

Anna Visvizi
Orlando Troisi *Editors*

Managing Smart Cities

Sustainability and Resilience Through
Effective Management

 Springer

Managing Smart Cities

Anna Visvizi · Orlando Troisi
Editors

Managing Smart Cities


Sustainability and Resilience Through
Effective Management

 Springer

Editors

Anna Visvizi 
Institute of International Studies
SGH Warsaw School of Economics
Warsaw, Poland

Effat College of Business
Effat University
Jeddah, Saudi Arabia

Orlando Troisi 
Department of Management and Innovation
Systems
University of Salerno
Fisciano, Italy

ISBN 978-3-030-93584-9

ISBN 978-3-030-93585-6 (eBook)

<https://doi.org/10.1007/978-3-030-93585-6>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2022

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The idea behind the book was born out of our conversations and joint research and the resulting recognition that in the otherwise rich debate on smart cities several topics require a more thorough insight. Another set of considerations that we had derived from the recognition that all too frequently the ideas that researchers and academics have and frame through their publications do not reach the decisionmakers. Clearly, a gap in communication exists between the communities of researchers and decision makers. This book sought to address this issue by making research on smart cities handy and understandable to decision makers. The reference to effective management employed in the title of the book is meant to highlight the centrality of management and managerial skills in the context of boosting collaboration, entrepreneurship, employment, participation, inclusion, and co-creation in the smart city. In other words, while technology is crucial, it is the ability to apply it consciously and efficiently, e.g. through efficient management techniques, that drives the transformation of cities to smart cities in a manner conducive to their sustainability and resilience.

This book would not be possible without the Publisher and the Publishing team, who, once again, proved to be one of the kindest and the most professional on the market. In this context, our personal ‘thank you’ is extended to Dr. Hisako Niko. We are indebted to her. We would also like to express our gratitude to the reviewers who offered very useful insights into how the book’s content could be improved. Finally, we would like to thank the contributing authors for their hard work and patience throughout the lengthy process of editing this volume.

Warsaw, Poland
Fisciano, Italy

Anna Visvizi
Orlando Troisi

Acknowledgments Research reported in this book has been conducted in partial implementation of the National Science Center (NCN), Poland, Grant Number 2020/39/B/HS4/00579, titled: Smart cities: Modelling, Indexing and Querying Smart City Competitiveness.

Contents

Effective Management of the Smart City: An Outline of a Conversation	1
Anna Visvizi and Orlando Troisi	
Managing Infrastructure Accessibility and Usability in the Smart City	
A Smart City Initiative for Participatory Urban Accessibility Planning and Management	13
Raquel Pérez-delHoyo, María Dolores Andújar-Montoya, Higinio Mora, Virgilio Gilart-Iglesias, and Rafael Mollá-Sirvent	
Towards a Smart City in the Tropics: The Malaysian Approach	31
Marek Kozłowski and Yusnani Mohd Yusof	
A Review of Charging Schemes and Machine Learning Techniques for Intelligent Management of Electric Vehicles in Smart Grid	51
Saeed Mian Qaisar and Nehal Alyamani	
Managing Safety and Security in the Smart City: Covid-19, Emergencies and Smart Surveillance	73
Orlando Troisi, Mohamad Kashef, and Anna Visvizi	
Smart Sport Arenas Make Cities Smarter	89
Alessandro Baroncelli and Massimo Ruberti	
Managing Business and Entrepreneurship in the Smart City	
Crowdfunding as a Smart Finance and Management Tool: Institutional Determinants and Well-Being Considerations. Evidence from Four Central and Eastern European Countries	107
Mina Fanea-Ivanovici and Marius-Cristian Pană	

The Role of Smart Cities in Stimulating and Developing Entrepreneurship	139
Laura-Diana Radu and Ana Iolanda Voda	
Smart-Social Business Cities: The Evolution, Concepts, and Determinants	159
Xhimi Hysa, Alba Kruja, Timothy Hagen, and Esmir Demaj	
Managing Participation, Representation and Co-creation in the Smart City	
Social Accountability of Local Governments in Smart Cities: A Multiple Case Study	181
Francesca Loia and Gennaro Maione	
How to Improve Social Participation of Senior Citizens Through ICTs: A Techno-Demographic Challenge for an Effective Smart City	199
Stefano Poli, Mauro Palumbo, and Stefania Operto	
Stakeholder-Based Management of Smart Cities: The Case of Brussels	213
Samedi Heng, Delphine Cheng, Konstantinos Tsilionis, and Yves Wautelet	
Culture Powered by Blockchain in Smart Cities	231
Radosław Malik, Anetta Anna Janowska, and Katarzyna Ciupa	
The Evolution of the Smart City in Italy: An Empirical Investigation on the Importance of Smart Services	249
Antonio Botti and Antonella Monda	
Managing Emergencies Through Resilience: The Case of Turin Smart City	265
Mara Grimaldi	
Circular Practices with a Public Driven Local Development Processes	283
Giuseppe Roccasalva	

Social Accountability of Local Governments in Smart Cities: A Multiple Case Study



Francesca Loia and Gennaro Maione

Abstract Over the years, the international standards for promoting SA-oriented behaviors have been undergoing continuous changes and updates to ensure an appropriate adaptation to the turbulences caused by the emergence of new social events and happenings. This trend, emerging at the level of operating practice, is confirmed by the growing interest in SA expressed by Public Accounting and Management scholars. However, the analysis of the literature highlights the poor attention paid in the study of the SA of LGs involved in smart city projects, although the latter are revolutionizing the way of life of citizens in many countries all over the world. Based on these considerations, the work aims to provide answers to two Research Questions: RQ₁: “How ICT-enhanced services and applications for smart cities allow the local governments to be more socially accountable?”; RQ₂: “How ICT-enhanced services and applications for smart cities allow the local governments to track the accountability of the stakeholders involved in the administration/management of smart cities?”. The study is based on the analysis of the answers provided by a sample of 56 managers employed in some Italian municipalities involved in smart city projects. The questions were prepared in the form of semi-structured interviews, developed by listing the key variables related to the SA from the Public Management literature: participation; transparency; and monitoring. The results of the analysis suggest that, in addition to the three variables identified in the literature, it is necessary to invest in the stakeholders’ involvement through the implementation of strategies oriented towards Open Data Governance.

Keywords Social accountability · Public accounting and management · Local government · Smart city · Qualitative research · Interviews · Multiple case study

F. Loia

Department of Economics, Management and Institutions, University of Naples ‘Federico II’,
Naples, Italy

e-mail: francesca.loia@unina.it

G. Maione (✉)

Department of Business Science—Management & Innovation Systems, University of Salerno,
Fisciano, Italy

e-mail: gmaione@unisa.it

1 Introduction

Social Accountability (SA) represents one of the most important requirements through which Local Governments (LGs) can show stakeholders their commitment to respect precise ethical constraints and responsibility for the goals pursued, the policies adopted, and the decisions taken (Brinkerhoff & Wetterberg, 2016). Over the years, the international standards for promoting social accountability-oriented behaviors have been undergoing continuous changes and updates to ensure an appropriate adaptation to the turbulences caused by the emergence of new social events and happenings (Joshi & Houtzager, 2012). This trend, emerging at the level of operating practice, is confirmed by the growing interest in SA expressed by Public Accounting and Management scholars. However, the analysis of the literature highlights the poor attention paid in the study of the social accountability of LGs involved in smart city projects, although the latter are revolutionizing the way of life of citizens (Ciasullo et al., 2020; Visvizi et al., 2018) in many countries all over the world (Lytras & Visvizi, 2018; Lytras et al., 2019; Willems et al., 2017). This literature gap underlines the research problem of this study, suggesting moving away from the traditional domain of public administration at the local level, that is “administering city”, to the need—and opportunity—to identify and exploit possible synergies and solutions that the ICT-enhanced services and applications specifically focused on the “smart city management”. In light of these considerations, the work aims to provide answers to the following two Research Questions:

RQ1: How ICT-enhanced services and applications for smart cities allow the local governments to be more socially accountable?

RQ2: How ICT-enhanced services and applications for smart cities allow the local governments to track the accountability of the stakeholders involved in the administration/management of smart cities?

To meet this knowledge requirement, this study follows a qualitative investigation approach (Dumay & De Villiers, 2019), based on the analysis of the answers provided by a sample of 56 managers employed in some Italian municipalities involved in smart city projects. The questions were prepared in the form of semi-structured interviews, developed by listing the key variables related to the social accountability from the Public Management literature: participation; transparency; and monitoring. The results of the analysis suggest that, in addition to the three variables identified in the literature, it is necessary to invest in the stakeholders’ involvement through the implementation of strategies oriented towards Open Data Governance (Troisi, 2016; Troisi et al., 2020), capable of highlighting the actual benefits deriving from the synergic collaboration among LGs and stakeholders. In this sense, the study provides several insights, potentially capable of generating useful implications for both researchers and professionals in the public sector.

The stated objective was pursued by structuring the work into the following further sections: (2) theoretical background, focused on the analysis of previous studies dedicated to Social Accountability for Local Governments, with a deepening about smart cities; (3) research design, related to the methodology used for the construction

and administration of the interviews, sampling and data collection; (4) discussion of the results arising from the analysis of the answers obtained; (5) Theoretical-managerial implications and conclusive considerations about the limits of the work and the ideas for future research.

2 Theoretical Background

2.1 *Social Accountability for Local Governments and City Management*

SA represents one of the first and most important requirements through which LGs can demonstrate their social commitment (Clune & O'Dwyer, 2020). The issue of accountability arises and takes root in various sectors of civil society, thus meeting the protection needs that our time requires (O'Dwyer & Unerman, 2007). The concept of "accountability" is often compared to that of responsibility, although the two terms are not synonymous. In fact, accountability has a broader meaning, which refers to two distinct elements: the desire to give account to stakeholders in an exhaustive and understandable way about the correct use of resources and the production of results in line with institutional purposes; the need to introduce logic and mechanisms for greater internal accountability of local authorities in relation to the use of these resources and the production of related results.

Although at the end of the previous century, the social accountability was already a well-known and widely debated topic (Gray et al., 1988; Parker, 1991), it obtained its first official recognition in 2012, when it was established as an element of privacy and data protection, to the point of becoming a relevant aspect of Regulation proposal put forward by the European Commission; in 2016, EU Regulation 2016/679 finally was enacted and, with reference to accountability, Article 24 established that the data controller is required to adopt policies and implement adequate measures to guarantee and be able to demonstrate that the processing of personal data has occurred in compliance with the Regulation itself (Boyce & Davids, 2009).

Over the years, the concept of SA has expanded and evolved, assuming, in the last decade, a central role in the economy of public administrations and, more specifically, of LGs and city management (O'Sullivan & O'Dwyer, 2015). This diffusion derives from the consideration according to which, every time "non-own" resources are used to carry out certain activities, it is necessary to report to third parties for the choices made (Dunleav & Hood, 1994; Laufer, 2003). However, despite the centrality of accountability, this issue has not yet been studied sufficiently from a theoretical and practical point of view; it is at the center of the studies and reform strategies of public city management at an international level (Parker, 2011; Ciasullo et al., 2017; Polese et al., 2018, 2017; Mele et al., 2012) and today, in most countries, accountability systems oriented towards a performance logic are being developed, according to which the social accountability contributes to improving effectiveness

of city management and the efficiency of public administrations (Joshi & Houtzager, 2012). Starting from the centrality of citizens and their right to obtain immediate access to information that allows evaluating the work of the Public Administration, SA responds to the need to ensure greater quality and appropriateness of administrative action for city management (Lytras & Visvizi, 2020), in order to avoid climate of undifferentiated controversy towards politics or institutions and the simple regulatory or bureaucratic reorganization (Brinkerhoff & Wetterberg, 2016). Social accountability consists of at least three elements, the so-called “pillars”: transparency, participation, and monitoring.

Transparency translates into complete accessibility to information for citizens and, more generally, all stakeholders, even as users of the service. Transparency includes the provision of tools aimed at making decisions, actions, performance, and results of administrations in terms of city management more visible, as well as the expansion of the governance of local public bodies and services to the inclusion of citizens’ and consumer organizations (Lytras et al., 2020a, 2020b; Read & Atinc, 2017; Visvizi et al., 2017). Transparency is a fundamental indicator for assessing public utility services and the degree of efficiency of any body that is committed to providing them (Cassano, 2017; Ciasullo & Troisi, 2013; Malena et al., 2004). The effectiveness of a service and its evaluation necessarily passes through the transparency of city management processes, that is the information provided to citizens who use that service, the transparency of the procedures for accessing it and the information provided at all stages of the procedure (Schmidt & Wood, 2019).

Participation indicates the institution’s predisposition to open city management processes to dialogue with the community, accounting for choices, behaviors and actions and responding in a timely and timely manner to the issues raised by stakeholders (Tisdall, 2017). This means that institutions must respond in a public, coherent and demonstrable way to the requests of citizens-consumers, verify the traceability of the administrative action, evaluate it from a civic point of view and guarantee the ability of the population to influence the methods of managing public services (Pereira & Roder Figueira, 2020). By placing the citizen at the center of administrative processes, it is possible to establish in advance the content of his right to participation, i.e. the right of each citizen-consumer to have clear, understandable and transparent information at every stage of his relationship with the provider of the service. Considering this, the right to participation to city management processes becomes fundamental in the public sector, in which, unlike what happens in the private sector in which, in the absence of information provided by an operator, one can contact another, the citizen has no alternatives (Tardivo et al., 2017).

Monitoring is expressed in the attitude of enforcing the rules, both in the sense of maintaining public action in the path traced by the laws, and in the sense of enforcing the norms of conduct to the operators of the Public Administration (Laguecir et al., 2020). Monitoring, therefore, refers to compliance with the rules and is intended both as a guarantee of the legitimacy of the action and as an adjustment of the action itself to the quality and appropriateness standards defined by the laws and regulations or by the commitments undertaken voluntarily by means of ethical guidelines or codes

of conduct (Alawattage & Azure, 2019). Therefore, in this respect, the SA could be defined as “the obligation to explain and justify one’s behavior”.

In a scenario characterized by high complexity and turbulence, as the public sector over the last years, LGs are called upon to adapt to the increasingly felt need of citizens to be kept informed of how their interests are regulated and how operate those who are responsible for carrying out their respective institutional tasks (Clune & O’Dwyer, 2020). It is necessary that the actions of the LGs are aimed at improving the effectiveness and efficiency of city management processes as well as satisfying their stakeholders and respecting the current regulatory framework, having among the main purposes that of being “accountable” for their interlocutors (Read & Atinc, 2017). This means that each body of which the Public Administration is composed has the duty to “inform all interested parties on how the responsibilities towards them have been fulfilled”.

2.2 *Social Accountability and Smart Cities*

In recent years, the concept of “smart city” has influenced the current urban development and the future perspectives in this sector (Hollands, 2008). Smart city, in general, refers to a broad and all-embracing view of the urban landscape which is able to merge knowledge, sustainable approach and digital interface in only one theoretical and practical perspective (De Jong et al., 2015; Pellicano et al., 2018). As a broadly discusses by the consolidated literature, the strong and deep interconnection between city, governance, technologies, and citizens has opened up new possibilities for the well-being of the urban context. Smart technology, in fact, is considered a key lever for community well-being that should be associated with human and management skills to foster the emergence of sustainable growth (Barile et al., 2017; Ciasullo et al., 2020). In this regard, the emerging technologies such as Internet of things (or IoT) and Big Data, together with cognitive computing, advanced analytics and business intelligence, 5G networks, blockchain, anticipatory and context-aware computing and advanced distributed data warehouse platforms, allow to reach several advantages (Arasteh et al., 2016; Sicilia & Visvizi, 2019; Visvizi et al., 2018). As a valuable example, new technological platforms enable the improvement of the operations and services efficiency and real-time analysis of urban context, by providing raw material for envisioning and enacting more efficient, sustainable, competitive, productive, open and transparent cities (Kitchin, 2014; Peris-Ortiz et al., 2017). Accordingly, the goal is to integrate different infrastructures and services through the central role of the technology and strengthen the human network in order to improve the engagement between local governments and citizens.

Therefore, among the various dimensions of a smart city, the governance processes fulfil a central role. Technological platforms link and possibly integrate public, private, civil, and various stakeholders, at the same time ensuring transparency and removing the obstacles to innovative development posed by bureaucratization. Innovative approaches based on ICTs, if from one hand could ensure a more fluid use of the

services offered to citizens (eGovernment), on the other hand encourage their active participation in the administrative life of the city (e-Democracy) (Anthopoulos & Vakali, 2012). Also, the ICT-based platforms offer a wide range of information and data on the city in relation to different areas, such as mobility, infrastructure, energy, environment, territory, climate, etc., and citizens can participate directly in the development and co-production of high value-added services (Piro et al., 2014; Visvizi et al., 2017). The initiatives can regard the creation of the digital identity (unified digital document, unified registry office, digital home), which would allow citizens to quickly access various public areas such as mobility, health, and justice. Furthermore, the administration should be digitized through the publication of open data and the development of networked applications that can stimulate active participation. Transparency and speed can be guaranteed through the digitization of public procurement procedures (Neirotti et al., 2014).

In such a direction, the adoption of smart city initiatives can push towards the overcoming of the lack of involvement between citizens and local governments, emphasizing the need of a change orientation in favor of new forms of social accountability. Thereby, ICT infrastructures and innovative regulatory framework can encourage a renewal of public administrations' approaches in favor to more social accountable oriented practices in order to strengthen community-based initiatives and improve transparency and liability by guaranteeing access to information by holding stakeholders (Gaventa & McGee, 2010; Lytras & Visvizi, 2020; Visvizi & Lytras, 2020). Smart urban infrastructure connects citizens and communities in the development of smart governance in order to make shared decisions (Adhikari et al., 2018). Emerging technologies along with the participation, involvement, dialogue, and above all interaction between citizens and administrations help in planning and development, setting budgets, tracking expenditure, monitoring the performance of the implemented projects. In this way, community members and public administration are responsible to local agreements. Smart city thus becomes a co-designed city, result of a participatory process in which individuals rediscover the awareness that they can be co-authors of public policies (Lytras et al., 2020b). In particular, the transparent and dynamic network becomes a collective space where it is possible to implement the sense of social responsibility and to collaborate with local governments for encouraging ethical and concrete solutions. In this way, the citizens are capable to express their views, demanding their basic rights and complaining, where necessary, to those who are responsible. This may occur especially because most of citizens are willing to use smart city services that promote trusted news from local communities, access to learning and training resources plus services that sustain innovation and entrepreneurship at a global scale (Lytras et al., 2019). On the other hand, the willing to follow social accountable approaches can also strength the dialogue between ICT solutions and human users by improving the awareness and ability of citizens to use smart city services (Lytras & Visvizi, 2018).

However, despite the evidence of social accountable oriented behaviors in a context of urban smartness, little attention has been paid to the evaluation of the social accountability of the stakeholders involved in the smart cities initiatives. While certainly the role of smart governance processes and technological approaches have

been deeply investigated by the established literature, the contribute of ICT-enhanced services and applications of smart cities' initiatives to more socially accountable local governments is still continuing to be an open question.

3 Research Design

3.1 Approach

To answer the two RQs specified above—and, therefore, highlight how ICT-enhanced services and applications for smart cities allow the local governments to be more socially accountable (RQ₁) as well as to track the accountability of the stakeholders involved in the administration/management of smart cities (RQ₂)—, this work is carried out by following a qualitative survey, based on the collection, analysis, and interpretation of unstructured and non-numerical data (Hennink et al., 2020). Given its flexibility, this approach is widely employed in the social sciences and, more particularly, by accounting scholars since it allows observing and treating even complex phenomena (Silverman, 2016), investigating gnoseological paradigms ranging from positivism to post-positivism, from the critical theories to constructivism (Guba & Lincoln, 2005). Through qualitative research, the researcher aims to understand not only what the unit of analysis (e.g. individual, private company, public body, etc.) thinks, believes, or guesses but also the motivations underlying the relative opinion (Qu & Dumay, 2011).

The qualitative approach is followed through the administration of semi-structured interviews. The choice to use this data collection technique (instead of open or structured interviews) is justified by the consideration according to which, although presenting a fixed track, the further development of the interview varies according to the answers progressively provided. In fact, by administering semi-structured interviews, the researcher can deepen some topics that spontaneously emerge and that could be useful for understanding the phenomenon investigated (Cohen et al., 2002).

The basic scheme of the interviews administered has been defined by enucleating and adapting the key concepts related to the SA from the Public Management literature: participation; transparency; and monitoring. Based on the consideration emerged within the theoretical background, to identify the factors that LGs should consider to properly implement the SA and the differentiating elements in implementing the SA for smart cities, a semi-structured interview has been developed, consisting of open-ended questions, one for each attribute, as indicated below: (1) "What are the benefits that come or could derive from the implementation of SA?" (2) "Are there differences with respect to the approach that LGs employ to implement the SA in smart cities?" (3) "How do you assess the degree of stakeholders' participation in SA processes for smart cities?" (4) "How do you rate the level of transparency of the SA implementation processes in smart city projects?" (5) "How

do you evaluate the monitoring activities implemented in the SA implementation processes for smart cities?”.

3.2 Data Collection and Analysis

Once the interview was structured, the next step was to collect data. To this end, the sampling procedure began with the sending of an email presenting the research project—context, objective, research questions—, and a request for membership to the heads of the administrative offices of all the municipalities of the province of Naples. A total of 412 emails were sent since, although the municipalities identified were less, the administrative offices of some of them have multiple email addresses. The managers of the offices of 119 municipalities responded to the first email, most of whom asked to receive the interview before expressing their willingness to join. A second email was sent containing a file with the interview to be administered and 88 municipalities agreed to take part in the project by responding to the interview. However, only 56 of them returned the updated file with their responses. Table 1 synthesizes data related to the respondents’ socio-demographic profile. Overall, the data collection phase lasted about six months, from November 2019 to April 2020. Subsequently, the collected data were analyzed by the two authors, who, at first, to avoid a possible mutual influence, acted separately, interpreting the answers based on their knowledge and experience background. Subsequently, the comparison between the authors became necessary, as well as appropriate, to better target the conceptualization of the factors that LGs should consider to properly implement the SA and the differentiating elements in implementing the SA for smart cities. However, the

Table 1 Respondents’ socio-demographic profile

Category	Feature	People	Percentage
Age	18–25	1	1.8
	26–35	5	8.9
	36–45	10	17.9
	46–65	28	50.0
	66+	12	21.4
Gender	Male	35	62.5
	Female	21	37.5
Education	Middle school graduation	0	0.0
	High school graduation	7	12.5
	three-year degree	16	28.6
	Master’s degree	30	53.6
	Ph.D	2	3.6
	Other	1	1.8

comparison revealed uniformity in the interpretation of the information extrapolated from the interviews and this aspect highlight the coherence of the research design concerning the link between the objective pursued and the results obtained.

4 Results and Discussion

In this section, the authors present evidence to answer the research questions basing on the evaluation of the interviews carried out. Several highlights are emerged in relation to the smart city solutions and social accountable practices, as also highlighted in the Table 2.

About the first question—(1) “*What are the benefits that come or could derive from the implementation of SA?*”—among the important initiatives carried out by local governments in reference to social accountable practices, emerge the willingness to create constructive engagement between stakeholders, marked by a strong spirit of collaboration and not hostility (Ackerman, 2005). During the interviews, some governance mechanisms could be identified, such as, regulatory frameworks aimed at recognizing and sustaining good practices and on identifying problem areas for further improvement (Ahmad, 2008). According to the interviews, there is the widespread opinion that involving other types of stakeholders—such as the private sector, industry experts, public service providers, and the media—increases the impact of more social accountable initiatives.

Furthermore, the results highlight a homogeneity of thought of the respondents. In fact, all of them, as can be seen from the excerpts from the interviews shown below, declare that they have high confidence in the advantages that could arise in the coming years for those who deal with social accountable oriented practices, especially regarding the possibility to create partnership with all the stakeholders (O’Dwyer & Unerman, 2007).

“Social accountable approach sustains the stakeholder’s meaningful participation in decision-making that affects their most immediate needs, especially in health, education and community infrastructure. While not always a requirement, engagement mechanisms such as the use of memorandum of understanding and similar instruments have proven useful in many settings”.

“Social accountability increases quality of government policy development and implementation processes, and thus becomes the principal method for solving governance issues that hinder improvement of quality of life of citizens.”

“Social accountable initiatives aim to increase the transparency of governance in many areas thanks to ICT oriented approach, ranging from local service delivery to national processes of development policy formulation. In doing so, the government receives the propositions from their citizens and defines critical issues, explores their root causes and implements possible solutions. Governments and its contracted service providers must agree on immediate and clear next steps to address issues raised by citizens and other stakeholders. For instance, the predisposition of transparency portals such as budget websites can support the process of budget related to social accountable works.”

Table 2 Results overview

Social accountable practices in smart cities context	Findings
Benefits	<ul style="list-style-type: none"> • Definition of regulatory frameworks; • Constructive engagement between stakeholders; • Stakeholders' participation in decision-making process (e.g. use of memorandum of understanding); • Improvement of quality of government policy development and implementation processes; • Transparency of governance thanks to ICT oriented approach; • Socio-cultural openness
Characteristics	<ul style="list-style-type: none"> • Proactive use of the city's ICT infrastructure; • Open and inclusive public administrations; • Implementation of personalized, user-friendly, end-to-end digital public services
Assessment of the degree of stakeholders' participation	<ul style="list-style-type: none"> • Social platform participation; • Social app engagement; • Living labs involvement
Rating the level of transparency	<ul style="list-style-type: none"> • Information sharing in the government channels; • Government operations accessible to people; • Implementation of advanced ICTs; • Predisposition of transparency portals such as budget websites; • Open data approach
Monitoring activities	<ul style="list-style-type: none"> • Implementation of smart technological tools and emerging methodologies based on big data approach; • Application on monitoring of expenditure (e.g. regarding medicines); • Application on monitoring of public services delivery from online discussion

Source Authors' elaboration from data analysis

However, younger respondents, which belong to the age range 26–35, highlight the importance of the socio-cultural openness in order to implement social accountable oriented approach (Gilbert & Rasche, 2007; Skelton, 2010).

“Social accountable practices are largely determined by existing contextual and cultural conditions. To a large extent, SA- practices must respond to and operate within the larger context and framework of a sector, nation, or region. The appropriateness of the social accountable approach—including tools, techniques and other mechanisms—are determined against political, socio-cultural, legal and institutional factors and depends on eco-political realities”.

“To ignore context and culture is to risk alienating local stakeholders which could be unfriendly towards social accountable oriented practices”.

Even with respect to the second question—(2) “*Are there differences with respect to the approach that LGs employ to implement the SA in smart cities?*”—the respondents’ opinions appear to converge:

“In the smart city perspective, the participation is a key aspect for fostering a more social accountable vision. However, respect to the traditional approach, smart city vision can proactively use the city’s ICT infrastructure for facilitating stakeholder’s involvement in the democratic process and for cocreating the smart city projects”.

“The perspective of smart city is very broad and include the social accountable oriented practices. Especially, in our project vision, public administrations and public institutions should be open, efficient and inclusive, providing borderless, personalized, user-friendly, end-to-end digital public services to all citizens [...] Innovative approaches should be considered as pillar to design and deliver better services in line with the needs and demand of citizens and businesses”.

In this regard, the interviews analyzed referring to question 1 and 2 present suggestions to address RQ1. Starting from the concepts developed by the consolidated literature of the social accountability, the ICT-enhanced services and applications for smart cities allow the local governments to be more socially accountable by exploiting the opportunity offered by the new digital environment to facilitate their interactions with stakeholders and with each other in order to make more socially responsible the governance process (Axelsson et al., 2010). Compared to traditional public administration initiatives, the growth of smart cities initiatives is assisting the rise of government employment of ITCs to enhance political participation, enforce public schemes or supply public sphere services. In such a direction, local governments involved in the implementation of smart city projects are consistently spending on ICT in order to help with the challenges in maintaining the democratic system of checks and balances as well as the division of powers in a highly interconnected world (Anthopoulos, 2017; Visvizi & Lytras, 2020).

Unlike the first and the second questions, the answers provided to the third question—(3) “*How do you assess the degree of stakeholders’ participation in SA processes for smart cities?*”—show a lack of homogeneity of thought.

In general, from the majority of people surveyed emerge the strategic aspect of the social platform for improving the engagement in relation to social accountable oriented practices.

“Personally, I found useful to assess the degree of stakeholders’ engagement thanks to social platforms. For instance, in our project, we engage citizens in the creation and implementation of policies aimed at promoting sustainable local mobility thanks a social app which shows the citizens which was contributed to the mobility questions. So, thanks to the smart social interface we consider the perspective of a wide level of stakeholders”.

This evidence, along to other works listed in the reference literature, outlines a strategy incorporating both social media and social platform approaches in order to increase the degree of social participation (Bakardjieva et al., 2012).

On the other hand, by analyzing the answers provided by the interviewed with higher level of education it emerges that “*I consider the Living Labs extremely suitable for evaluate the level of citizens engagement. Living Labs is a concept used as*

part of the stakeholder engagement process in our project in order to test in a real life setting new products or services. The main goal of our initiatives is to coordinate end-user and stakeholder involvement in the Living Lab activities as a process of engaging stakeholders in a systematic way”.

“Living lab consist of open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings. In this way, we consider the users engagement by evaluating the interest of citizens, research organizations, companies, cities and regions in joint value co-creation”.

The answers given to the fourth question—(4) *“How do you rate the level of transparency of the SA implementation processes in smart city project”*—show a commonality of thought among the members of the selected sample, as can be seen from the excerpts of interviews shown below.

“One of the main aspects to make a city smarter is the use of data and information in the government channels in order to make government operations accessible to people. In this way, the emerging technologies can help the online transparency within smart cities and among smart cities throughout the world and to reinforce social accountable oriented practices”.

“Social accountability increases transparency and quality of government policy development and implementation processes, and thus becomes the principal method for solving governance issues that hinder improvement of quality of life of citizens. So, social accountable initiatives aim to increase the transparency of governance in many areas thanks to advanced ICTs, especially considered in the smart city model, ranging from local service delivery to national processes of development policy formulation. In doing so, the government receives the propositions from their citizens and defines critical issues, explores their root causes and implements possible solutions”.

“Governments must agree on immediate and clear next steps to address issues raised by citizens and other stakeholders. As a specific example, the predisposition of transparency portals such as budget websites and an open data approach—typical of smart city vision—can support the social accountability.”

Several elements emerge from the answers to the fifth question—(5) *“How do you evaluate the monitoring activities implemented in the SA implementation processes for smart cities?”*.

In particular:

“The monitoring variable is a key aspect of the social accountable oriented practices and refers to set of smart technological tools and emerging methodologies typically agreed on by all involved which can deal with perception or satisfaction data (e.g., citizen feedback on clinical services) or to the more technical aspects of service delivery (e.g., monitoring expenditure on medicines). For instance, referring to the monitoring of public services and good, LGs in the context of smart city can benefit from online discussion”.

“By analyzing the online discussion and forum it is possible to create a classification of the problem general perceived by the community”.

Therefore, the interviews analyzed referring to Question 3,4, and 5 present evidence to answer RQ2. Accordingly, ICT-enhanced services and applications for smart cities allow to track the accountability of the stakeholders involved in the

administration/management of smart cities thanks to new forms of dynamic interactions between local governments and citizens which are increasing the transparency and the monitoring of the information flow (Matheus et al., 2018). Besides this, it is necessary to invest in the stakeholders' involvement through the implementation of strategies oriented towards Open Data Governance (Troisi, 2016), capable of highlighting the potential of the reuse of data owned by the public administration for enabling new forms of participation in which citizens in a proactive way participate in the governance process.

5 Implications and Final Remarks

The modern technological environment appears able to deeply change the world in which we all live every day, with reference to the urban landscape which has become global, digital, and interconnected. The broad and all-embracing concept of smart city encourages a rethinking of local governments approaches in favor of more socially accountable practices which can, in a dynamic and proactive way, strength the dialogue and a relationship with all its stakeholders by promoting a sustainable development and a social wellbeing (Visvizi & Lytras, 2020).

Collaboration, participation, and above all interaction between local governments and citizens seem to be new keywords on which to base a paradigmatic shift for urban governance. In this way, smart city becomes a co-designed city, result of a participatory process in which individuals rediscover the awareness that they can be co-authors of public policies. The transparent network, composed by the consistent information flow and advanced social platforms development, becomes a collective space where it is possible to implement responsible behaviors and to collaborate with public administrations for encouraging ethical and concrete solutions.

From a managerial point of view, the results of the analysis suggest that it is necessary to invest in the stakeholders' involvement through the implementation of strategies oriented towards Open Data Governance (Troisi, 2016), capable of highlighting the actual benefits deriving from the synergic collaboration among local governments and stakeholders. In fact, the transparency, thanks to the reuse of data owned by the public administration (open data), enables new forms of participation in which citizens in an increasingly horizontal and proactive way became essential part of the governance process. Thus, smart city policies should set an expectation of public disclosure of the types of data being collected, as well as methods of data storage and transfer. This can be facilitated through the creation of a data inventory, to record basic information about data collected from ICT enhanced services (Kourtit et al., 2017; Visvizi et al., 2018). In such a direction, appears evident the necessity to define action framework able to define the multifaceted aspects which should be taken into account in the implementation of an efficient and accountable smart cities initiatives. The regulatory framework should be publicly available, easily accessible, and subject to public comment (Castelnovo et al., 2016; Lytras et al., 2020a).

On the other hand, from a theoretical point of view, the strong and deep connection between citizens and emerging technologies is highlighted. In fact, only thanks to the human propension to use smart city services is possible to reinforce social accountable practices at a global scale (Lytras et al., 2019). On the other hand, the possibility of implementing socially responsible practices can also enhance the dialogue between ICT solutions and human users by encouraging citizens to learn digital services in favor of greater involvement in governance processes to use smart city services (Lytras & Visvizi, 2018). Along these lines, smart cities policies should push public officials to clear transparency and public accountability standards around emerging technologies implementation. To this end, there should be a public discussion regarding the implementation of new ICT services even before the procurement process begins. In fact, it is necessary that all the innovative and smart solutions adopted are accepted by all the stakeholders involved in the process (Sepasgozar et al., 2019).

By concluding, urban context which are striving to increase data collection and real-time analysis for improved social wellbeing recognize that data transparency is integral to an efficient and accountable perspective of smart city. As a result, smart cities should open data and manage information as a public good. Cities that prioritize open data thanks to open data portals and open data infrastructure allow for more creative uses of data and provide new opportunities for public engagement, citizen empowerment, and social accountable oriented practices. To these ends, the adoption of smart cities initiatives will require prioritizing digital inclusion and tackling the digital divide (Lytras et al., 2020a, b; Neves et al., 2020).

References

- Ackerman, J. M. (2005). *Social accountability in the public sector: A conceptual discussion* (No. 35733, p. 1). The World Bank.
- Adhikari, B. K., Zuo, W. L., Maharjan, R., & Yadav, R. K. (2018). Use of big data analytics in WASH sector. In *2018 second international conference on intelligent computing and control systems (ICICCS)* (pp. 1185–1190). IEEE.
- Ahmad, R. (2008). Governance, social accountability and the civil society. *JOAAG*, 3(1), 10–21.
- Alawattage, C., & Azure, J. D. C. (2019). Behind the World Bank's ringing declarations of "social accountability": Ghana's public financial management reform. *Critical perspectives on accounting*, pp.1–22.
- Anthopoulos, L. G. (2017). *Understanding smart cities: A tool for smart government or an industrial trick?* (Vol. 22). Springer International Publishing.
- Anthopoulos, L. G., & Vakali, A. (2012). Urban planning and smart cities: Interrelations and reciprocities. In *The future internet assembly* (pp. 178–189). Springer.
- Arasteh, H., Hosseinezhad, V., Loia, V., Tommasetti, A., Troisi, O., Shafie-khah, M., & Siano, P. (2016). IoT-based smart cities: a survey. In *2016 IEEE 16th international conference on environment and electrical engineering (EEEIC)* (pp. 1–6). IEEE.
- Axelsson, K., Melin, U., & Lindgren, I. (2010). Exploring the importance of citizen participation and involvement in e-government projects. *Transforming Government: People, Process and Policy*, 4(4), 299–321.

- Bakardjieva, M., Svensson, J., & Skoric, M. (2012). Digital citizenship and activism: Questions of power and participation online. *4*(1), 1–5
- Barile, S., Ciasullo, M. V., Troisi, O., & Sarno, D. (2017). The role of technology and institutions in tourism service ecosystems. *The TQM Journal*, *29*(6), 811–833.
- Boyce, G., & Davids, C. (2009). Conflict of interest in policing and the public sector: Ethics, integrity and social accountability. *Public Management Review*, *11*(5), 601–640.
- Brinkerhoff, D. W., & Wetterberg, A. (2016). Gauging the effects of social accountability on services, governance, and citizen empowerment. *Public Administration Review*, *76*(2), 274–286.
- Cassano, R. (2017). Transparency and social accountability in school management. *Symphonya. Emerging Issues in Management*, *2*, 19–30.
- Castelnovo, W., Misuraca, G., & Savoldelli, A. (2016). Smart cities governance: The need for a holistic approach to assessing urban participatory policy making. *Social Science Computer Review*, *34*(6), 724–739.
- Ciasullo, M. V., Palumbo, R., & Troisi, O. (2017). Reading public service co-production through the lenses of requisite variety. *International Journal of Business and Management*, *12*(2), 1–13.
- Ciasullo, M. V., Troisi, O., Grimaldi, M., & Leone, D. (2020). Multi-level governance for sustainable innovation in smart communities: an ecosystems approach. *International Entrepreneurship and Management Journal*, 1–29.
- Clune, C., & O'Dwyer, B. (2020). Organizing dissonance through institutional work: The embedding of social and environmental accountability in an investment field. *Accounting, Organizations and Society*, *85*, 101130.
- Cohen, J., Krishnamoorthy, G., & Wright, A. M. (2002). Corporate governance and the audit process. *Contemporary Accounting Research*, *19*(4), 573–594.
- De Jong, M., Joss, S., Schraven, D., Zhan, C., & Weijnen, M. (2015). Sustainable–smart–resilient–low carbon–eco–knowledge cities; making sense of a multitude of concepts promoting sustainable urbanization. *Journal of Cleaner Production*, *109*, 25–38.
- Dumay, J., & De Villiers, C. (2019). Qualitative accounting research: Special issue introduction. *Accounting & Finance*, *59*(3), 1449–1458.
- Dunleavy, P., & Hood, C. (1994). From old public administration to new public management. *Public Money & Management*, *14*(3), 9–16.
- Gaventa, J., & McGee, R. (2013). The impact of transparency and accountability initiatives. *Development Policy Review*, *31*, s3–s28.
- Gilbert, D. U., & Rasche, A. (2007). Discourse ethics and social accountability: The ethics of SA 8000. *Business Ethics Quarterly*, 187–216.
- Gray, R., Owen, D., & Maunders, K. (1988). Corporate social reporting: Emerging trends in accountability and the social contract. *Accounting, Auditing & Accountability Journal*, *1*(1), 6–20.
- Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. *The landscape of qualitative research*, 255–286.
- Hennink, M., Hutter, I., & Bailey, A. (2020). *Qualitative research methods*. SAGE Publications Limited.
- Hollands, R. G. (2008). Will the real smart city please stand up? Intelligent, progressive or entrepreneurial? *City*, *12*(3), 303–320.
- Joshi, A., & Houtzager, P. P. (2012). Widgets or watchdogs? Conceptual explorations in social accountability. *Public Management Review*, *14*(2), 145–162.
- Kitchin, R. (2014). Big Data, new epistemologies and paradigm shifts. *Big data & society*, *1*(1), 2053951714528481.
- Kourtit, K., Nijkamp, P., & Steenbruggen, J. (2017). The significance of digital data systems for smart city policy. *Socio-Economic Planning Sciences*, *58*, 13–21.
- Laguecir, A., Kern, A., & Kharoubi, C. (2020). Management accounting systems in institutional complexity: Hysteresis and boundaries of practices in social housing. *Management Accounting Research*, *49*(1), 1–14.

- Lytras, M. D., & Visvizi, A. (2018). Who uses smart city services and what to make of it: Toward interdisciplinary smart cities research. *Sustainability*, *10*(6), 1998–2014.
- Lytras, M. D., Visvizi, A., & Sarirete, A. (2019). Clustering smart city services: Perceptions, expectations, responses. *Sustainability*, *11*(6), 1669–1688.
- Lytras, M., Visvizi, A., Zhang, X., & Aljohani, N. R. (2020a). Cognitive computing. *Big Data Analytics and Data Driven Industrial Marketing*, *90*(1), 636–666.
- Lytras, M. D., & Visvizi, A. (2020). Information management as a dual-purpose process in the smart city: Collecting, managing and utilizing information.
- Lytras, M. D., Visvizi, A., Chopdar, P. K., Sarirete, A., & Alhalabi, W. (2020b). Information Management in Smart Cities: Turning end users' views into multi-item scale development, validation, and policy-making recommendations. *International Journal of Information Management*, 1–10.
- Malena, C., Forster, R., & Singh, J. (2004). *Social accountability: An introduction to the concept and emerging practice* (No. 31042, p. 1). The World Bank.
- Matheus, R., Janssen, M., & Maheshwari, D. (2018). Data science empowering the public: Data-driven dashboards for transparent and accountable decision-making in smart cities. *Government Information Quarterly*, *37*(1), 1–9.
- Mele, R., Calabrese, M., & Troisi, O. (2012). Communication at local authorities: Amid institutional communication and political communication. *Sinergie Italian Journal of Management*, *1*(1), 89–105.
- Neirotti, P., De Marco, A., Cagliano, A. C., Mangano, G., & Scorrano, F. (2014). Current trends in smart city initiatives: Some stylised facts. *Cities*, *38*, 25–36.
- Neves, F. T., de Castro Neto, M., & Aparicio, M. (2020). The impacts of open data initiatives on smart cities: A framework for evaluation and monitoring. *Cities*, *106*(1), 1–15.
- O'Sullivan, N., & O'Dwyer, B. (2015). The structuration of issue-based fields: Social accountability, social movements and the Equator Principles issue-based field. *Accounting, Organizations and Society*, *43*, 33–55.
- O'Dwyer, B., & Unerman, J. (2007). From functional to social accountability: Transforming the accountability relationship between funders and non-governmental development organisations. *Accounting, Auditing & Accountability Journal*, *20*(3), 446–471.
- Parker, L. D. (1991). External social accountability: Adventures in a maleficent world. *Advances in Public Interest Accounting*, *4*, 23–34.
- Pellicano, M., Calabrese, M., Loia, F., & Maione, G. (2018). Value co-creation practices in smart city ecosystem. *Journal of Service Science and Management*, *12*(1), 34–57.
- Pereira, D., & Roder Figueira, A. (2020). Effects of citizen participation in the social accountability of budget amendments. *The Journal of Legislative Studies*, 1–25.
- Peris-Ortiz, M., Bennett, D. R., & Yábar, D. P. B. (2017). Sustainable smart cities. *Innovation, technology, and knowledge management*.
- Piro, G., Cianci, I., Grieco, L. A., Boggia, G., & Camarda, P. (2014). Information centric services in smart cities. *Journal of Systems and Software*, *88*, 169–188.
- Polese, F., Troisi, O., Carrubbo, L., & Grimaldi, M. (2018). An integrated framework toward public system governance: Insights from viable systems approach. In *Cross-sectoral relations in the delivery of public services*. Emerald Publishing Limited.
- Qu, S. Q., & Dumay, J. (2011). The qualitative research interview. *Qualitative Research in Accounting & Management*, *8*(3), 238–264.
- Read, L., & Atinc, T. M. (2017). Information for accountability: Transparency and citizen engagement for improved service delivery in education systems. 1–52.
- Schmidt, V., & Wood, M. (2019). Conceptualizing throughput legitimacy: Procedural mechanisms of accountability, transparency, inclusiveness and openness in EU governance. *Public Administration*, *97*(4), 727–740.
- Sepasgozar, S. M., Hawken, S., Sargolzaei, S., & Foroozanfa, M. (2019). Implementing citizen centric technology in developing smart cities: A model for predicting the acceptance of urban technologies. *Technological Forecasting and Social Change*, *142*, 105–116.

- Sicilia, M. Á., & Visvizi, A. (2019). Blockchain and OECD data repositories: opportunities and policymaking implications. *Library hi tech*.
- Silverman, D. (2016). Introducing qualitative research. *Qualitative research*, 3–14.
- Skelton, T. (2010). Taking young people as political actors seriously: Opening the borders of political geography. *Area*, 42(2), 145–151.
- Tardivo, G., Bresciani, S., & Viassone, M. (2017). A descriptive framework for an excellent social accountability. *International Journal of Managerial and Financial Accounting*, 9(2), 166–181.
- Tisdall, E. K. M. (2017). Conceptualising children and young people's participation: Examining vulnerability, social accountability and co-production. *The International Journal of Human Rights*, 21(1), 59–75.
- Troisi, O. (2016). *Governance e co-creazione di valore nella PA: Una rilettura in ottica service-dominant logic* (Vol. 60). G Giappichelli Editore.
- Troisi, O., Maione, G., Grimaldi, M., & Loia, F. (2020). Growth hacking: Insights on data-driven decision-making from three firms. *Industrial Marketing Management*, 90, 538–557.
- Visvizi, A., & Lytras, M. D. (2020). Sustainable smart cities and smart villages research: Rethinking security. *Safety, Well-Being, and Happiness*, 12(1), 1–4.
- Visvizi, A., Mazzucelli, C., & Lytras, M. (2017). Irregular migratory flows. *Journal of Science and Technology Policy Management*, 8(2), 227–242.
- Visvizi, A., Lytras, M. D., Damiani, E., & Mathkour, H. (2018). Policy making for smart cities: Innovation and social inclusive economic growth for sustainability. *Journal of Science and Technology Policy Management*, 9(2), 126–133.
- Willems, J., Van den Bergh, J., & Viaene, S. (2017). Smart city projects and citizen participation: The case of London. In *Public sector management in a globalized world* (pp. 249–266). Springer Gabler, Wiesbaden.

Francesca Loia, Ph.D., Research Fellow, Department of Economics, Management and Institutions, University of Naples 'Federico II', Naples, Italy. Her research interests include Information and Communication Technology (ICT), decision making, service science (SS), and viable system approach (VSA).

Gennaro Maione Ph.D., Researcher, Department of Economics and Statistics, University of Salerno, Fisciano, Italy. His research interests include public sector accountability, digitalization, and environmental accounting.