Through open data, cities can unlock new opportunities for innovation and sustainability, paving the way for a smarter, more connected urban future.

3. Stakeholders' Categories

The OpenDCO project is built upon the collaboration of diverse stakeholder groups that are integral to the success of open data initiatives. By fostering transparency and ensuring that open data is accessible to all, OpenDCO encourages a collaborative approach to urban development. Below are the key stakeholder categories in the OpenDCO project.

3.1 Government Agencies and Municipal Authorities

Government agencies and municipal authorities are central to the OpenDCO project. These entities are responsible for releasing and managing open data that informs decisions on public services, urban planning, and infrastructure. Their role is essential for ensuring that open data is both secure and accessible, allowing it to be used effectively to improve governance and public services. The European Data Portal highlights how municipal authorities across Europe have been using open data to improve transparency and public service delivery, such as through transportation and energy management systems (European Data Portal, 2020).

3.2 Private Sector

The private sector plays a crucial role in leveraging open data to create innovative products and services that address urban challenges. Companies in the technology, infrastructure, and data analytics sectors use open data to develop solutions such as smart city applications, transportation optimization tools, and data-driven urban management platforms. According to a report by the McKinsey Global Institute, open data can unlock $3 trillion in economic value globally, particularly through private-sector innovation (Manyika et al., 2013). By working with municipal authorities, private firms are able to drive technological advancements and improve the quality of life in cities.

3.3 Community Organizations and Citizens

Community organizations and citizens are vital to the OpenDCO project because they represent the end-users of open data and the beneficiaries of more transparent and efficient urban governance. Engaging citizens in open data initiatives empowers them to contribute to urban development, monitor government actions, and advocate for their communities. Research from the GovLab, based at New York University, shows that open data initiatives that engage citizens help build trust and accountability between governments and the public (Noveck & Glover, 2015). When citizens and community

organizations have access to open data, they are better able to participate in decision-making and contribute to shaping public policies that reflect their needs.

In conclusion, The OpenDCO project thrives on collaboration between government agencies, the private sector, and civil society. By ensuring the accessibility and utility of open data, OpenDCO helps foster a transparent, participatory, and innovative urban environment. Through the combined efforts of these stakeholders, cities can improve governance, promote accountability, and drive technological and social innovation.

4. Stakeholders Management: An Overview

Stakeholder management in open data initiatives like OpenDCO is fundamental to achieving sustainable, transparent, and innovative urban environments. In projects such as OpenDCO, where data is made freely available to the public, effective stakeholder management ensures that the diverse interests, expertise, and needs of different stakeholders are integrated into the planning, implementation, and evaluation of urban services. Below is an overview of the key components of stakeholder management, supported by real references relevant to open data and smart city projects.

4.1. Identification of Stakeholders

The first step in stakeholder management is identifying the various stakeholder groups involved in the project. In open data initiatives, stakeholders may include government agencies, municipal authorities, private sector companies, academic institutions, community organizations, and citizens. Each group brings unique resources, expertise, and perspectives that influence the design and implementation of the project. According to a report by the European Data Portal (2021), identifying relevant stakeholders early in the process is essential to ensure that open data meets the needs of both public and private entities, as well as individual citizens.

4.2. Engagement and Collaboration

Engaging stakeholders through open communication channels, workshops, and consultations is key to fostering collaboration and ensuring the success of open data projects. Collaboration between stakeholders leads to shared decision-making, co-creation of solutions, and the development of innovative approaches to urban challenges. A report from the Open Knowledge Foundation (2020) highlights the importance of collaboration between government entities, businesses, and citizens in unlocking the value of open data for smart city development. Collaborative platforms, public consultations, and hackathons have proven to be effective in engaging diverse groups in data-driven innovation.

4.3. Addressing Stakeholder Needs and Concerns

One of the most critical aspects of stakeholder management is addressing the needs and concerns of various groups involved in the project. This involves listening to feedback and incorporating it into the planning and implementation phases. OpenDCO emphasizes transparency, ensuring that stakeholders feel heard and that their input shapes project outcomes. A study conducted by the World Bank (2021) shows that open data initiatives that actively respond to stakeholder feedback build trust and enhance public participation, making urban governance more inclusive and accountable.

4.4. Governance and Leadership

Strong governance and leadership are vital for managing stakeholders effectively in open data projects. Municipal authorities and government agencies often lead the efforts to implement open data initiatives, ensuring that data governance is transparent, equitable, and secure. They play a central role in setting clear objectives, establishing data standards, and providing accountability throughout the project lifecycle. According to a case study from the Open Data Institute (2020), successful governance of open data projects relies

on strong leadership from both public authorities and private sector partners, who collaborate to align objectives and drive innovation.

4.5. Continuous Evaluation and Improvement

Stakeholder management is not a one-time process but an ongoing effort that requires continuous evaluation. Regular assessment of stakeholder engagement strategies and feedback mechanisms allows the project to adapt to evolving needs and changing dynamics. The European Commission (2020) emphasizes that smart city projects should adopt flexible and iterative stakeholder management approaches, gathering feedback continuously and adjusting strategies to improve project outcomes and foster long-term partnerships.

5. OpenDCO Stakeholders: Qualitative Analysis

The qualitative analysis in the OpenDCO project is performed using a Systematic Literature Review (SLR) methodology. This approach allows for a comprehensive, structured synthesis of existing research, making it ideal for reviewing stakeholder involvement in open data and smart city initiatives. A systematic literature review provides a transparent and replicable process for identifying, evaluating, and analyzing studies that are relevant to a particular research question.

SLR is designed to reduce bias by following predefined criteria for study selection, data extraction, and synthesis. This approach ensures that the review is not only comprehensive but also reliable, which is essential when investigating complex phenomena like stakeholder engagement in open data projects (Denyer, Tranfield & van Aken, 2008).

5.1. Key Steps in Systematic Literature Review

Systematic literature reviews follow several key steps to ensure that the analysis is methodical and exhaustive:

Formulating Research Questions:

The first step is to clearly define the research question. For OpenDCO, the primary research question is: "How do different stakeholders contribute to the success of open data-driven smart city initiatives, and what roles do they play?" This focused question ensures that the review process aligns with the project's objectives.

Developing Search Strategies:

A robust search strategy is essential for identifying relevant studies across multiple electronic databases, such as Google Scholar, and ScienceDirect. Search terms like "open data AND stakeholder engagement" or "smart cities AND open data governance" were employed. These databases offer extensive research on the integration of open data into public governance and urban management (Mulrow, 1994).

Screening and Selection:

The screening process involves filtering studies based on predefined inclusion and exclusion criteria. Studies were included if they were peer-reviewed, published between 2015 and 2023, and related to smart city or open data initiatives. Studies focusing on regions outside Europe were excluded unless they offered significant insights that could be applied globally. This process helps ensure that only relevant and high-quality studies are included (Petticrew & Roberts, 2006).

Data Extraction:

Once the relevant studies were identified, data were extracted systematically using standardized extraction forms. Key details such as study methods, results, and conclusions were recorded, ensuring that the synthesis process remained consistent and comprehensive.

Quality Assessment:

The quality of each selected study was assessed using the Cochrane Risk of Bias Tool. This step ensures that the conclusions drawn from the systematic review are based on high-quality evidence. Quality assessment tools like these are essential for minimizing bias and validating the findings of the review (Higgins et al., 2011).

Synthesis and Analysis:

The data from the selected studies were synthesized using both narrative synthesis and, where applicable, meta-analysis. Thematic analysis was conducted to identify patterns in how stakeholders engage with open data and contribute to smart city projects. Quantitative data from various studies were combined to provide a more robust understanding of stakeholder engagement (Borenstein et al., 2009).

Interpretation and Reporting:

The final step in the SLR process involves interpreting the synthesized data. The review

findings were reported transparently, offering a clear narrative of how stakeholder engagement impacts the success of open data-driven smart city initiatives. This section also identified gaps in the existing research and provided recommendations for future research directions.

5.2. Benefits of Systematic Literature Review for OpenDCO

Choosing an SLR methodology offers several advantages for the OpenDCO project:

- **Comprehensive Overview**:
  An SLR provides a comprehensive synthesis of the existing research on a given topic, ensuring that no significant studies are overlooked. This is critical when exploring stakeholder engagement in complex projects like OpenDCO (Denyer, Tranfield & van Aken, 2008).
- **Minimization of Bias**:
  By following strict inclusion criteria and systematically selecting studies, the SLR minimizes the risk of bias. This transparent methodology allows for an objective synthesis of evidence, which is crucial for open data governance projects (Mulrow, 1994).
- **Rigorous and Transparent Process**:
  The systematic nature of SLR ensures that the review process is rigorous and transparent. This method is widely regarded as one of the most robust approaches to literature synthesis, particularly in fields such as public policy and urban governance (Petticrew & Roberts, 2006).

5.3. Search Strategy and Inclusion Criteria

For the **OpenDCO project**, the search strategy involved searching electronic databases such as **PubMed**, **ScienceDirect**, and **Google Scholar**. The following criteria were used:

- **Inclusion Criteria**:
  - Peer-reviewed articles, books, and high-quality reports published between 2015 and 2023.
  - Studies related to stakeholder engagement in smart cities and open data governance.
  - Studies conducted in English, focusing on European or globally applicable contexts.
- **Exclusion Criteria**:
  - Non-peer-reviewed studies and opinion articles.

- Studies focused on non-European contexts without global applicability.
- Papers not available in full text.

After screening and applying the selection criteria, 200 articles were identified, which were further narrowed down to 75 for full review and synthesis.

5.4. Conclusion

The **Systematic Literature Review** offers a robust method for synthesizing the current state of research on stakeholder involvement in smart city and open data projects. This methodology ensures that the OpenDCO project benefits from the most relevant, high-quality research available, providing a solid foundation for decision-making and future research directions.

6. OpenDCO Stakeholders: Quantitative Analysis

An important source of profile data regarding the stakeholders of this project lies within the data obtained through the registration process for those registered to attend the MOOC. The following dimensions of profiling analysis have been prioritized and implemented as explained in the sequel.

Upon refining the registration list to eliminate duplicate entries and registrations that failed to satisfy the eligibility criteria defined by the partners before the initiation of the MOOC, we ascertained a total of 693 valid registrations of stakeholders. Descriptive analytics revealed that 37.57% (n=260) of the stakeholders opted for the German version of the MOOC, closely followed by the Greek version at 35.26% (n=244). About 15.90% (n=110) chose the MOOC in Portuguese, and 11.27% (n=78) selected the English version. Admittedly, this analysis is influenced by the presence and impact of each partner in the relevant EU member state.

This analysis aims to enhance our understanding of stakeholders enrolled in the MOOC OpenDCO course, with the goal of improving their experience and identifying involved stakeholders. To this respect, this Stakeholder Analysis Report, presents insights on various demographics, including age, gender, preferred language, employment status, type of organization, job occupation, educational background, nationality, and country of residence. These insights are categorized as demographic, professional, and geographic. In the overall analysis section, you'll find the highest and lowest percentages of the top three stakeholders taking the course, along with the types of organizations absent from participation.

Please note that all tables used for this analysis are located in the appendix which you can access at the end of this deliverable.

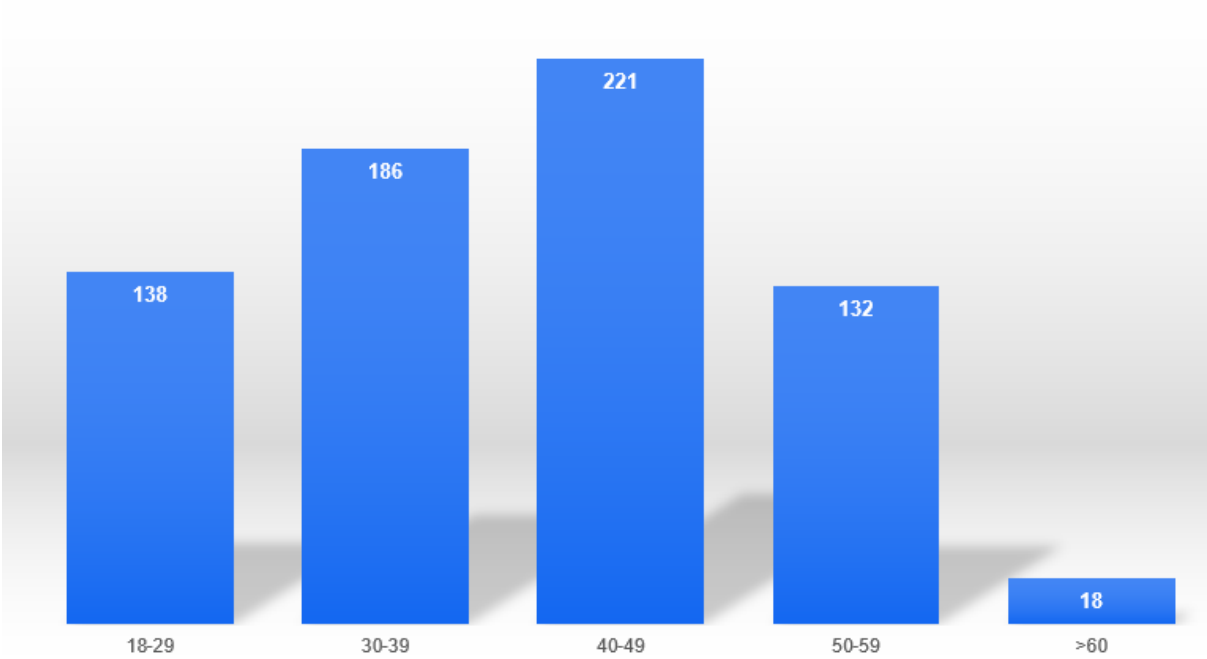

Figure 1: Demographic Insights - Categorization by Age

The age distribution of stakeholders enrolled in the MOOC OpenDCO course reveals a broad range of participants. The largest proportion of participants falls within the **40-49 age group, comprising 31.80% of the total.** This is followed by the 30-39 age group, which represents 26.76%, and the 18-29 age group, contributing 19.86%. Participants aged 50-59 account for 18.99%, while those over 60 constitute the smallest proportion at 2.59%. This distribution highlights a strong presence of mid-career professionals, alongside notable engagement from younger and older participants.

More detailed information can be found in the table in the appendix: *Error! Reference source not found.*

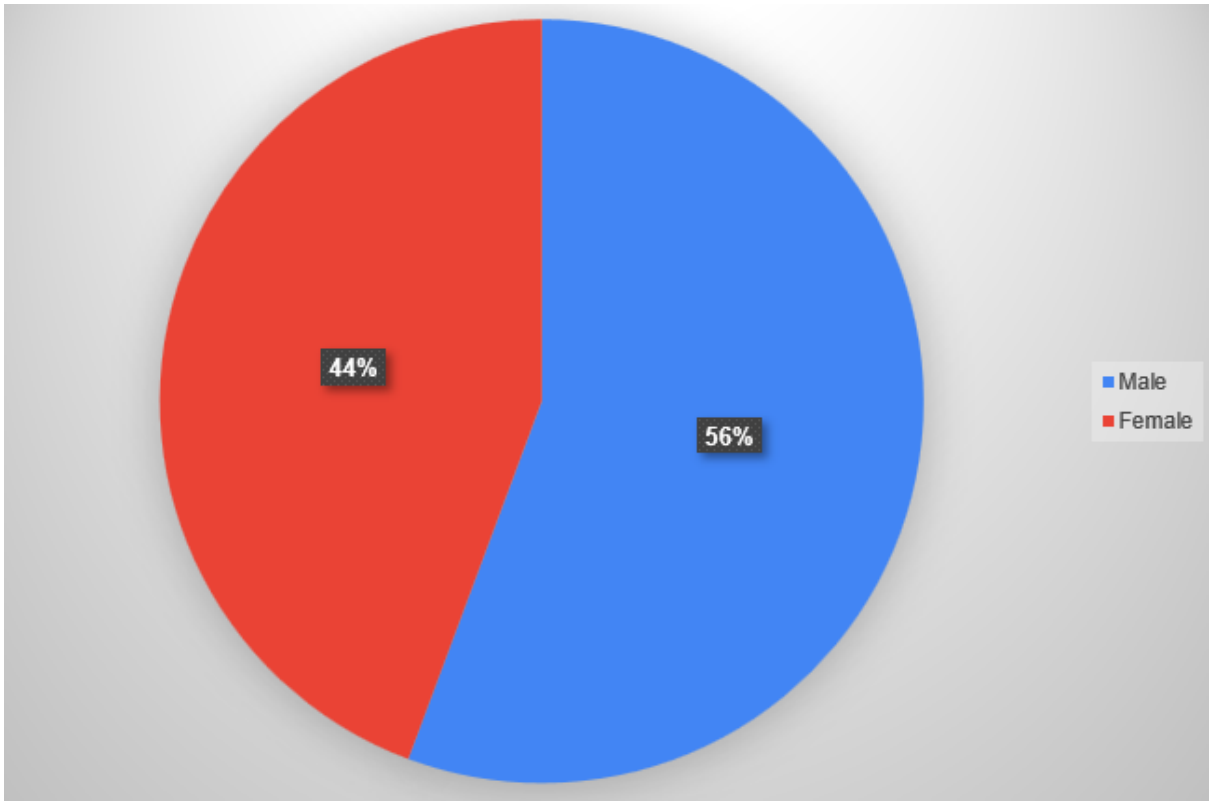

Figure 2: Demographic Insights - Categorization by Gender

The insights on gender distribution among stakeholders enrolled in the MOOC OpenDCO course indicate a predominantly male representation. Males account for 56% of the total participants, while females represent 44%. This slight majority suggests a gender balance within the course, contributing to a diverse learning environment. Detailed statistics can be found in **Table 2: Gender Distribution of Stakeholders** in the appendix.

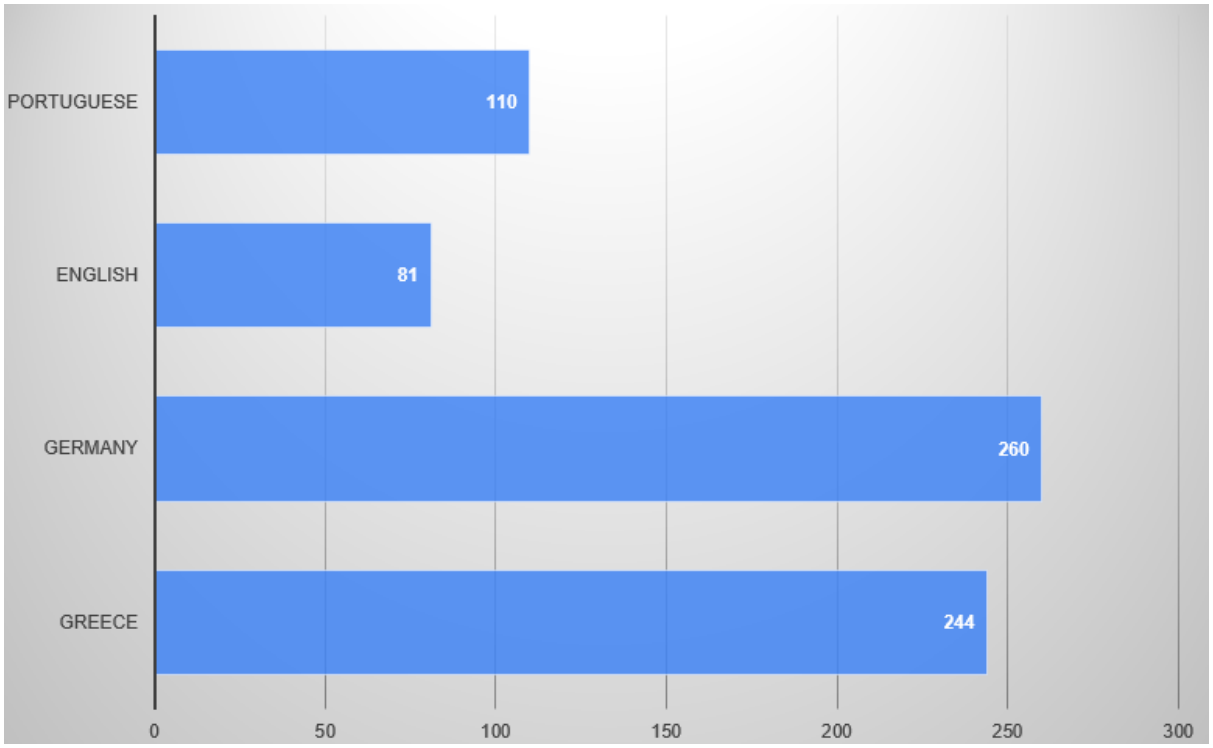

Figure 3: Demographic Insights - Categorization by Preferred Language

The distribution of preferred languages among stakeholders enrolled in the MOOC OpenDCO course reveals a diverse linguistic landscape. The majority of participants prefer German (37.41%) or Greek (35.11%) as their language of instruction, indicating significant representation from both German and Greek-speaking regions. Portuguese-speaking individuals also constitute a notable portion, representing 15.83% of the total. English, while widely spoken, accounts for a smaller percentage of participants at 11.65%. Detailed information is available in **Table 3: Preferred Language Distributio**n of Stakeholders in the appendix.

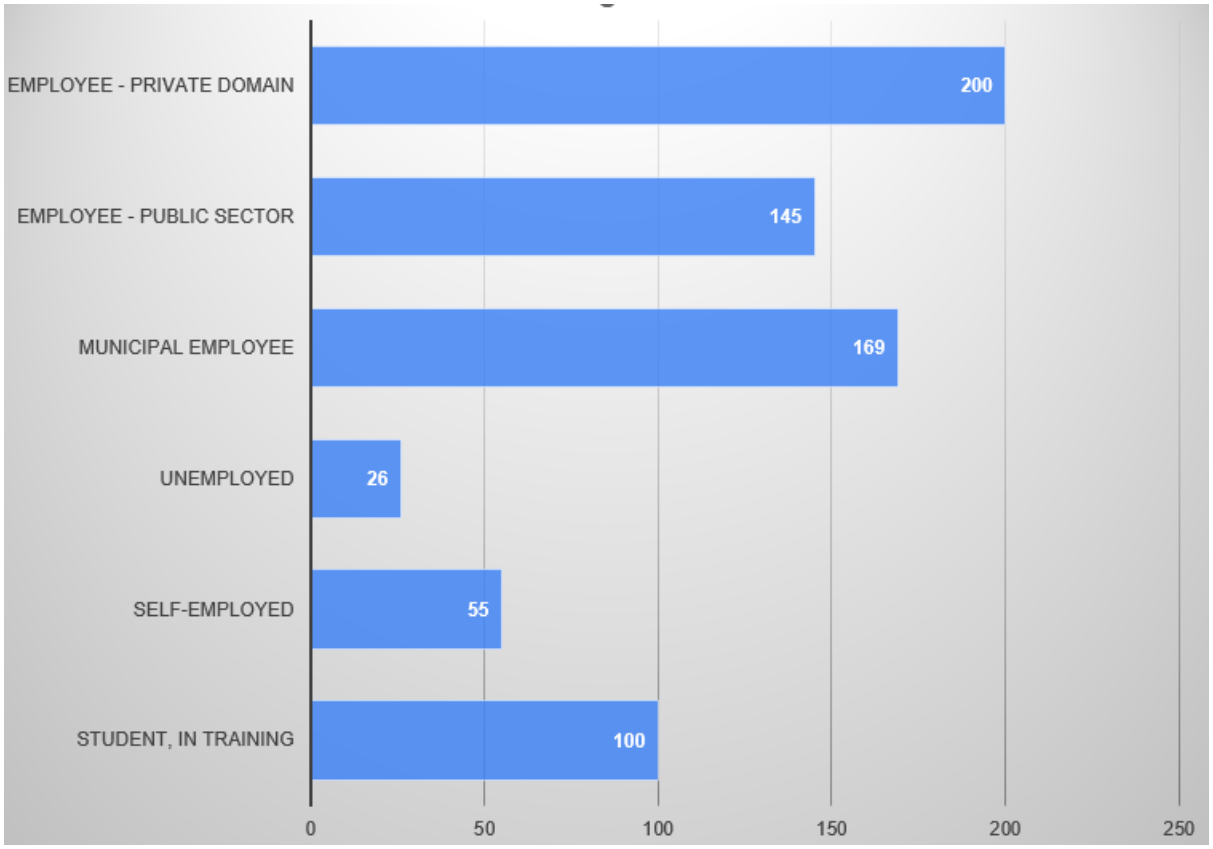

Figure 4: Demographic Insights - Categorization by Employment Status

The distribution of employment status among stakeholders enrolled in the MOOC OpenDCO course reflects a diverse professional landscape. The majority of participants are employed, with 83.42% falling under this category. Within this group, the most prevalent employment status is as employees in the private sector (28.78%), followed closely by municipal employees (24.32%) and public sector employees (20.86%). There is also notable diversity among participants, with some being self-employed or engaged in other roles.

On the other hand, 16.58% of participants identify as unemployed or in training. This includes individuals pursuing further education, such as students and those in training programs. This distribution highlights a broad engagement across various employment sectors while showcasing the presence of individuals seeking to enhance their skills and qualifications. Detailed statistics can be found in **Table 4: Employment Status** Distribution of Stakeholders in the appendix.

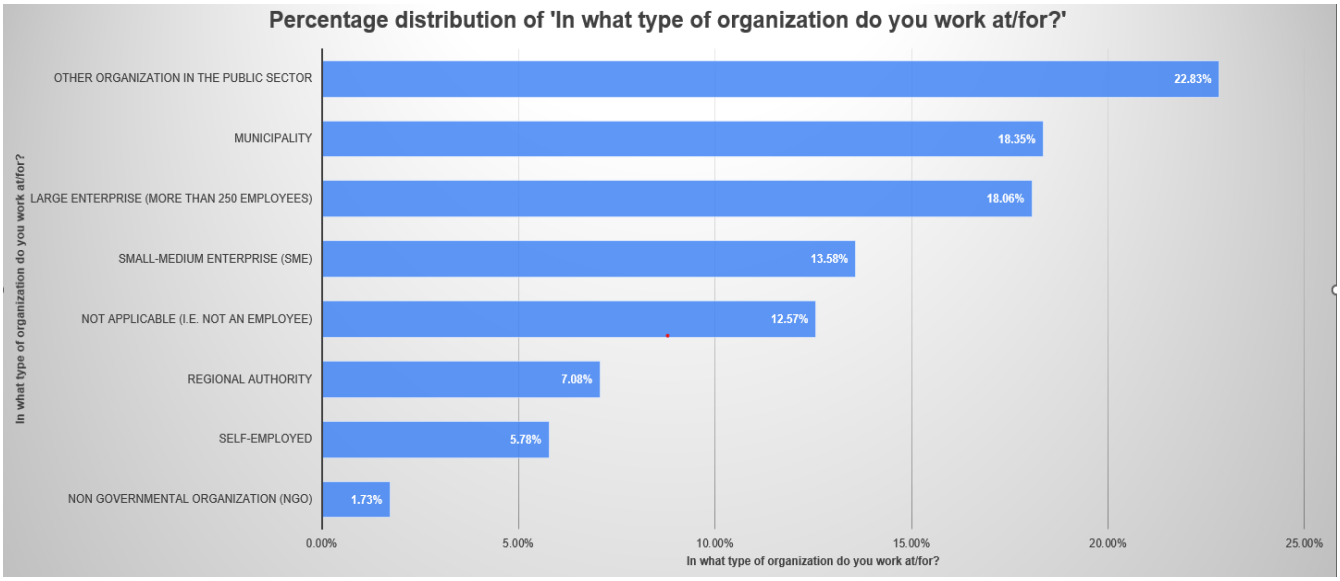

Figure 5: Professional Insights - Type of Organization

The distribution of organizational types among stakeholders enrolled in the MOOC OpenDCO course illustrates a varied professional background. **The majority of participants work in other organizations within the public sector, comprising 22.83% of the total.** Municipalities follow closely behind, representing 18.35%, while large enterprises (those with more than 250 employees) account for 18.06%. Small to medium-sized enterprises (SMEs) contribute 13.58% of the participants, indicating a healthy mix of organizational types.

Additionally, 12.57% of respondents indicated that the organization type is not applicable, suggesting they may be self-employed or not currently affiliated with any organization. Regional authorities make up 7.08% of participants, while self-employed individuals represent 5.78%. Non-Governmental Organizations (NGOs) constitute a smaller portion of the participant pool at 1.73%. This diversity in organizational representation reflects a broad engagement across various sectors and roles. Detailed statistics can be found in **Table 5: Type of Organization Distribution** of Stakeholders in the appendix.

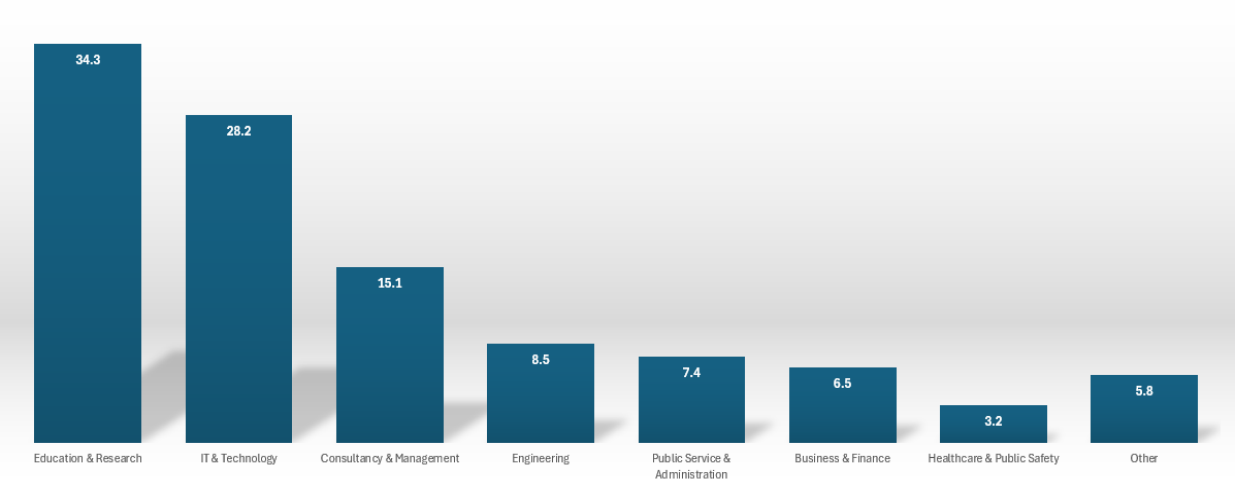

Figure 6: Professional Insights - Job Occupation

The categorization of different job titles into sectors was based on the primary nature of the roles and their respective industries. Job titles were grouped into the following sectors: Education and Research, IT and Technology, Consultancy and Management, Engineering, Public Service and Administration, Business and Finance, Healthcare and Public Safety, and Other. Each sector captures specific fields, for example, Education and Research includes roles such as student, professor, and researcher, while IT and Technology includes software engineers, IT consultants, and data scientists.

Education and Research emerges as the most prominent category, with 34.3% of participants indicating roles in academic and research fields. IT and Technology follows closely with 28.2%, reflecting a strong presence of participants from the technical and digital sectors. Consultancy and Management, which includes roles like project managers and business consultants, represents 15.1%, indicating a significant portion involved in strategic and advisory roles.

Engineering accounts for 8.5%, showcasing technical expertise in fields like civil, mechanical, and environmental engineering. Public Service and Administration make up 7.4%, including civil servants and public officers. Business and Finance, representing roles like accountants and finance controllers, comprise 6.5% of the total.

Healthcare and Public Safety represents 3.2%, while other niche roles, including freelancing and entrepreneurship, collectively account for 5.8%. This comprehensive breakdown highlights a diverse, multidisciplinary audience with professionals from a wide array of sectors. **Table 6: Job Occupation Distribution**

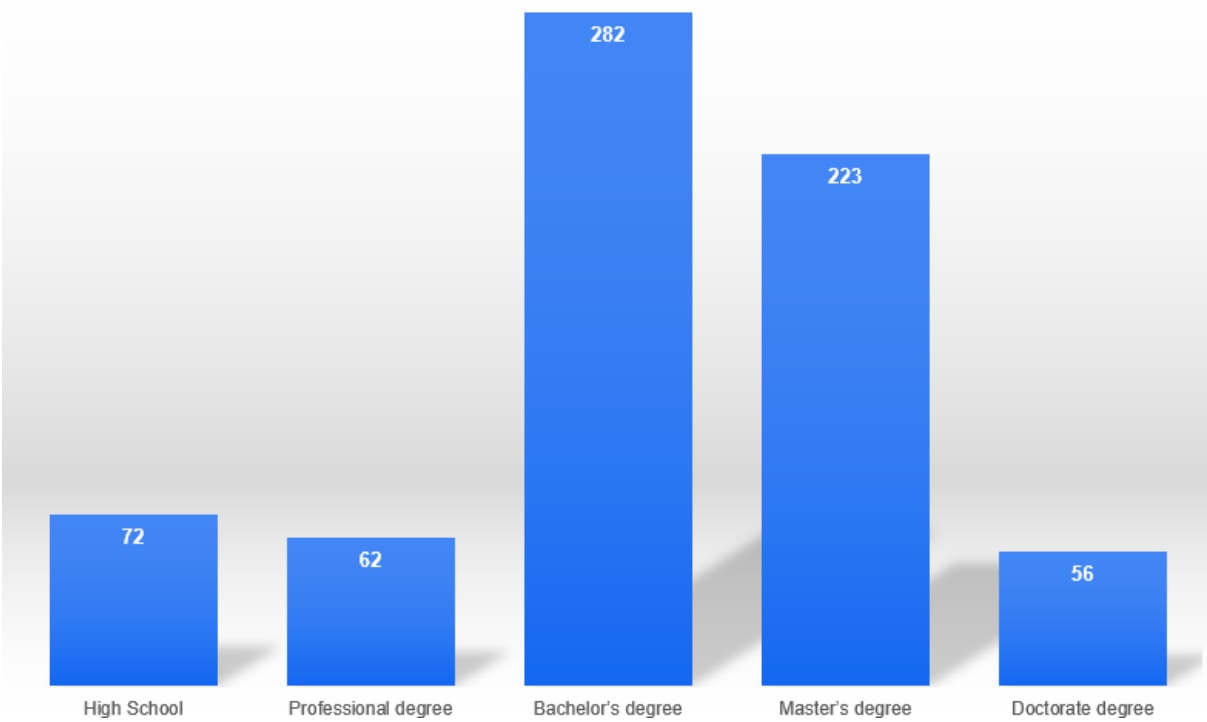

Figure 7: Professional Insights - Education Background

The distribution of educational levels among participants provides valuable insights into their academic backgrounds and qualifications. The majority of participants hold a **bachelor's degree**, representing **40.58%** of the total, indicating that undergraduate-level education is the most common among them. A significant portion has attained postgraduate qualifications, with **28.05%** holding a **master's degree**, reflecting a well-educated cohort.

High school graduates make up **10.36%** of participants, showing a presence of individuals with secondary education backgrounds. Those holding **professional degrees** account for **8.92%**, adding further diversity to the educational profiles. A smaller but notable portion has achieved advanced academic qualifications, with **6.59%** of participants holding a **doctorate degree**. This diverse distribution highlights a broad range of educational backgrounds, with a strong concentration at the undergraduate and postgraduate levels.

Table 7: Education Background Distribution

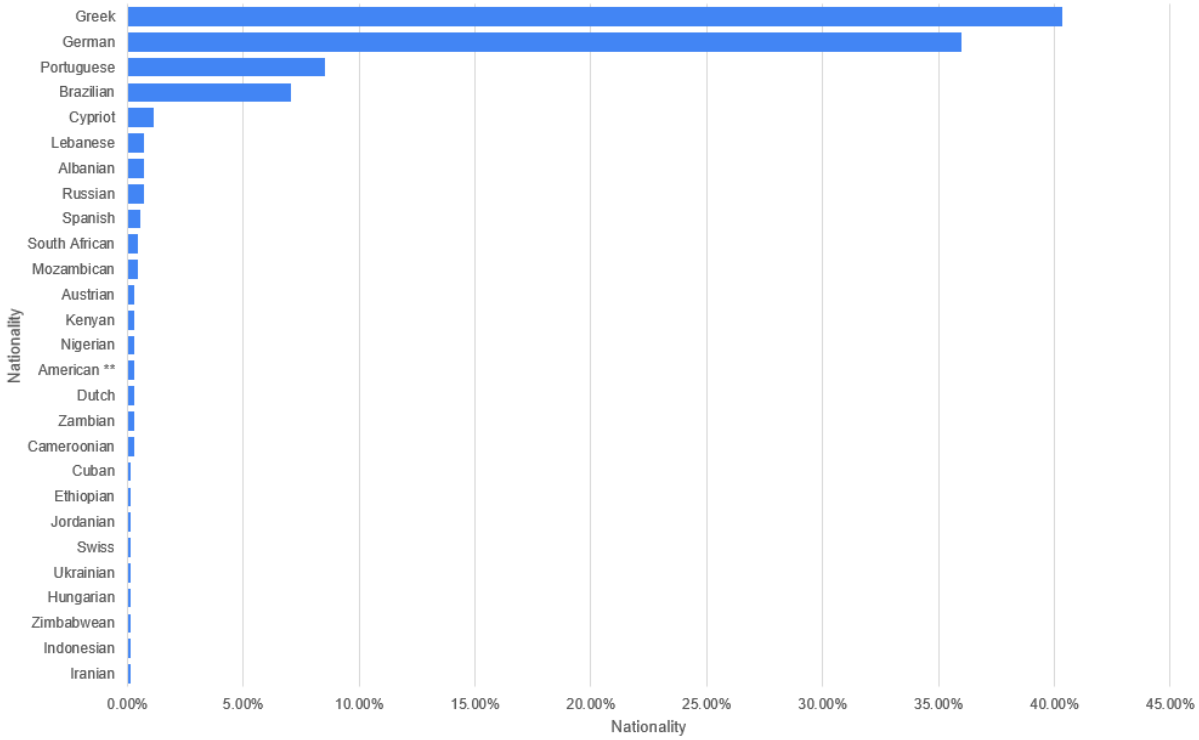

Figure 8: Geographical Insights – Nationality of Participant

Greek nationals constitute the largest proportion, accounting for **40.32%** of the total participants (Table 8 Nationality Distribution of Stakeholders). German nationals follow closely behind, representing **35.98%**, showcasing a strong presence from German-speaking regions. Additionally, Portuguese nationals make up **8.53%**, reflecting a notable representation from Portuguese-speaking countries. Brazilian nationals account for **7.08%**, adding to the diversity of nationalities, while smaller percentages are attributed to nationalities such as Cypriot (**1.16%**), Lebanese, Albanian, Russian (**0.72%** each), and other countries like Spanish and South African, each making up less than **1%** of participants.

Further diversity is seen with participants from countries such as Austrian, Nigerian, Kenyan, Dutch, Zambian, and Cameroonian, each constituting **0.29%** of the total, while Cuban, Ethiopian, Jordanian, Swiss, Ukrainian, Hungarian, Zimbabwean, Indonesian, and Iranian nationals contribute **0.14%** each (Table 1: Nationality Distribution), showcasing the global reach of the group.

When it comes to **country of residence**, the majority of participants reside in **Greece**, constituting **39.88%** of the total (Table 9 Country of Residence Distribution of Stakeholders). **Germany** follows closely, with **36.41%** of participants indicating residency in Germany, reflecting a significant presence from central Europe. **Portugal** represents

9.25% of participants, emphasizing the influence of Portuguese-speaking regions. **Brazil** accounts for **6.36%**, while **Cyprus** has a smaller representation at **2.02%**.

A wide range of other countries contribute smaller percentages, such as **Lebanon, Albania, Austria, France, and Switzerland**, each contributing less than **1%**. Furthermore, there are participants from various other countries, including the **United States, Netherlands, South Africa, Kenya, Belgium, Chile, Cuba, Nigeria, New Zealand**, and others, each representing small percentages of the total (Table 9 Country of Residence Distribution of Stakeholders), adding to the diverse geographic spread of participants.

Overall Analysis

Highest Percentage Stakeholder Profile: The most prevalent stakeholders are Greek nationals residing in Greece, accounting for the largest proportion of participants. These individuals are predominantly males (54.53%), and the preferred language for the course is German (34.99%), with Greek and English also being popular options. The stakeholders hold bachelor's or master's degrees and are mostly employed in IT, public administration, or educational sectors. This reflects a key audience of middle-aged males with a strong educational background, predominantly from Greece, actively engaged in smart city projects and governmental roles.

Lowest Percentage Stakeholder Profile: Conversely, the least represented stakeholders are from Ethiopia and Zambia, making up less than 0.2% of participants. These stakeholders are more likely to hold high school diplomas or professional degrees and could be unemployed or self-employed. The lowest percentage of participants also prefer languages other than German or English, indicating limited engagement from these regions. The female demographic is notably underrepresented compared to males, suggesting an opportunity to increase gender diversity.

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Highest Percentage Groups:

- **Demographic:**
  - Nationality: Greek (40.32%)
  - Age: Likely middle-aged (Based on employment in key sectors)
  - Gender: Male (54.53%)
- **Professional:**
  - Preferred Language: German (37.41%)
  - Education: Predominantly bachelor's and master's degrees
  - Employment Status: Employed, often in IT or public administration
- **Geographic:**
  - Nationality: Greek (40.32%)
  - Country of Residence: Greece (39.88%)

Lowest Percentage Groups:

- **Demographic:**
  - Gender: Female (44%)
  - Age: > 60 (2.59%)

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    - Nationality: Ethiopian (0.14%)
- **Professional:**
    - Education: High school or professional degrees
    - Employment Status: Unemployed or self-employed
    - Preferred Language: English
- **Geographic:**
    - Country of Residence: Zambia (0.13%)

Key Insights:

- **Language Representation:** A substantial portion of the respondents provided responses in German, indicating a strong presence of German-speaking stakeholders.
- **Engagement Levels:** The majority of participants show high enthusiasm for accessing educational resources, with many rating their personal and professional goals as "extremely significant."
- **Consent for Data Usage:** All respondents provided consent for data usage under GDPR, demonstrating trust in the platform's data management policies.
- **Geographical Spread:** The dataset includes a variety of email domains, hinting at international participation, though specific demographic and location-based insights would require deeper analysis.
- **Professional Goals:** The primary motivation for most participants is accessing educational resources, reflecting a drive for professional development through the OpenDCO MOOC.
- **Concerns:** A significant number of participants have no concerns or reservations about participating in the OpenDCO MOOC, suggesting high confidence in the program.
- **Professional Background**: The majority of respondents are employed, including public servants and university employees. Some participants also identify as self-employed, suggesting a diverse range of professional statuses.
- **Educational Levels**: Many participants hold advanced degrees, such as Master's degrees or professional qualifications, emphasizing the MOOC's appeal to highly educated professionals.

Notable Trends and Patterns:

- **Geographical Distribution:**
  - Greece and Germany dominate the nationality and country of residence lists, reflecting strong participation from these regions.
  - Portuguese and Brazilian participants also make up a significant portion of the data, indicating interest from Lusophone countries.
  - Participation from non-European regions like Lebanon, Mozambique, and South Africa is smaller but notable, showcasing some global interest.
- **Employment Status:**
  - The majority of participants are employees, with a smaller but significant portion of students and self-employed individuals. This indicates a broad range of professionals seeking to upskill, including those in training or currently without employment.
- **Professional Objectives:**
  - The most prominent goals for participants are to acquire new skills and access educational resources, highlighting a strong professional development focus.
  - Many also aim to gain a competitive advantage or get in touch with experts in the field, suggesting a drive for career advancement and networking opportunities.
  - Obtaining a certification is also a significant motivator, demonstrating the value of formal recognition for the learning experience.
- **Knowledge and Understanding:**
  - Participants generally rate their current knowledge on relevant topics as moderate to high, particularly in areas like Open Data legal framework and Open Data literacy.

7. Conclusive Remarks

The essence of the OpenDCO project lies in its ability to harness the power of open data to create inclusive, resilient, and sustainable urban environments. Open data plays a critical role in the development of smart cities by providing transparent, accessible information that fosters innovation, enhances governance, and improves service delivery. By enabling the free flow of data across sectors and communities, smart cities can better meet the diverse needs of their inhabitants through informed decision-making and collaborative urban planning.

The success of smart city initiatives is deeply intertwined with the active involvement of stakeholders who bring unique expertise, resources, and perspectives. Government agencies, municipal authorities, private sector companies, community organizations, and citizens all play pivotal roles in driving innovation and addressing urban challenges. Their collective efforts ensure that the benefits of smart cities are equitably distributed, promoting social inclusion and civic participation. Open data further enhances these efforts by empowering all stakeholders with the information needed to shape urban environments, improve public services, and foster collaboration across sectors.

Government and municipal authorities, in particular, are critical to the success of smart city initiatives. By setting policies and regulations that encourage the use of open data, they provide a foundation for enhancing public infrastructure and service delivery in response to the evolving needs of urban populations. The private sector contributes significantly to this ecosystem by investing in the development of advanced technologies and solutions that leverage open data to improve the quality of life in cities. Meanwhile, community organizations and citizens, as end-users and beneficiaries of these innovations, play a key role in ensuring that smart city projects reflect community needs and preferences.

The insights derived from the OpenDCO MOOC reflect a diverse group of engaged stakeholders, including professionals from public administration, IT, education, and consultancy. Their participation underscores the importance of continuous learning and professional development in the context of open data and smart cities. The MOOC has effectively served as a platform for fostering collaboration and sharing knowledge among

these stakeholders, enabling them to collectively contribute to the development of innovative urban solutions.

The OpenDCO project also highlights the value of a rigorous, evidence-based approach to stakeholder engagement and smart city development. By using open data to inform decision-making, stakeholders can work together more effectively to address urban challenges and promote sustainability. The widespread adoption of open data across regions such as Greece, Germany, and Portugal, as demonstrated by the MOOC participation, illustrates the potential for open data to transform smart city projects and improve governance at both local and regional levels.

In conclusion, the OpenDCO project exemplifies the power of open data in driving smart city initiatives that are inclusive, resilient, and sustainable. By fostering collaboration among diverse stakeholders, leveraging open data for innovation, and promoting transparent governance, OpenDCO contributes to the creation of smarter, more livable urban environments. Moving forward, ensuring the continued engagement of underrepresented groups and expanding the global reach of open data initiatives will be key to realizing the full potential of smart cities for all citizens.

Appendix I

Tabular Data used

Table 1: Age Distribution of Stakeholders

Age group		
18-29	138	19.86%
30-39	186	26.76%
40-49	221	31.80%
50-59	132	18.99%
>60	18	2.59%

Table 2: Gender Distribution of Stakeholders

Gender		
Male	387	56%
Female	308	44%

Table 3: Preferred Language Distribution of Stakeholders

MOOC language		
Greece	244	35.11%
Germany	260	37.41%
English	81	11.65%
Portuguese	110	15.83%

Table 4: Employment Status Distribution of Stakeholders

Employment status		
Student, in training	100	14.39%
Self-employed	55	7.91%
Unemployed	26	3.74%
Municipal employee	169	24.32%
Employee - Public sector	145	20.86%
Employee - Private domain	200	28.78%

Table 4: Employment Status Distribution of Stakeholders

Employment status		
Student, in training	100	14.39%
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Municipal employee	169	24.32%
Employee - Public sector	145	20.86%
Employee - Private domain	200	28.78%

Table 5: Type of Organization Distribution of Stakeholders

In what type of organization do you work at/for?	Count of In what type of organization do you work at/for?
Other organization in the public sector	22.83%
Municipality	18.35%
Large enterprise (more than 250 employees)	18.06%
Small-Medium Enterprise (SME)	13.58%
Not applicable (i.e. not an employee)	12.57%
Regional authority	7.08%
Self-employed	5.78%
Non Governmental Organization (NGO)	1.73%
Grand Total	**100.00%**

Table 6: Educational Background Distribution of Stakeholders

Education		
High School	72	10.36%
Professional degree	62	8.92%
Bachelor's degree	282	40.58%
Master's degree	223	28.05%
Doctorate degree	56	6.59%

Table 7: Job Occupation Distribution of Stakeholders

In what type of organization do you work at/for?	Count of In what type of organization do you work at/for?
Other organization in the public sector	22.83%
Municipality	18.35%
Large enterprise (more than 250 employees)	18.06%
Small-Medium Enterprise (SME)	13.58%
Not applicable (i.e. not an employee)	12.57%
Regional authority	7.08%
Self-employed	5.78%
Non Governmental Organization (NGO)	1.73%
Grand Total	100.00%

Table 8: Nationality Distribution of Stakeholders

Nationality	Count of Nationality
Greek	40.32%
German	35.98%
Portuguese	8.53%
Brazilian	7.08%
Cypriot	1.16%
Lebanese	0.72%
Albanian	0.72%
Russian	0.72%
Spanish	0.58%
South African	0.43%
Mozambican	0.43%
Austrian	0.29%
Kenyan	0.29%
Nigerian	0.29%
American **	0.29%
Dutch	0.29%
Zambian	0.29%
Cameroonian	0.29%
Cuban	0.14%
Ethiopian	0.14%
Jordanian	0.14%
Swiss	0.14%
Ukrainian	0.14%
Hungarian	0.14%
Zimbabwean	0.14%
Indonesian	0.14%
Iranian	0.14%
Grand Total	**100.00%**

Table 9: Country of Residence Distribution of Stakeholders

Country of residence	Percentage
Greece	40.03
Germany	36.42
Portugal	9.25
Brazil	6.36
Cyprus	2.02
Lebanon	0.72
Albania	0.43
Austria	0.43
France	0.43
Switzerland	0.43
Netherlands	0.29
Kenya	0.29
South Africa	0.29
Belgium	0.29
The United States	0.14
Chile	0.14
Cuba	0.14
Nigeria	0.14
New Zealand	0.14
Canada	0.14
Spain	0.14
Ireland	0.14
Fiji	0.14
Jordan	0.14
Thailand	0.14
Turkey	0.14
Zambia	0.14
Zimbabwe	0.14
The United Kingdom	0.14
Hungary	0.14

Table 10: Comparison of High and Low % stakeholders

Attribute	Highest	Percentage Highest	Lowest	Percentage Lowest
Gender	Male	56%	Female	44%
Age	40-49	31.80%	Over 60	2.59%
Preferred Language	German	37.41%	English	11.65%
Employment Status	Employed	83.42%	Unemployed	16.58%
Type of Organization	Public sector	22.83%	NGOs	1.73%
Job Occupation	Education	34.30%	Healthcare	3.20%
Educational Background	Bachelor's Degree	40.58%	High school diploma	6.59%
Nationality	Greek	40.32%	Ethiopian	0.14%
Country of Residence	Greece	39.88%	Zambia	0.13%

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World Bank (2021) – *World Development Report: Data for Better Lives*
Available at: https://www.worldbank.org/en/publication/wdr2021
This report emphasizes the importance of open data in governance and how it can be utilized to improve lives globally through better decision-making.