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Online sustainability information in European local governments: An explicative model to improve transparency

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# Online sustainability information in European local governments

## An explicative model to improve transparency

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### Abstract

**Purpose** – The purpose of this paper is to propose an analytical model that shows causal relationships between the amount and nature of information on strategies and the governance of city councils, as well as the contents of different dimensions of sustainability that are disclosed on the websites of local governments in big European cities. This model could reveal if the information is disseminated in a homogeneous and coordinated way and could improve the quality of the information, its coherence and its comparability.

**Design/methodology/approach** – The authors have designed a questionnaire with 75 variables from the Global Reporting Initiative proposal to specify information disclosed on sustainability. The level of information about each of these variables has been gathered by consulting the contents published on the websites of the 142 local governments in the sample. Finally the authors propose a model about the cause-effect relationships between the amount and nature of the information in different dimensions of sustainability on the websites of large cities' local governments based on the structural equation modelling methodology.

**Findings** – The model obtained reveals that there is coherence in the sustainability information disclosed by large European cities on their websites. However, it is demonstrated that the relations between the amount of information about strategies and the dissemination of information on each of the dimensions of sustainability (economic, social and environmental) do not have the same intensity.

**Originality/value** – The proposed model can be useful as a reference framework to structure online information supplied in a balanced and comprehensive way. This conceptual model can suggest ways for sustainable improvements based on the experience of analysed local governments.

**Keywords** Sustainability, Global reporting initiative, Structural equations modelling (SEM), Websites, Local governments

**Paper type** Research paper

### 1. Introduction

Internet has not only revolutionised the way that governments collect and disseminate information to citizens, but has also redefined expectations about public administration, and access to government services (Chua *et al.*, 2012). Internet endows the public sector with a powerful channel of communication that contributes to



establishing a true dialogue between public administration and its stakeholders (Tat-Kei Ho, 2002; Thomas and Streib, 2005; Gandía and Archidona, 2008).

There are numerous studies on the use of internet in public administrations, particularly related to e-government initiatives and their determinant factors (Torres *et al.*, 2005; Pina *et al.*, 2007a, b, 2009a; Baldersheim and Ogard, 2008; Caba *et al.*, 2008; Serrano-Cinca *et al.*, 2009; Bertot *et al.*, 2010; Gallego-Álvarez *et al.*, 2010; Frias *et al.*, 2014), accessibility and the quality of information disseminated (Ball, 2005; Pina *et al.*, 2007b; Gandía and Archidona, 2008; Chua *et al.*, 2012) and the disclosure of budgetary and financial information (Pina *et al.*, 2007a, 2009b; Caba *et al.*, 2008, 2014; Guillamón *et al.*, 2011).

So far, a great deal of the information published focuses on economic data, which the governments have the obligation to report. However this trend seems to be changing, due to the increased interest of society in knowing how public budgets are managed and whether they are being used to fulfil the political commitments made to the population (Bellringer *et al.*, 2011; Goswami and Lodhia, 2014; Joseph *et al.*, 2014).

For this reason, the public administrations are beginning to publish sustainability reports focusing on their economic, social and environmental dimensions. This is the first step to more fully report on its commitment to sustainability (Royo *et al.*, 2014). The distribution of this information is aiding to improve trust in and the legitimacy of institutions (Qian *et al.*, 2011; Greco *et al.*, 2012, 2015; Cuadrado-Ballesteros *et al.*, 2014). Moreover, the need to be increasingly transparent is particularly relevant on local governments due their proximity to the citizen.

Despite the growing importance of the dissemination of sustainability information by local governments, few studies have analysed which content are relevant for publishing to inform stakeholders and improve their transparency (Marcuccio and Steccolini, 2005; Bellringer *et al.*, 2011). Furthermore, there is still an imbalance between the information being published about each dimension: the economic dimension being that which reports a great amount of data while the others are less well represented. Neither did previous studies analyse the optimum balance in the necessary information which should be published about each dimension (Madhala and Shavit, 2008). Nor has there been research on the influence that governance and strategies have on the issues identified as priorities in the disclosure.

For this reason, this study seeks to provide empirical evidence regarding the use made by local governments of their websites to disclose information about sustainability and to improve its transparency and credibility (Piotrosky and Van Ryzin, 2007). On that basis, the main aim of this research is to analyse the amount and the nature of information found on local government websites related to sustainability. This study allows us to explore the weight of the information pertaining to each dimension, the influences between the amounts of strategic contents and the rest of dimensions, and the nature of priority issues.

To do so, we attempt to answer the following research questions:

- RQ1. Are all dimensions of sustainability represented in the contents disseminated on the websites of local governments?
- RQ2. Are these dimensions and their variables represented in a balanced way?
- RQ3. Does the information respond to a management scheme with a previous strategic approach?
- RQ4. Are all interest groups represented?

This research does not analyse these contents in an isolated way, but proposes an analytical model to show relationships between the contents of the different dimensions of sustainability that are disclosed on the websites of local governments in big European cities. Modelling contents would improve the understanding of interdependencies among various implicit questions of sustainability and the consistency of dimensions. The proposed model can serve as a reference framework to analyse the structure of the information supplied in a balanced and comprehensive way. The validation of the importance given to each of these contents of the dimensions and their organisation into a model that could present them in a coordinated fashion would improve the quality of the information, its priorities, coherence and comparability, and the correlation between the information about strategies and the rest of the contents.

Our study is structured in the following way: after this introduction, the second part justifies the reason for this research and establishes the objectives pursued. Then, the third section describes the model suggested, the working hypothesis is outlined and the methodology used in the empirical analysis is justified based on structural equation modelling (SEM). In the fourth part, the hypotheses are contrasted and the results obtained are analysed. Finally, in the fifth section, there is a series of reflections about the utility and relevance of the proposed model.

## 2. Theoretical approaches to sustainable reporting in local governments

Several authors have analysed the motivations leading local governments to intensify their efforts with respect to sustainability reporting (Bellringer *et al.*, 2011; Qian *et al.*, 2011; Greco *et al.*, 2012, 2015). Stakeholder and Legitimacy theories have been used to explain the reasons for disclosing sustainability information (Deegan, 2002). Although the governmental sector must show a greater approach to sustainability due to its use of public resources, its commitment to accountability and information transparency, it remains insufficient (Cuadrado-Ballesteros *et al.*, 2014) despite the use of new communication technologies.

The results of previous research show clear opportunities to improve information transparency on sustainability in local governments (Navarro *et al.*, 2014). First, due to the very nature of sustainability, the information published in this respect is very disperse and irregularly distributed throughout many different sections of websites with no interrelationship between contents. Second, the websites do not include homogeneous information about how sustainability was achieved and the priorities in the issues.

According to Fiorino (2010), there are studies referring to local administration which suggest that economic prosperity and the protection of the environment are related in a positive way. But none of these studies establish either the causality or the interrelationships among the political, social, economic and environmental systems in city councils. This causal relationship could exist too between the levels of disclosure or the varied nature of contents in the information disseminated on the web. For more information about the levels of disclosure strategies, more information is needed on the other dimensions of sustainability.

The analysis of these relationships could show how local governments have improved transparent communication with their stakeholders. These cause-effect relationships are important because they strengthen the Theory of Legitimacy since they show if the entity goes from a mere declaration of intents to the implementation of certain specific initiatives which generate real impacts on sustainability (Marcuccio and

Steccolini, 2005; Greco *et al.*, 2012; Royo *et al.*, 2014). Besides, the suggested model would have to be consistent with the Stakeholder Theory (Bellringer *et al.*, 2011), pointing out if the actions that are communicated have an impact on relationships with each of the stakeholders, which are the priority initiatives, and also if some group of interest is not included.

For Hoppe and Coenen (2011), the achievement of local governments in the field of sustainability is the consequence of a combination of initiatives, policies and the results of those policies. All the information about these issues must be communicated on the web. A greater amount of this type of information about strategies should have some positive impact on different dimensions which integrate information about sustainable development (social, economic and environmental development). Some recent studies highlight the importance of analysing this relationship which helps them to better understand the most strategic aspects for undertaking more sustainable action (Goswami and Lodhia, 2014). To manage the field of public administration, it would be necessary to transfer these initiatives on sustainability into practices in their social responsibility (SR) communication policies and information disclosure on the web.

Ball and Bebbington (2008) highlight the need to improve dissemination practices because the reporting on sustainability in these entities is still fragmentary and incipient. However, the guidelines which orientate information disclosure practices like the Global Reporting Initiative proposal (GRI, 2013) are still not very attractive and have little following among local governments because they are not adapted to their context (Guthrie and Farneti, 2008; Tort, 2010; Farneti and Siboni, 2011; Greco *et al.*, 2012). But the lack of guidelines to standardise contents and official reports on sustainability does not mean there is a lack of commitment on the part of public entities (Frost, 2007; Goswami and Lodhia, 2014), considering that they could be disseminating these commitments through other channels of information or communication, such as their websites (Larrinaga and Pérez, 2008).

In particular, it is important to know what content dissemination is necessary to improve transparency. According to Bellringer *et al.* (2011), it seems like some local governments have not yet understood the role that disclosure of information about sustainability plays in improving it.

Therefore, information disclosure practices about sustainability in local governments have two problems: first, the absence of specific standards adapted to the reality of local entities disseminating this information (this has resulted in a broad dispersion in communication (Goswami and Lodhia, 2014), since there is not a commonly accepted rule about which contents should be contained in sustainability reports (Bellringer *et al.*, 2011) and second, the irrelevancy of disseminated information, since all the contents proposed are presented as if they were of the same priority and urgency for all stakeholders. In the absence of a standardisation of contents, it is not even guaranteed that all stakeholders are properly represented among the addressees of the information provided (Navarro *et al.*, 2014).

In view of the above, the main aim is to validate the representation of the contents of information which is nowadays offered by local European governments, focusing on big representative cities in three of the European administrative cultures. The research objective is to explore the relationships in the levels of information disclosure about sustainability dimensions through studying the content disseminated on these municipalities' websites. The amount and nature of these contents are not analysed in an isolated way, but by constructing a model representing interdependences between

dimensions to improve how the information is understood. This conceptual model can suggest ways for sustainable improvements based on the experience of the local governments under analysis.

### 3. Empirical study

#### 3.1 *Selection of the sample*

For this first approach, the sample of the empirical study comprises the local governments of 142 big European cities belonging to three different cultures of public administration (Kickert, 1997): Anglo-Saxon countries (England and Ireland), Nordic and the Netherlands countries (Norway, Sweden, Finland, Belgium and Holland) along with Southern European countries (Spain, Portugal and Italy).

The criterion used to select the city councils in the sample has been population size. The cities involved in the study have been those with more than 150,000 inhabitants although, on some occasions, smaller cities have been incorporated to balance the number of cities per country. This criterion has also been used in other studies of a similar nature (Bastida and Benito, 2007; Pina *et al.*, 2009a, b; Navarro *et al.*, 2014). There are different reasons to justify this choice: first, because in big cities, there are many and different stakeholders; second, due to the fact that these cities have more resources and therefore more ability to communicate information; the third reason resides in a more intense professionalisation of the staffs in these big municipalities, which could facilitate innovation in issues related to sustainability; and finally, fourth, because the supply of public services is greater and more homogeneous in big cities with respect to their legal obligations.

#### 3.2 *Definition of variables*

Given the multiple aspects involved in local governments' sustainability policies and, in order to normalise and standardise the questions to be asked, a questionnaire has been added to enable a synthesis of the most relevant variables in the public sector field.

In line with the recommendations of legislation in the countries in the sample, as well as some international pronouncements, the 75 variables in the questionnaire and the distinction of its seven sections have been defined through the GRI (2013) proposal. This guideline has been used as a basis for analysing sustainability practices reported at local government levels in previous studies (Guthrie and Farneti, 2008; Tort, 2010; Navarro *et al.*, 2010, 2014; Farneti and Siboni, 2011; Goswami and Lodhia, 2014).

Websites of the city councils under analysis have been considered a good way to study the information published about sustainability, granting the best opportunities that internet has to offer to boost communication with and commitment to stakeholders, in spite of the fact that the creation of a true electronic dialogue seems to remain an unfulfilled challenge for local European governments (Royo *et al.*, 2014).

The information about each of these variables or indicators with respect to sustainability information has been gathered by consulting the contents published on the websites of the 142 local governments in the sample by applying a content analysis methodology used in other similar works (Ettredge *et al.*, 2001; Rodríguez *et al.*, 2006, 2007; Bastida and Benito, 2007; Pina *et al.*, 2007a; Royo *et al.*, 2014). Each indicator is a binary variable, which has a value of 1 if the information referred to is disclosed through the website while it is value 0 if it has not been disseminated or if it is not easily available. The method for data collection is explained below: first, two researchers sought the information within websites separately; second, the information indicated

was pooled; in case of divergence, value 1 was selected, since it meant one of the two researchers had found the variable on the web. This process of data collection has been validated in previous research (Navarro *et al.*, 2014).

### 3.3 Definition of dimensions and of the model proposed

As there have been no previous studies testing these relationships, this research proposes an exploratory model as a first approach. Therefore, 75 indicators on the questionnaire have been included in the model, grouped into the seven sections of the GRI guideline which could formulate the starting dimensions of the initial exploratory model. The first four dimensions correspond to each of the sub-epigraphs of the block about general GRI guideline information: strategy and analysis, the profile of the organisation, parameters of the information and the governance, commitments and participation of the groups of interest. The other three dimensions are identified, to begin with, in each of the blocks about economic, social and environmental information.

Taking into account the variety of contents in the economic information section, it has been divided into three different sub-dimensions: a first group of variables related to legal obligations about the presentation of annual accounts (financial statements); a second group of budgetary variables of a provisional nature which anticipates future results (planning); and a third category of general information about economic conditions in the hiring of suppliers. And the environmental dimension has been also divided into two sub-dimensions: environmental initiatives and environmental resource consumption.

As a result of an initial contrast, the profile of the organisation and governance, commitments and stakeholders participation dimensions were eliminated for not being suitably reliable. Moreover, as the research is at an initial stage of development, we will adopt the criterion of keeping all variables: only those whose factor loadings are lower than 0.5 have been deleted in order to avoid affecting the reliability of the dimensions. This process means that the final model has a total of 40 variables from the 75 initial items (Table AI).

Therefore, after the process of creating the initial model described above, we have tried to validate the existence of relationships in the provision of strategies and the dissemination of information parameters as well as the balance in website information considering the three dimensions of sustainability: the economic, social and environmental. All this leads us to formulate the following hypothesis:

- H1. The information about strategy and the parameters of information about the SR of local governments has an impact on levels of economic information.
- H2. The information about strategy and the parameters of information about local governments' SR has an impact on the levels of social information.
- H3. The information about strategy and the parameters of information about local governments' SR has an impact on levels of environmental information.

Additionally, according to Fiorino's (2010) approach on the necessity of a transition for environmental sustainability in the public administration sector, our aim was to verify if it is possible to establish a new relationship within the contents of this dimension. This relationship would try to verify the impact that the implementation of environmental and *ex ante* policy initiatives have on reducing resource consumption and on the *ex post* results of such policies. A priori, it was thought that variables contained in this dimension could correspond to the double category of policies

(outcomes) and results (outputs) suggested by Hoppe and Coenen (2011). In order to verify this relationship, a fourth hypothesis is formulated:

- H4. The information about the initiatives and environmental investments of local governments has an impact on information about reductions in natural resource consumption.

Finally, the model proposed for the contrast of the hypothesis is formed by 40 variables grouped around eight dimensions: two exogenous dimensions (strategy and information parameters) related to the other six endogenous dimensions: the social dimension (social indicators), economic dimension (economic-financial performance, budgetary information and economic information disclosure) and environmental dimension (environmental initiatives and environmental resource consumption).

### 3.4 Method of analysis

SEM comes from the causal analysis which enables the explications of phenomena that can be checked in an empirical way (Pearl, 2009). Its main characteristic is its ability to carry out multiple and simultaneous regressions between indicators and dimensions. There are two sub-models in a SEM: that of measurement, which assesses the adaptation of indicators to represent dimension, and that of structure, which assesses the relationships among the dimensions.

For the study of the model proposed, we have chosen the Partial Least Square (PLS), specifically Smart PLS 2.0 (Ringle *et al.*, 2005), because of its ability to validate the causal model with empirical data, its emphasis on prediction (due to the fact that it maximises the variation explaining each dimension, which is very useful in the first stages of research (Reinartz *et al.*, 2009)) and, finally, because it is very versatile in its choice of variables (Chin, 2010). On the other hand, PLS is shown to be superior in terms of the consistency and reliability of estimated parameters when the sample size is small (Reinartz *et al.*, 2009) and it has the ability to make use of all the information provided by the data, even in those cases where some observations may be incomplete (Wold, 1985).

According to the Straub *et al.* (2004) and Lewis *et al.* (2005) validation guidelines, the assessment of the measurement sub-model is based on the analysis of the reliability of each variable ( $\lambda$ ), the reliability of the scale or composed reliability ( $\rho_c$ ), the convergent validity or variance extracted (AVE) and, finally, the discriminant validity ( $C_C$ ).

The validity of the structural sub-model was verified through the analysis of the variance, explaining each dimension ( $R^2$ ) and the contrast of the hypothesis ( $\beta$ ) through the nonparametric bootstrap re-sampling technique (Roldán and Sánchez-Franco, 2012).

## 4. Results

Focusing the measurement sub-model, the reliability values ( $\rho_c$ ) of the dimensions scale are suitable for initial models, although convergent validity values (AVE) in social information and environmental investments are low. This indicates that the variance explained by their variables is not enough (Table I). When the sample has been extended to all types of European administrative cultures, it should show if the variables with low loads of these dimensions strengthened or if their elimination is necessary.

Having tested the sub-measurement model, we analyse the structural sub-model. The  $R^2$  values are related to the variance explained by relationships with other dimensions. Furthermore, the dimensions are also explained by their indicators and the variances explained by them are the values of convergence validity. Considering that for each dimension the value of the  $R^2$  is over 0.2 in all cases, and in half of them it is



**Table I.**  
Results of the  
measurement model

| Model dimensions                                       | F.Comp ( $\rho_c$ ) | AVE   | $\sqrt{AVE}$ ( $C_C$ ) |
|--|---------------------|-------|------------------------|
| Strategy and analysis                                  | 0.968               | 0.884 | 0.940 (0.726)          |
| Organisation profile                                   | ns                  | ns    | ns                     |
| Information parameters                                 | 0.920               | 0.746 | 0.864 (0.592)          |
| Governance, commitments and stakeholders participation | ns                  | ns    | ns                     |
| Economic-financial performance                         | 0.870               | 0.536 | 0.780 (0.732)          |
| Budgetary information                                  | 0.772               | 0.538 | 0.733 (0.726)          |
| Economic information disclosed                         | 0.877               | 0.545 | 0.738 (0.728)          |
| Social indicators                                      | 0.808               | 0.468 | 0.684 (0.780)          |
| Environmental initiatives                              | 0.858               | 0.557 | 0.795 (0.671)          |
| Environmental resources consumption                    | 0.790               | 0.459 | 0.717 (0.454)          |

**Note:** ns, not significant

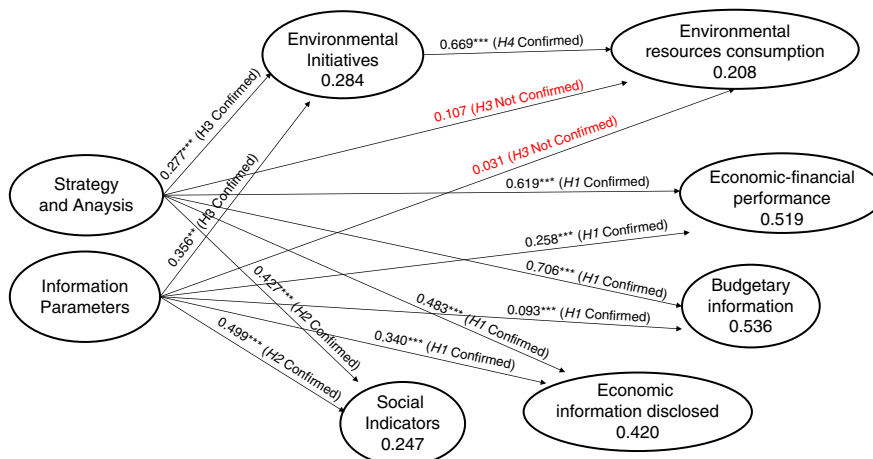
even higher than 0.33, we can conclude that the variance of the model explained is sufficient (Chin, 1998).

Based on the results shown in Figure 1, it can be seen how the strategy and information parameters describe to a great degree the dimensions which build the economic, social and environmental parts. This shows the impact this information triggers in sustainability reporting. It is the social part that has the lowest value so a new line of study could research if there are other dimensions which affect it too.

Regarding the causal relationships outlined (Figure 1), it can be observed that both the strategy and the parameters of information are related in a positive way to the economic block, in economic performance, in the budget and in the disclosure of economic information. This confirms the *H1* hypothesis.

Likewise, both the strategy and the dissemination of the parameters of the information are revealed as important factors in social indicators, thus confirming the *H2* hypothesis, despite the weakness we detected in this dimension.

Finally, the strategy and the parameters of the information have shown to be determinant in environmental initiatives and investments, but not in the consumption of natural resources, partially confirming hypothesis *H3*.

**Figure 1.**  
Results of the  
structural model

However, we have demonstrated that the influence of these dimensions in environmental consumption takes place indirectly thanks to the strong positive relationship that environmental initiatives and investments have in this dimension, thus confirming hypothesis *H4*.

## 5. Discussion and conclusion

The results presented above show the leverage effect that the information about strategies can have on the amount of information in other dimensions of sustainability, especially in economic contents, though this gearing effect is lower in the social dimension. Strategy information also increases information on environmental initiative, as it is a mediator variable between strategy and information about consumption reduction in environmental resources.

This evidences a shift of paradigm on city governments' websites: the information has changed from a traditional bureaucratic paradigm into a new one more focused on management processes, as Torres *et al.* (2005) had suggested. The existence of interdependencies between the different issues involved in sustainability is demonstrated, corroborating the multidimensional nature of this concept. When differing dimensions of sustainability are presented in a coordinated way and not in an isolated manner, depending on the preferences of public administrators, the quality of information, its coherence and the trust of citizens improve.

The results obtained allow us to construct a relationship model between the strategy dimension and the contents of sustainability which are disclosed on the websites of local governments. The model obtained reveals that there is coherence in the amount of sustainability information disclosed by big European cities on their websites and their three dimensions, according to the guidelines suggested by Fiorino (2010). However, there is a lack of homogeneity in the amounts of information disclosed from the three dimensions. The economic dimension is that which contributes the greatest amount due to a high level of regulation. It could show the need for legally regularising the amount of information in other dimensions, since a sustainability strategy is not possible if there is no balance between three dimensions.

Goswami and Lodhia (2014) concluded that there is a strong relationship between the quality and dissemination of information levels in sustainability and the presence of standards which give greater uniformity to dissemination practices. As a first step towards this standardisation, we have shown how useful 40 of the 75 GRI indicators are to explain the elements of sustainability that local governments of big European cities report on their websites. Therefore the GRI could be a useful tool within the standardisation process of sustainability information on websites. Despite this, it has been confirmed that most of the local governments we have analysed still do not emit a sustainability report, as Tort (2010) published some years ago.

However, for the elements of the GRI guideline which have not been validated by the model in each of the dimensions, there could be a double interpretation. On the one hand, these aspects may not have been considered a priority by local governments when taking inhabitants into account, and that is why they have been rejected. On the other hand, the fact that they are in the model could explain the existence of a lack of information. In the latter case, it should be analysed more in depth, in a process where dialogue channels can be opened with stakeholders to find out their opinion about the relevance of omitted information. For this reason, we believe that it is necessary to establish priority mechanisms to ensure the participation of stakeholders in defining the contents of the websites.

The model empirically shows the existence of strong links among the aspects related to the management of SR regarding the definition of strategies and the identification of information parameters, as well as information about sustainability in the local field, basically in its economic dimension. Previous studies had already demonstrated the influence that certain economic-financial variables have on disclosure levels (Guillamón *et al.*, 2011), but until now there has not been empirical proof of the relationships between the strategy and parameters of information dimensions, and the economic contents, beyond the legal obligations of accountability. This allows a homogenisation of the contents disclosed voluntarily in this dimension beyond legal obligations, induced by contents related to strategies.

The information about sustainability policies are directly related to information on environmental initiatives, and this last variable is a mediator variable between sustainability strategy and information about the reduction in environmental resource consumption. This empirical evidence could be useful to show where the emphasis should be made in the articulation of public sustainability policies, along the lines suggested by Hoppe and Coenen (2011). These authors insist that the accent should be put on the causes (initiatives) and not directly on the effects (consumption) since the latter will be induced by the former. This is important for deciding how resources can be more efficient, although this conclusion should also be verified in more extensive future studies.

On the other hand, the causal relationship between strategic issues and the diffusion of information regarding the social dimension of sustainability has been validated as weak, so the study suggests that more effort is necessary to redesign the information contents disclosed regarding this dimension of sustainability.

To sum up, the study underlines the lack of consistency in GRI proposal contents on governance, commitments and mechanisms to guarantee the participation of groups of interest, since this section of the GRI guideline has not been found to be significant in the model we have tried to build. This led us to study which performances have an impact on relationships with each stakeholder and what their priorities are. From the Legitimacy Theory, this lack of meaningfulness questions the motivations of local government when informing the public. By the same token, it demonstrates little commitment towards the approaches of the Stakeholder Theory, in the terms formulated by Bellringer *et al.* (2011). But Greco *et al.* (2015) outlined the frustrated efforts made by local governments to involve stakeholders, achieving neither the participation nor the feedback they wished, due to the scant interest afforded to reports when it is difficult to understand their contents.

As the lack of mechanisms to guarantee stakeholders participation is contrary to the concept of corporate social responsibility, this should be one of the key questions still pending to be incorporated into the sustainability policies of local governments and into the contents of information disseminated on their websites in order to give these policies more transparency and credibility.

Some of the limitations of this study can give rise to various future lines of work. First, increasing the sample will allow us to improve the robustness of the results since the current sample limits the conclusions to local governments of big European cities belonging to three types of administrative cultures. Second, this research has analysed the lack of information but has not studied the reasons for this absence; this point should be researched. Third, this study focuses on the amount of information provided and its nature, but it is also necessary in futures studies to analyse the relationship between the kind of information in each dimension and the initiatives reflected in strategy.

**References**

- Baldersheim, H. and Øgård, M. (2008), "Innovation in e-government: analysis of municipal web pages in the Nordic countries", *Information Polity*, Vol. 13 No. 3, pp. 125-137.
- Ball, A. (2005), "Environmental accounting and change in UK local government", *Accounting, Auditing & Accountability Journal*, Vol. 18 No. 3, pp. 346-373.
- Ball, A. and Bebbington, J. (2008), "Editorial: accounting and reporting for sustainable development in public service organizations", *Public Money and Management*, Vol. 28 No. 6, pp. 323-326.
- Bastida, F. and Benito, B. (2007), "Central government budget practices and transparency: an international comparison", *Public Administration*, Vol. 85 No. 3, pp. 667-716.
- Bellringer, A., Ball, A. and Craig, R. (2011), "Reasons for sustainability reporting by New Zealand local governments", *Sustainability Accounting, Management and Policy Journal*, Vol. 2 No. 1, pp. 126-138.
- Bertot, J.C., Jaeger, P.T. and Grimes, J.M. (2010), "Using ICTs to create a culture of transparency: e-government and social media as openness and anti-corruption tools for societies", *Government Information Quarterly*, Vol. 27 No. 3, pp. 264-271.
- Caba, M.C., Rodríguez, M.P. and López, A.M. (2008), "E-government process and incentives for online public financial information", *Online Information Review*, Vol. 32 No. 3, pp. 379-400.
- Caba, M.C., Rodríguez, M.P. and López, A.M. (2014), "The determinants of governments financial reports online", *Transylvanian Review of Administrative Sciences*, No. 42, pp. 5-31.
- Chin, W.W. (1998), "Issues and opinion on structural equation modelling", *MIS Quarterly*, Vol. 22 No. 1, pp. 7-106.
- Chin, W.W. (2010), "How to write up and report PLS analyses", in Esposito Vinzi, V., Chin, W.W., Henseler, J. and Wang, H. (Eds), *Handbook of Partial Least Squares, Springer Handbooks of Computational Statistics*, Springer, Berlin and Heidelberg, pp. 655-690.
- Chua, A.Y., Goh, D.H. and Ang, R.P. (2012), "Web 2.0 applications in government web sites: prevalence, use and correlations with perceived web site quality", *Online Information Review*, Vol. 36 No. 2, pp. 175-195.
- Cuadrado-Ballesteros, B., Frias-Aceituno, J. and Martinez-Ferrero, J. (2014), "The role of media pressure on the disclosure of sustainability information by local governments", *Online Information Review*, Vol. 38 No. 1, pp. 114-135.
- Deegan, C. (2002), "Introduction: the legitimising effect of social and environmental disclosures – a theoretical foundation", *Accounting, Auditing & Accountability Journal*, Vol. 15 No. 3, pp. 282-311.
- Ettredge, M., Richardson, J.V. and Scholz, S. (2001), "The presentation of financial information at corporate web sites", *International Journal of Accounting Information Systems*, Vol. 2 No. 3, pp. 149-168.
- Farneti, F. and Siboni, B. (2011), "An analysis of the Italian governmental guidelines and of the local governments' practices for social reports", *Sustainability Accounting, Management and Policy Journal*, Vol. 2 No. 1, pp. 101-125.
- Fiorino, D.J. (2010), "Sustainability as a conceptual focus for public administration", *Public Administration Review*, Vol. 70 No. s1, pp. 78-88.
- Friás, J.V., García, I.M. and Rodríguez, L. (2014), "Electronic administration styles and their determinants. evidence from Spanish local governments", *Transylvanian Review of Administrative Sciences*, Vol. 10 No. 41, pp. 90-108.
- Frost, G. (2007), "The introduction of mandatory environmental reporting guidelines: Australian evidence", *Abacus*, Vol. 43 No. 2, pp. 190-216.

- Gallego-Álvarez, I., Rodríguez-Domínguez, L. and García-Sánchez, I.M. (2010), "Are determining factors of municipal e-government common to a worldwide municipal view? An intra-country comparison", *Government Information Quarterly*, Vol. 27 No. 4, pp. 423-430.
- Gandía, J.L. and Archidona, M.C. (2008), "Determinants of web site information by Spanish city councils", *Online Information Review*, Vol. 32 No. 1, pp. 35-57.
- Global Reporting Initiative (GRI), (2013), "G4 sustainability reporting guidelines", Global Reporting Initiative, Amsterdam.
- Goswami, K. and Lodhia, S. (2014), "Sustainability disclosure patterns of South Australian local councils: a case study", *Public Money and Management*, Vol. 34 No. 4, pp. 273-280.
- Greco, G., Sciulli, N. and D'onza, G. (2012), "From Tuscany to Victoria: some determinants of sustainability reporting by local councils", *Local Government Studies*, Vol. 38 No. 5, pp. 681-705.
- Greco, G., Sciulli, N. and D'onza, G. (2015), "The influence of stakeholder engagement on sustainability reporting: evidence from Italian local councils", *Public Management Review*, Vol. 17 No. 4, pp. 465-488.
- Guillamón, D., Bastida, F. and Benito, B. (2011), "The determinants of local government's financial transparency", *Local Government Studies*, Vol. 37 No. 4, pp. 391-406.
- Guthrie, J. and Farneti, F. (2008), "GRI sustainability reporting by Australian public sector organizations", *Public Money and Management*, Vol. 28 No. 6, pp. 361-366.
- Hoppe, T. and Coenen, F. (2011), "Creating an analytical framework for local sustainability performance: a Dutch case study", *Local Environment*, Vol. 16 No. 3, pp. 229-250.
- Joseph, C., Pilcher, R. and Taplin, R. (2014), "Malaysian local government internet sustainability reporting", *Pacific Accounting Review*, Vol. 26 Nos 1/2, pp. 75-93.
- Kickert, W. (1997), "Public management in the United States and Europe", in Kickert, W. (Ed.), *Public Management and Administrative Reform in Western Europe*, Edward Elgar, Cheltenham, pp. 15-38.
- Larrinaga, C. and Pérez, V. (2008), "Sustainability accounting and accountability in public water companies", *Public Money and Management*, Vol. 28 No. 6, pp. 337-343.
- Lewis, B.R., Templeton, G.F. and Byrd, T.A. (2005), "A methodology for construct development in MIS research", *European Journal of Information Systems*, Vol. 14 No. 4, pp. 388-400.
- Madhala, A. and Shavit, T. (2008), "How can a rating-based method for assessing corporate social responsibility (CSR) provide an incentive to firms excluded from socially responsible investment indices to invest in CSR?", *Journal of Business Ethics*, No. 82, pp. 899-905.
- Marcuccio, M. and Steccolini, I. (2005), "Social and environmental reporting in local authorities", *Public Management Review*, Vol. 7 No. 2, pp. 155-176.
- Navarro, A., Alcaraz, F.J. and Ortíz, D. (2010), "La divulgación de información sobre responsabilidad corporativa en administraciones públicas: un estudio empírico en gobiernos locales", *Spanish Accounting Review*, Vol. 13 No. 2, pp. 285-314.
- Navarro, A., De los Ríos, A., Ruiz, M. and Tirado, P. (2014), "Transparency of sustainability information in local governments: English-speaking and Nordic cross-country analysis", *Journal of Cleaner Production*, No. 64, pp. 495-504.
- Pearl, J. (2009), *Causality: Models, Reasoning and Inference*, 2nd ed., Cambridge University Press, New York, NY, 463pp.
- Pina, V., Torres, L. and Acerete, B. (2007a), "Are ICTs promoting government accountability? A comparative analysis of e-governance developments in 19 OECD countries", *Critical Perspectives on Accounting*, Vol. 18 No. 5, pp. 583-602.

- Pina, V., Torres, L. and Royo, S. (2007b), "Are ICTs improving transparency and accountability in the EU regional and local governments? An empirical study", *Public Administration*, Vol. 85 No. 2, pp. 449-472.
- Pina, V., Torres, L. and Royo, S. (2009a), "E-government evolution in EU local governments: a comparative perspective", *Online Information Review*, Vol. 33 No. 6, pp. 1137-1168.
- Pina, V., Torres, L. and Yetano, A. (2009b), "Accrual accounting in EU local governments: one method, several approaches", *European Accounting Review*, Vol. 18 No. 4, pp. 765-807.
- Piotrosky, S.J. and Van Ryzin, G.G. (2007), "Citizen attitudes toward transparency in local government", *The American Review of Public Administration*, Vol. 37 No. 3, pp. 306-323.
- Qian, W., Burritt, R. and Monroe, G. (2011), "Environmental management accounting in local government: a case of waste management", *Accounting, Auditing & Accountability Journal*, Vol. 24 No. 1, pp. 93-128.
- Reinartz, W., Haenlein, M. and Henseler, J. (2009), "An empirical comparison of the efficacy of covariance-based and variance-based SEM", *International Journal of Research in Marketing*, Vol. 26 No. 4, pp. 332-344.
- Ringle, C.M., Wende, S. and Will, A. (2005), "SmartPLS 2.0.M3", SmartPLS, Hamburg, available at: [www.smartpls.de](http://www.smartpls.de) (accessed 5 April 2015).
- Rodríguez, M.P., Caba, M.C. and López, A.M. (2006), "Cultural contexts and governmental digital reporting", *International Review of Administrative Sciences*, Vol. 32 No. 3, pp. 379-400.
- Rodríguez, M.P., Caba, M.C. and López, A.M. (2007), "E-Government and public financial reporting: the case of Spanish regional governments", *American Review of Public Administration*, Vol. 37 No. 2, pp. 142-177.
- Roldán, J.L. and Sánchez-Franco, M.J. (2012), "Variance-based structural equation modelling: guidelines for using partial least squares in information systems research", *Research Methodologies, Innovations and Philosophies in Software Systems Engineering and Information Systems*, Information Science Reference, Hershey, pp. 193-221.
- Royo, S., Yetano, A. and Acerete, B. (2014), "E-Participation and environmental protection: are local governments really committed?", *Public Administration Review*, Vol. 74 No. 1, pp. 87-98.
- Serrano-Cinca, C., Rueda-Tomás, M. and Portillo-Tarragona, P. (2009), "Determinants of e-government extension", *Online Information Review*, Vol. 33 No. 3, pp. 476-498.
- Straub, D., Boudreau, M.C. and Gefen, D. (2004), "Validation guidelines for IS positivist research", *The Communications of the Association for Information Systems*, Vol. 13, pp. 380-427.
- Tat-Kei Ho, A. (2002), "Reinventing local governments and the e-government initiative", *Public Administration Review*, Vol. 62 No. 4, pp. 434-444.
- Thomas, J.C. and Streib, G. (2005), "E-democracy, e-commerce, and e-research examining the electronic ties between citizens and governments", *Administration & Society*, Vol. 37 No. 3, pp. 259-280.
- Torres, L., Pina, V. and Royo, S. (2005), "E-government and the transformation of public administrations in EU countries: beyond NPM or just a second wave of reforms?", *Online Information Review*, Vol. 29 No. 5, pp. 531-553.
- Tort, L.E. (2010), "GRI reporting in government agencies, Global Reporting Initiative, Amsterdam.
- Wold, H. (1985), "Systems analysis by partial least squares", in Nijkamp, P., Leitner, H. and Wrigley, N. (Eds), *Measuring the Unmeasurable*, NATO ASI Series, M. Nijhoff, Distributors for the US and Canada, Dordrecht, Boston and Hingham, MA, pp. 221-251.

| Model indicators  | Loadings ( $\lambda$ ) |
|---|------------------------|
| <i>Strategy and analysis</i>  |                        |
| 1. Is a statement made by the Head of Government on the importance of sustainability for the local government and its strategy? | 0.905***               |
| 2. Does this statement set out priorities, strategies and key factors for the short-medium term?                                | 0.946***               |
| 3. Does this statement address long-term trends relevant to priorities concerning sustainability?                               | 0.917***               |
| 4. Does this statement include events, achievements and failures during the period in question?                                 | 0.855***               |
| 5. Does this statement include goals-oriented performance perspectives?   | 0.941***               |
| 6. Does this statement include challenges and targets for the coming year and the forthcoming 3-5 years?                        | 0.911***               |
| <i>Organisation profile</i>   |                        |
| 7. Does the local government own trademarks?  | ns                     |
| 8. Are different areas clearly defined?   | 0.561**                |
| 9. Do local government officials have area-defined responsibilities?  | 0.635***               |
| 10. Is the situation of the regional seat of government stated?   | ns                     |
| 11. Is a statement made of the number of countries in which significant activities are carried out?                             | -0.621***              |
| 12. Is the number of employees stated?  | ns                     |
| 13. Have significant changes taken place in the local government structure or size?   | ns                     |
| 14. Has the local government been awarded prizes or other recognition during the period in question?                            | ns                     |
| <i>Information parameters</i>   |                        |
| 15. Is a statement made of the period corresponding to the information supplied?  | 0.965***               |
| 16. Is the date of publication of this information stated?  | 0.934***               |
| 17. Is the presentation frequency of this information stated?   | ns                     |
| 18. Is there a liaison person for questions concerning the information supplied?  | 0.832***               |
| 19. Does the information supplied include dates of specific interest for suppliers & users?                                     | 0.699***               |
| 20. Is priority assigned to the aspects addressed in the information supplied?  | ns                     |
| <i>Government, undertakings and stakeholder participation</i>   |                        |
| 21. Is there a given person or government body responsible for defining organisation strategy?                                  | ns                     |
| 22. Does the chief official hold any other public or private post?  | ns                     |
| 23. Do there exist works' committees or workers' representatives?   | ns                     |
| 24. Are the stakeholders included in the information supplied?  | ns                     |
| 25. Does the information presented include the government's programme?  | 0.859***               |
| 26. Is a statement made of the government's programme commitments that have been fulfilled?                                     | 0.942***               |
| 27. Does the governing party have an absolute majority?   | ns                     |
| 28. Are stakeholders selection and identification criteria included in the information supplied?                                | ns                     |
| <i>Economic indicators</i>  |                        |
| 29. Are revenues transferred from other public administrations/total revenues published?  | 0.816***               |
| 30. Is the level of fiscal pressure published?  | ns                     |

(continued)

**Table AI.**  
Results of the  
variables loadings

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| Model indicators  | Loadings ( $\lambda$ ) |
|---|------------------------|
| 31. Is gross expenditure, detailed by type of payment, published?   | ns                     |
| 32. Is gross expenditure, detailed by financial classification, published?  | 0.720***               |
| 33. Is capital expenditure, detailed by financial classification, published?  | 0.873***               |
| 34. Is the cost of service provision published?   | ns                     |
| 35. Is the mean payment period stated?  | 0.547***               |
| 36. Is a statement made of public assets and insured goods?   | 0.526***               |
| 37. Are data given on subsidies received?   | 0.831***               |
| <i>Budget</i>   |                        |
| 38. Is an expenditure forecast/beneficiary population published?  | ns                     |
| 39. Is a revenue forecast/beneficiary population published?   | ns                     |
| 40. Is the government's capacity for legal indebtedness made public?  | ns                     |
| 41. Is a statement made of future financial risk?   | 0.876***               |
| 42. Does the latter include medium-term perspectives?   | 0.575***               |
| 43. Are the following key economic assumptions and forecast made public: GDP growth, employment   | 0.716***               |
| <i>Disclose of the economic information</i>   |                        |
| 44. Is a statement made of current calls for tenders for the supply of goods or services?   | 0.719***               |
| 45. Is the profile of contracting companies published?  | 0.640***               |
| 46. Is a statement made of future calls for tenders?  | 0.711***               |
| 47. Is the policy on internal promotion published?  | ns                     |
| 48. Are staff training facilities published?  | ns                     |
| 49. Is an audit report published?   | 0.786***               |
| 50. Are the annual accounts published?  | 0.674***               |
| 51. Is a report published on the accounts policy implemented?   | ns                     |
| 52. Is a report published on the expenditure forecast?  | 0.822***               |
| <i>Social indicators</i>  |                        |
| 53. Is the offer of services made public?   | 0.523***               |
| 54. Is a statement made on expenditure incurred in the area of social issues?   | 0.570***               |
| 55. Is a subsidies announcement made for business activities?   | ns                     |
| 56. Is a statement made on pensions obligations to employees?   | ns                     |
| 57. Are grants offers to neighbourhood associations made public?  | 0.815***               |
| 58. Are offers of public employment made public?  | 0.591***               |
| 59. Are grants offers to NGOs made public?  | 0.852***               |
| 60. Are indicators of effectiveness and efficiency published?   | ns                     |
| 61. Is information given on initial wage (when staff are hired)/local minimum wage?   | ns                     |
| 62. Is information given on expenditure on local suppliers/total expenditure?   | ns                     |
| <i>Environmental initiatives</i>  |                        |
| 63. Is information published on the initiatives taken to alleviate the environmental impact of products and services?                                   | 0.764***               |
| 64. Is a statement made of the actions taken to increase savings via conservation or increased efficiency?  | 0.889***               |
| 65. Is information published on initiatives taken to promote products and services that are energy efficient or based on the use of renewable energies? | 0.709***               |
| 66. Is information published on the initiatives taken to reduce indirect energy consumption?  | 0.766***               |
| 67. Is information published on the total and type of expenditure on environmental investment?  | 0.606***               |

Table AI.

(continued)



| Model indicators  | Loadings ( $\lambda$ ) |
|---|------------------------|
| <i>Environmental consumption</i>  |                        |
| 68. Is the degree of reduction of the above impact stated?  | 0.807***               |
| 69. Is a statement made of the direct consumption of energy obtained from primary sources?  | 0.683***               |
| 70. Is a statement made of the consumption of intermediate energy?  | 0.526***               |
| 71. Is information published on reductions in energy consumption as a result of the above initiatives?  | 0.817***               |
| 72. Is information published on reductions achieved by the above initiatives?   | 0.713***               |
| 73. Is information published on the different sources of water supply employed, and the volume obtained from each source?   | ns                     |
| 74. Is information published on the percentage and total volume of water that is recycled and reused in the community?  | ns                     |
| 75. Is information published on the disposal of waste water by the community?   | ns                     |
| <b>Notes:</b> ns, not significant, based on <i>t</i> -one-tailed test (4,999). The significance of the loadings was estimated through a bootstrap sampling (5,000 sub-samples). ** $p < 0.01$ ; *** $p < 0.001$ |                        |

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