



## Raising Open and User-friendly Transparency- Enabling Technologies for Public Administrations



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### **D3.3 Use of Open Data platforms and social representations of government transparency**

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## EXECUTIVE SUMMARY

This document describes work carried out during the third (extended) year of the ROUTE-TO-PA project, within Workpackage 3, “Models and Methods”. The principal task active during this year was T3.3, “Change in social representations and use-case related understanding” (M25-M40). In this direction, an integrated model for evaluation of the extent to which ROUTE-TO-PA tools, used in specific scenarios, has succeeded in increasing **transparency** in SPOD-TET mediated interactions on/around Public Administrations’ open data, via user **engagement**. The integrated model builds on horizontal ‘layers’ corresponding to societal, community and individual usability models, and the ‘vertical’ concepts of transparency and engagement. This model has given rise to the **SCUTE** (Societal, Community, Usability, Transparency, Engagement) evaluation tool, that captures individual users’ subjective perceptions of these key concepts, across layers, as a result of having participated in ROUTE-TO-PA scenarios. Transparency is deconstructed into forms of democracy, meaning-making in online communities and agency; engagement is deconstructed into emergence of a shared object of activity, community development and usability affordances.

Overall results showed that users (principally citizens) had a positive evaluation of transparency across all levels of SCUTE, that enabled them to learn more about their Public Administration or city/region, as well as a positive evaluation of the ability of the tools to foster their engagement in terms of discussion and collaboration. The role of the facilitator was seen as very important. However, engagement in terms of creating new relations with other citizens and, crucially, with Public Administrations, was evaluated negatively. The small number of Public Administrator respondents was neutral concerning impact of the project on their organisations and forms of democracy, evoking the necessity of more time for appropriation of approaches and tools. It is concluded that the ROUTE-TO-PA project has succeeded, from citizen-users’ points of view, in its principal aim of augmenting transparency. In conclusion, we draw lessons learned for the project, synthesising results of other years of the project and in relation to workpackage 5 on scenario development. Amongst those lessons learned, we address: (1) the need for a more systemic approach involving political actors; (2) issues relating to time and resources needed to appropriate project tools; (3) the roles of facilitators; and (4) prospects for use of project tools in educating the future data scientists.

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## 1 INTRODUCTION

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### 1.1 PROJECT BACKGROUND

The purpose of this deliverable is to present work carried out within Workpackage 3 (“Models and Methods”) during the (extended) third year (M24-M40) of the ROUTE-TO-PA project.

We recall that the overall goal of the ROUTE-TO-PA project is to enable citizens to establish a more effectively transparent relation with their Public Administrations, on the basis of the meanings that individuals, groups or communities (co-)construct with respect to open data. For this, specific technological tools have been developed, for creating visualisations of open data (“TET”) and for integrating these into a specifically designed and implemented social network (“SPOD”). When used together, SPOD and TET enable citizen-users, with their public administrations, to discuss open data visualisations, better understand them and thereby change their representations of the degree of effective transparency of Public Administrations.

The aim of Workpackage 3 is therefore to provide the theoretical and methodological bases that will enable researchers to understand the nature of **participation**, by citizens and Public Administrations, in the use of the SPOD-TET tools, in a manner that reveals the degree of **transparency** of this activity. This is necessary for shaping (re-)design of the tools (WP4), for designing scenarios of usage of the tools (WP2) and for evaluating usage of tools in terms of success criteria (WP5).

Crucially, the WP3 models should enable understanding of how ROUTE-TO-PA technological tools (SPOD, TET) and user activity tools (usage scenarios) facilitate mutual **engagement** of citizens and Public Administrations on/around open data production and usage, with an attendant change in the degree of **transparency** of citizen-Public Administration relations or interactions.

In order to achieve this aim, across the 3 years of the project, work in WP3 (according to the Description of Work) is organised into 3 types of models:

- 1) Societal Model (Year 1). Based on Activity Theory (see D3.1), the main goals, community rules and social characteristics of groups of potential users<sup>1</sup> are identified, with respect to scenarios of usage, together with “tensions” between elements of the activity systems and their possible means of resolution (Task 3.1).
- 2) Community participation and interaction models<sup>2</sup> (Year 2). This is a model of forms of participation and joint action within online epistemic communities, on and around open data visualisations, mediated by the SPOD-TET tools (Task 3.2). The main theoretical bases are the theory of Joint Projects (Clark, 1996, 1999) and the Theory of Dialogue Games (Wittgenstein, 1978; Power, 1979; Levin & Moore, 1983).
- 3) Change in social representations and use-case related understanding (Year 3). The focus here is on individuals, users of SPOD-TET, in online communities, the changes in their (subjectively perceived and expressed) degrees of engagement and their representations of the degree of

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<sup>1</sup> In the rest of this document we shall use the term “**users**” to refer to any or all of the persons who have used ROUTE-TO-PA SPOD-TET tools, or have been involved in the project in some other way (e.g. administrators supervising engagement in the project), including specific groups of adult citizens, young citizens in educational settings, public administrators and persons (such as teachers, school directors) who have been scenario ‘owners’.

<sup>2</sup> In the rest of this document, “**Community participation and interaction model**” will be abbreviated to “**Community Model**”.

transparency of their relations to each other and Public Administrations, in online communities.

- 4) To these three models, we added, in the second year of the project, a **Model of Technology Usability** (see D3.2), in order to specifically consider the role of technology, with respect to the other models.

The division of WP3 into the development of these four types of models, over the three years of the project is appropriate since in year 1, the emphasis was on identifying social groups of potential users, in year 2 on understanding users' SPOD-TET online interactions, with respect to effective transparency, and in year 3 on evaluating changes in engagement and transparency from the points of view of individuals engaged in ROUTE-TO-PA scenarios. Usability of tools underlies all three models.

## 1.2 WORK CARRIED OUT IN WP3 DURING YEAR 3 AND RESPONSES TO END OF Y2 REVIEW RECOMMENDATIONS

### 1.2.1 WORK CARRIED OUT IN WP3 DURING YEAR 3

The single active task in WP3 during year 3 is T3.3, as follows (from the Description of Work):

#### **"Task 3.3: Change in social representations and use-case related understanding**

This task addresses an important societal aim of the ROUTE-TO-PA project, that of promoting transparency in organisations and mutual engagement of citizen-users and organisations in the whole open data process. The aim of the task is thus to develop models and associated analysis methods for assessing: (1) degree of engagement of both organisations and citizen-users in the open data process, and (2) change in attitudes, social representations, of citizen-users with respect to government or other organisations, as a result of using the SPOD and associated tools. (...)" [our underlining]

Accordingly, **the main achievement during this year is the development and deployment of the SCUTE<sup>3</sup> evaluation tool**. SCUTE is designed as a tool for eliciting systematically, via questionnaires or interviews, changes in individual users' views on transparency and engagement, as a result of having engaged in specific usage scenarios with ROUTE-TO-PA tools (described in detail in D5.3 and briefly summarised below). Transparency and engagement are subjectively evaluated on the levels of social groups, online communities and usability of tools.

SCUTE *builds on and extends work on evaluation tools developed in year 2* of the project, for studying societal impact and usability. Notwithstanding, the deployment of the usability evaluation tool developed in year 2 of the project ("QUIM": see D3.2) provided very detailed and extended information on usability in the research laboratory, with researcher/student populations, who were willing to spend an extensive amount of time in filling in the questionnaire. Our experience with citizen and Public Administration users showed that it would be highly unlikely that they would be willing to devote a similar amount of time and effort to responding to questionnaires. SCUTE therefore also responds to a **practical constraint** with respect to social actors on the terrain, i.e. it is as short and succinct as possible, in order to encourage cooperation of real users and stakeholders, whilst nevertheless enabling us to achieve our research goals. Given this practical constraint, and our overall goals of evaluating the success of the ROUTE-TO-PA project, from the subjective points of view of individual participants in scenarios, SCUTE insists on elicitation of **detailed qualitative feedback**, that is in some cases, studied in relation to quantitative (Likert scale) responses, including with respect to aspects of

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<sup>3</sup> The name "SCUTE" is derived from the combination of names of models at different levels and the two key concepts of transparency and engagement: "Societal, Community, Usability, Transparency, Engagement".

user-participants' biographical profiles (e.g. extent to which they are familiar with open data, with ICT, ...).

**Different versions of SCUTE** have been elaborated, for citizen users (including students) and Public Administrators. SCUTE was elaborated in the first instance as a means of synthesising our evaluation questions across levels of modelling and key concepts of engagement and transparency. It was then tested with small groups of users and successively refined in different language versions. The process of SCUTE development is described below. For the case of the Prato partner "tabernacles" scenario, young (primary school) children were involved. In collaboration with their teacher, a much-simplified questionnaire, inspired by SCUTE, was developed (see Appendix 3 of this document). Results from this questionnaire were obtained much later than the others (in February 2018); therefore, and given its differences from SCUTE, results of the Prato work could not be combined with the others. This illustrates our sensitivity, in developing evaluation tools, to the actual constraints of real life situations of SPOD-TET users.

In sum, the deployment of SCUTE across partners' scenarios enables us **to evaluate the extent to which participant users of ROUTE-TO-PA tools perceive the latter as having resulted in (positive) changes in their degree of engagement with respect to working with Public Administrations' open data and their perceptions of the degree of transparency of their interactions with other users**, be they citizens, students or Public Administrations.

#### 1.2.2 RESPONSES TO REVIEWERS' RECOMMENDATIONS AT THE END OF YEAR 2

The reviewers' recommendation concerning future work during year 3, expressed in the end of Year 2 review report, directly relating to WP3, was as follows:

*"The 4-levels of evaluation should be integrated in a systematic framework to account for sustainability and added value of the project's outputs."*

Accordingly, the SCUTE evaluation tool integrates the four levels of evaluation by studying individual users' views of transparency and engagement across all models, societal, community and usability (see §3.1 below).

Although the Description of Work of ROUTE-TO-PA explicitly states that Workpackage 3 is concerned with elaboration of models and methods, whilst results of their application are to be reported in Workpackage 5, "Evaluation" (DoW p. 16: "The evaluation itself will be carried out in workpackage 5, the aim here being to provide theories and models of engagement ... and of social change ..."), in response to reviewers' requests, the actual results of the application of SCUTE to partners' user scenarios are reported here, in D3.3, together with details of the method and short summaries of scenarios necessary for interpretation of results.

#### 1.2.3 THE STRUCTURE OF THIS DELIVERABLE

The subsequent section 2 of this document, below, develops key concepts of evaluation of the impact of ROUTE-TO-PA tools and actions on users' perceptions of transparency and engagement.

This is followed, in section 3, by a presentation of the SCUTE evaluation tool, its theoretical foundations, process of elaboration, data collected and methods by which it has been analysed.

Section 4 presents quantitative and qualitative results of the deployment of SCUTE with respect to participants in ROUTE-TO-PA scenarios (see §3.3), which are summarised here for sake of completeness (see D5.3 for further details).

Sections 4 and 5 discuss implications of results, conclusions and lessons learned with respect to the evaluation of the overall success of the ROUTE-TO-PA project.

Appendices reproduce Public Administrator and citizen-user versions of the SCUTE evaluation tool, additional data for statistical analysis and the short evaluation with young school children of the Prato "Tabernacle" scenario.

The overall aim of the ROUTE-TO-PA project is to augment (the perception of) transparency in citizen-Public Administration interactions, using tools for visualising, discussing and interpreting open data (SPOD-TET), which in turn depends on the engagement of these social actors. In this section we therefore briefly review our vision of these two key concepts — **transparency** and **engagement** — that constitute the vertical ‘pillars’ of the SCUTE evaluation approach, to be described further on in this text.

### 2.1 TRANSPARENCY

At the start of the project ROUTE-TO-PA assumed that the open data platform can improve the engagement of citizens by making them able to socially interact over open data, by forming online communities that share common interest and discuss common issues of relevance to local policy. Moreover the project aimed to get a more holistic understanding of transparency. These assumptions build upon the literature that makes a distinction between nominal and effective transparency. For transparency to be effective there must be *users* capable of processing, digesting and using open data (Heald, 2006). Just publishing data (nominal transparency) is not enough. It is users who transform raw open data into information and knowledge in interaction with others on the open data platform.

In order to obtain a more holistic understanding of transparency, in the first year of the project the societal activity model was developed. In the Societal Activity model transparency was connected to democratic processes and four layers were distinguished that influence effective transparency:

- a) technology (TET/SPOD) which refers to the functionality of the tools in relation to an issue or scenario
- b) user (citizen user and pa user), this refers to the user working with open data regarding the issue or scenario
- c) community: refers to how the community is interacting over open data regarding issue
- d) societal/organizational, this refers to outcome or product of the interaction of the community with open data and the impact it has on society and the organization.

Building upon these layers we distinguished different views on transparency:

- a) *Technological transparency*. This view highlights that transparency is created when information is available to be used. In the literature this is sometimes referred to as nominal transparency (Heald, 2006: 34). This nominal transparency is generally assessed in terms of number of documents and datasets that are made available on the open data platform.
- b) *User transparency*. This view highlights that there must be receptors capable of processing, digesting and using the information/open data. Heald (2006: 35) refers to this type of transparency as effective transparency. Effective transparency is assessed in terms of the accessibility, understandability and usefulness of the information/ open data to users.
- c) *Community transparency*. This view stresses that transparency is about social information: the meaning that is attributed to information in social processes. Transparency is constructed socially by group interactions and learning. Community transparency can be assessed in terms of the ‘closure’ (or outcome) that takes place within a group concerning the meaning of certain information.
- d) *Institutional transparency*. This view stresses that transparency is generated if more insight about performance, processes, roles, tasks, responsibilities of government have been created. Transparency acquires an institutional meaning when it influences interactions in the public domain. Societal transparency is assessed in terms of the institutional openness that is generated by interactions in the public domain.

We assume that these different types of transparency are interdependent: technological transparency is assumed to be a precondition for user transparency, user transparency is a precondition for community transparency and community transparency is a precondition for institutional transparency<sup>4</sup>. These assumptions will be examined based on the activities and scenarios conducted by different pilots. In this deliverable, the different types of transparency are operationalized into questions and tested among participants in the pilots.

## 2.2 ENGAGEMENT

In a study of stakeholder engagement in the Smart City, Paskaleva et al. (2015) claim that the concept of “engagement” is not well defined in the literature. They propose to deconstruct it both conceptually and in terms of the gradual processes by which it may be attained. In conceptual terms, many studies use cognate terms such “user participation”, “user involvement” and “stakeholder engagement”, with little specification of what they mean in practice. In terms of processes, stakeholder engagement involves stages of enlistment, enrolment, dialogue, networking and participatory co-design.

Within the ROUTE-TO-PA project, the engagement process is described similarly in terms of enlistment and enrolment using scenario-based design (D3.1, D5.1), with the study of dialogue games produced within specific forms of participation (D3.2). With respect to the SCUTE evaluation tool, described in the present deliverable, we also consider “engagement” on three analytical levels: **societal**, **community** and **individual tool-use**.

On the **societal level**, the concept of engagement is generally understood as one's participation in the activities of **social institutions** which reinforce the social capital of the individual and the feeling of belonging. Ultimately, by reinforcing the social norms and values of the social group, engagement can be twofold: it may protect and burden individuals at the same time (Durkheim, 2006). However, beyond traditional notions of engagement based on the community, recent account considered that engagement was loosening in the context of eroding social structures, disembeddedness from society and individualisation (Giddens, 1991a; Giddens, 1991b). Yet, recent research seems to contradict this statement: while we may disengage from traditional forms of engagement in traditional social institutions (church, unions, waged work and family), individuals seem to engage increasingly in ‘selective ties’ such as, political movements, e.g. anti-war movement, ecology movement, animal rights movement and the anti-globalization movement; charitable organisation and even online communities, e.g. free software movement (Bobineau, 2010), which contradict the purely economic-based theories such as the ‘rational choice theory’ (Becker, 1992). In the recent critical analysis of digital media and user-generated content, the notion of engagement has provided stimulating discussions. In these accounts, the notion of engagement have been questioned for either enhancing flourishing or self-exploitation (Andrejevic, 2014; Terranova, 2000; Terranova, 2004; Scholz, 2012), albeit both are not contradictory (Hesmondhalgh, 2010). However, the great outcomes of these discussions came out of a question: *why people continue to engage when there is no apparent social purpose?* Sociological explanations, when drawing into moral philosophy, provide an interesting account: beyond pure self-centred interest, ‘things matter to people’ and the feeling of belonging, the meaning, and the need for recognition of others and sense of sense worth still provide an accurate account for personal engagement (Sayer, 2011; Honneth, 2013). In terms of Activity Theory (Leont’ev, 1979), engagement on a societal level relates to the emergence of a **shared object**, behind which stands a societal **need**. From our discussion here, we propose that such a “need” is not necessarily material or tangible, but can also relate to the drive towards becoming a social actor, with and recognised by others.

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<sup>4</sup> This assumption is in fact confirmed by results of analysis of responses to the SCUTE analysis tool (see concluding section to this document).

**On the community level**, “engagement” is understood in terms of the concept of **participation** (see D3.2 for details), within the theories of **communities of practice** (Lave & Wenger, 1991) and **social networks** (Scott, 2013). Beginning as legitimised yet peripheral participants, a greater degree of engagement is understood as becoming gradually more ‘central’ (ingoing and outgoing communication links) in the community or network. In online epistemic communities, i.e. those where the co-creation of understanding and knowledge are the *raison d’être*, forms of participation can be understood in terms of emergence of and reciprocal evolution of **interactive roles** (Détienne et al., 2016) and the incidence of dialogue games (D3.2) closely focussed on the shared object of knowledge co-creation. Beyond the purely instrumental, communities are also characterised by a sense of belonging on the part of participants, and socio-emotional regulation. On this level, therefore, “engagement” is reflected by the way in which participants interact with others, using the tools.

On the level of individual **tool use**, a major concern of **HCI** (Human-Computer Interaction) research, “engagement” is seen on one hand as a particular type of *relation* or *connection* between the user and tools or resources:

*“user engagement is the emotional, cognitive, and behavioral connection that exists, at any point in time and possibly over time, between a user and a resource”.*

*(Attfield, Kazai, Lalmas & Piwowarski, 2011).*

Engagement can also be seen as part of user *experience*:

*“in web applications, user engagement refers to the quality of the user experience emphasizing the positive aspects of the interaction, in particular the phenomena associated with being captivated by the application, and wanting to use it frequently”*

*(McCay-Peet, Mounia Lalmas, & Vidhya Navalpakkam, 2012).*

In concrete terms, engagement, or rather “user involvement”, can be analysed as follows:

*“engagement as the user’s level of involvement with a product, which translates into the frequency of use, the intensity of use, and the depth of interaction over some period of time.”*

*(Rodden, Hutchinson & Fu, 2010).*

In sum, for HCI, user “engagement” *qua* “involvement” translates behaviourally into frequent and intense use of the tools, within a particular positive emotional experience. Within our own approach, based on Rabardel’s (1995) theory of how tools become veritable instruments, with a transition from focus on the tools towards tools as ‘transparent’ means to focus on the object of activity, user involvement is tool-mediated activity.

Across these three levels, therefore, we deconstruct and characterise the macro-concept of “engagement” as follows (Table 1):

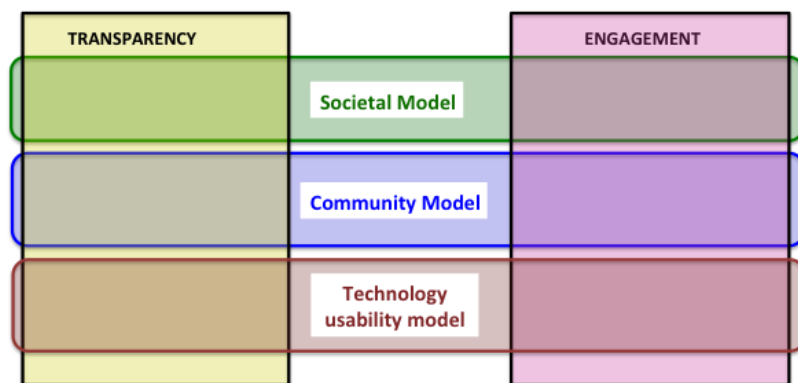
Table 1. Deconstruction of concept of “engagement”

<i>Level</i>	<i>Focus of user</i>	<i>Subconcept/definition</i>
Societal	On institutional norms and values	<b>Engagement</b> Things that matter to people, belonging to a social group
Community	On communication with other users	<b>Participation</b> Place in network of communications; interactive role(s)
Individual tool-use	On tools as affordances	<b>Tool-mediated action</b> Transition from focus on tool to tool becoming ‘transparent’ instrument for realisation of actions

In this section we describe the conceptual foundations of the SCUTE evaluation tool, how it was developed, the data that was gathered once it was deployed following implementation of user scenarios, and our data analysis approach.

#### 3.1 SCUTE: CONCEPTUAL FOUNDATIONS

In D3.2 of the ROUTE-TO-PA project we defined the set of models that have been elaborated in order to understand social activity on and around PAs' open data using SPOD-TET tools in terms of four ('horizontal') levels, traversed by two main ('vertical') concepts — transparency and engagement — as represented in Figure 1 below.



*Figure 1. ROUTE-TO-PA conceptual model (for study of individuals' representations)*

Since our concern in year 3 of the project is with the individual model, individuals' representations, this model/level is abstracted from the diagram (otherwise we would fall into the circularity or meta-level of individuals' views on their own views) as follows (see Figure 2 below), in order to represent the **objects** of those individual views (i.e. what they are views of), corresponding to elements of models on other layers.

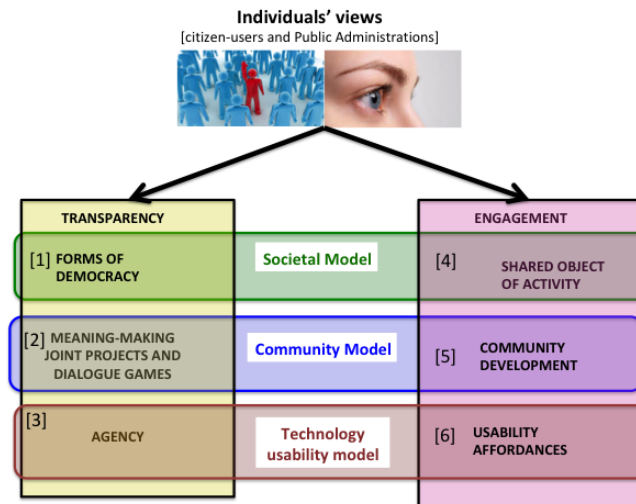


Figure 2. Objects of individuals' representations, with respect to other model levels

Thus, **the objects of individual users' views** can be conceptualised as described below (numbers refer to Figure 2), where, in all cases our general **research question** is as follows:

General research question:

***what changes in individual participants' subjective representations (of engagement, transparency), on societal, community and tool usability levels, have resulted from using ROUTE-TO-PA tools in collective activity scenarios relating to open data?***

- **Transparency:**

[1] Societal/organisational level: corresponds to users' change in views of the **forms of democracy** (deliberative, participative, monitorial) that promote organisational structures for data policy transparency;

[2] Community level level: corresponds to users' views of change in terms of dialogue games enacting *effective transparency*, as defined in D3.2, as going beyond release and visualisation of open data, to include social interaction involving *meaning-making*.

[3] Technology Usability level: corresponds to users' views of their agency, the extent to which SPOD-TET tools facilitate their carrying of out activities within usage scenarios.

- **Engagement:**

[4] Societal/Organisational Level: corresponds to users' change in views of the extent to which a shared object of activity, a mutual interest, has been co-elaborated.

[5] Community Level: corresponds to users' change in views of the extent to which the community of which they have become a part has moved towards greater integration, mutual understanding, integration of newcomers, emergence of roles (such as moderator).

[6] Technology Usability level: corresponds to users' change in views of extent to which SPOD-TET tools facilitate their engagement in the community (element [5] above).

On the basis of this general conceptualisation of fundamental questions to be asked of individual users, in order to evaluate how using SPOD-TET in scenarios impacted on their viewpoints of engagement and

transparency, the SCUTE evaluation tool was developed, as described in the subsequent section of this document.

## 3.2 THE PROCESS OF DEVELOPMENT OF SCUTE

SCUTE was developed as a collective effort within the ROUTE-TO-PA project, within the process described below.

### 3.2.1 STAGES OF DEVELOPMENT OF SCUTE

#### **Step 1: initial conceptualisation and synthesis**

As described above (§3.1), the CNRS team (responsible for WP3) proposed a first conceptualisation of evaluation issues, within the general SCUTE framework.

This initial version of SCUTE also *built on and synthesised previous work on evaluation tools*, reported in D3.2, i.e. the Activity Theory model for social impact (“QPO”, “Questionnaire Politics of Open Data”, University of Utrecht) and the QUIM model for usability evaluation (University of Galway), as follows.

Concerning QUIM, the following elements were integrated into SCUTE:

- the technology aspect (e.g. *“As a result of participating in RTPA, you have come to better understand your PA (e.g. how it functions) and/or your city/region that the PA is responsible for: [...]”*),
- the usability dimension (e.g. *“You consider that SPOD-TET tools are easy to use: [...]”*)
- user-experience (*“As a result of participating in RTPA, you have become more empowered in creating relationships with other citizens and/or PAs, having shared interests and concerns: [...]”*)

Concerning, “QPO”, SCUTE integrates the following elements:

- the potential advantages/disadvantages, for PAs, to release data - from a societal point of view (e.g. *“As a result of having participated in the RouteToPA project, there have been changes in your organisation, with respect to your form of democracy: [...]”*)
- the relation between PAs and citizens via SPOD/TET (e.g. *“As a result of having participated in the RouteToPA project, there have been changes in your (PA) view of working towards shared meanings with citizen groups : [...]”*)
- the PAs strategy in terms of open data initiatives – with citizens & with other PAs (e.g. *As a result of participating in RTPA, there have been changes concerning your engagement with groups of citizens and other PAs : [...]”*)

As stated above, this initial conceptualisation aimed to satisfy a practical constraint of reducing issues and questions to the essential and the minimum, in order to assure that real users, outside laboratory or large-scale survey situations, would be likely to accept to cooperate.

#### **Step 2: joint refinement, separate versions of SCUTE and question generation**

The main objectives of evaluation, within the framework of ROUTE-TO-PA workpackage 3 models, were successively defined and refined during two workshops held during plenary meetings: Dublin (15-16 May 2017) and Utrecht (27-28 June 2017).

It was decided that **different versions of SCUTE** were required for citizen-student users and for Public Administrations, adapted to their perspectives<sup>5</sup> (see Appendices 1 and 2). For example, Public

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<sup>5</sup> In early 2018 it was realised, as a result of field studies with teachers of young children (primary school) in Prato, that an additional adapted simplified version of SCUTE was also required here. This is reproduced in **Appendix 4**.

Administration and citizen versions of the same question (corresponding to [1] in Figure 2, above) are as follows:

PA version

*“As a result of having participated in the RouteToPA project, there have been changes in your organisation, with respect to your form of democracy”*

Citizen version

*“As a result of participating in RTPA, you have come to better understand your PA (e.g. how it functions) and/or your city/region that the PA is responsible for”*

In addition, as the “citizen version” of the question above shows, this version of the questionnaire had also to be **adapted to scenarios** that were based on PA’s open data, without them directly intervening. In this case, the question is the extent to which the tool-based scenario has enabled better understanding of some specific aspect of the region administered (e.g. transport, cultural heritage).

General questions on which partners converged during these workshops are shown in Figure 4, below.

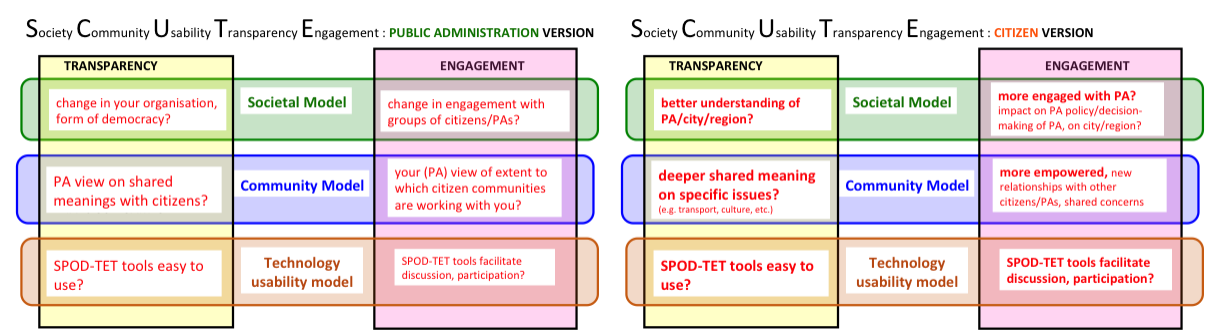


Figure 3. General questions, for two versions of SCUTE, developed during joint workshops

Following this exercise, the CNRS partner developed first versions of SCUTE in English, containing specific questions. Partners translated the SCUTE versions into their own languages (French, Dutch, Italian, Dutch).

### Step 3: SCUTE validation and deployment

Specific language versions of SCUTE were tested for comprehensibility with a small number of users (3 to 5) in each scenario (so as to preserve user groups for the final evaluation). The CNRS team collated any additional suggested changes and revised the common SCUTE versions accordingly.

SCUTE was administered — either online or else on paper — from October to December 2017, once users had completed scenarios. Results were collated and analysed (see below) by the CNRS and University of Utrecht teams, in collaboration.

#### 3.2.2 THE STRUCTURE OF THE SCUTE QUESTIONNAIRES

SCUTE questionnaires are divided into two parts:

- Part 1: specific biographical data on individual users (rendered anonymous for researchers), such as experience in using ICT and familiarity with open data
- Part 2: SCUTE questions

This division into two parts enabled us to study correlations between the two — for example, the extent to which previous ICT use influenced responses to usability questions. (As discussed below, no significant correlations of this type were found).

Quantitative Likert scales are used, together with, for each question, space for qualitative responses, whose analysis is the emphasis of SCUTE.

**Two versions of SCUTE have been developed:** one for **citizen-users** and one for **Public Administrators** (abbreviated to “PAs”).

These two versions are reproduced in **Appendix 1** and **Appendix 2**.

## 4 DATA ANALYSIS APPROACH

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As described in more detail below, our analysis approach combines **quantitative statistical analysis** of data, together with **systematic qualitative analysis** of qualitative responses. The latter “content analysis” was carried out according to the “Grounded Theory” approach (see below) using NVivo software.

### 4.1 A MIXED-METHODS APPROACH

We present below analyses of quantitative data (using descriptive statistics and charts) and participant’s comments on the qualitative answers. This ‘mixed method analysis’ aims at interpreting the results from the SCUTE evaluation tools. This method was considered as the most relevant and precise as it offers a quantitative insight and a view on participants’ voices. By using both qualitative and quantitative methods altogether, we aimed at reducing the bias induced by, on one side, a small sample of participants (N=133) and, on the other side, the lack of representativeness when using participants’ comments.

In terms of the qualitative data used, our content analysis of SCUTE respondents’ qualitative answers is the result of several rounds of coding on NVivo where we continuously clustered together participants’ comments by themes e.g. ‘roles of facilitators’. Therefore, during the NVivo coding process, the nodes span across specific questions (respondents may evoke the same topics across different SCUTE questions). The nodes were then clustered together in meta nodes in such a way that the final structure of the nodes represents a tree view : Figure 4 shows a representation of the nodes found on NVivo (which also matches the structure of the SCUTE assessment tool). As a result of the coding process, the similar comments with a higher occurrence appeared while random comments remained anecdotal. Consequently, the nodes with the higher occurrences are considered as relevant for interpretation. Following this type of presentation of results, each of the participants’ extract aims at providing complementary insights from the descriptive analytics and charts. In terms of the quantitative data used, the descriptive statistics presented below were made using Excel and SPSS. Crosstabs were made for each question in order to analyse differences between the pilots.

### 4.2 STATISTICAL APPROACH

Following the data collection from all the pilots, a database was created. Excel 15.22 and SPSS 24. 0.0.1 software were used to analyse the data via the Likert scales to the core SCUTE questions. These questions (Table 2) are the ones in line with the main concepts used in the ROUTE-TO PA project. Likert

Scales were used, ranging from Strongly Disagree (1), Disagree (2), Neither (3), Agree (4) to Strongly Agree (5) to assess the concepts.

Table 2. Relation between model and questions (citizens only)

.	Transparency	Engagement
Societal model	Questions 10	Questions 13
Community model	Questions 11	Questions 14
Technology usability model	Questions 12	Questions 15

The analysis consisted of descriptive statistics (means and standard deviation) and data visualisation using Excel. In addition, correlations were calculated between the different questions, using SPSS.

#### 4.3 NVIVO CODING STRATEGY

The qualitative analysis software NVivo 11 was used to organise and interpret the qualitative data consisting of the open-ended SCUTE questions.

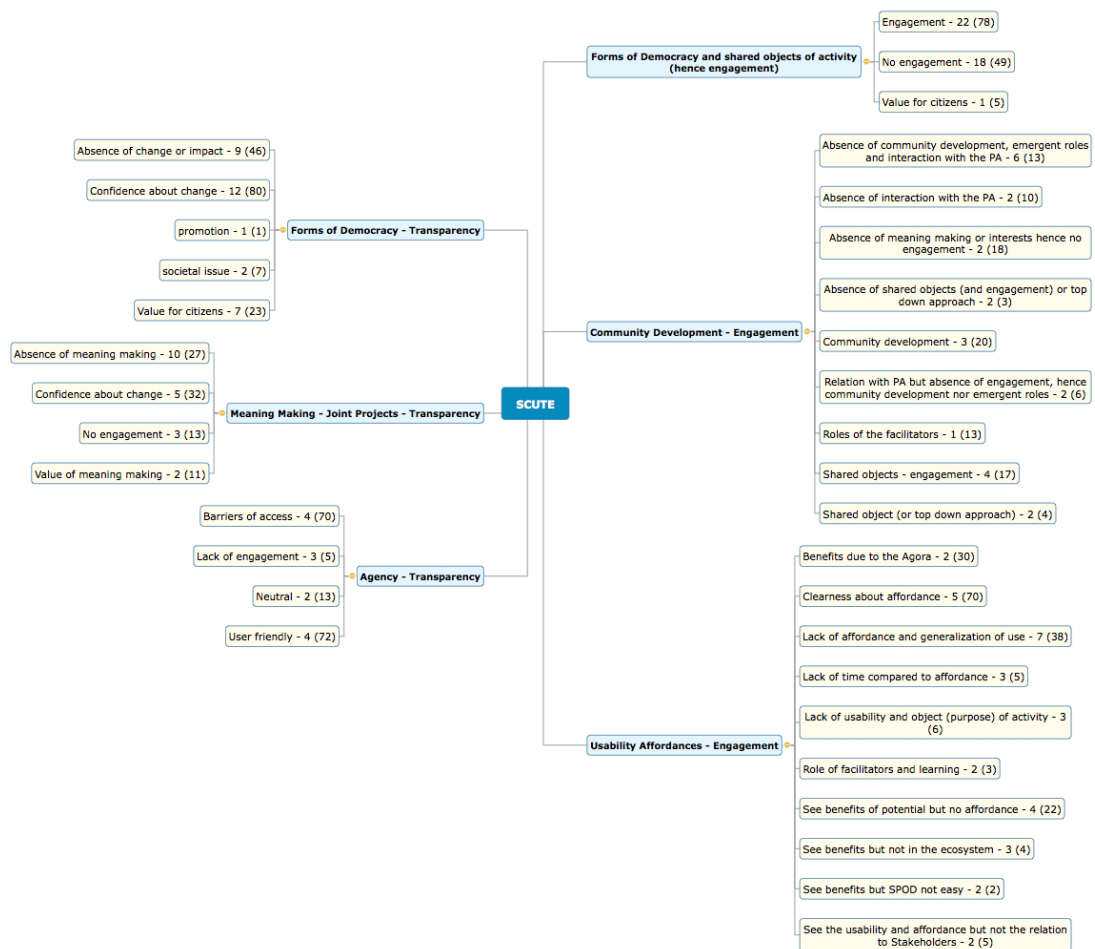
The coding strategy was inspired by the Grounded Theory method, originally developed by Glaser and Strauss (1967). Its constant questioning in diverse fields of social research makes it a particularly vivid research method which has been evolving over the past decades (Ralph et al., 2015). Grounded Theory is a inductive and systematic method of data collection and analysis. Drawing on the data collected, this method looks at concepts and categories emerging from several rounds of systematic coding. The coding consists in successive passes through the data with an attention given to detail in order to evolve into categories with a higher degree of abstraction (Given, 2008, p.86).

Firstly, we started with open coding (ibid., p.86) by creating nodes based on the preliminary reading of the answers to the open-ended SCUTE questions . This was aimed at bringing order and making sense of the data. This implied digging through the details of the data, keeping track of insights while having the general question of the study in mind (ibid., p.86). This activity is known as ‘memoing’. During this phase, a random sample of 12 filled out questionnaires was used and coded in the software. This first sample originated from the Hetor Team, an experiment conducted at a local High School.

Secondly, we used axial coding, which implies refining categories (nodes) that emerged inductively through the coding process as in ‘In Vivo’ coding strategy (ibid., p.86). In Vivo Coding, assigning a label to a section of data using a word or a short phrase taken from that section. It aims at ensuring that the concepts stay as close as possible to the participants’ own words’ (ibid., p.472). We mixed and mingled related subjects (synonyms, same topics) and clustered topics under main topics. We enriched the nodes by categorising each cluster of sentences uploaded in the software. This developed themes such as ‘expectations concerning the projects’ or ‘transmission of knowledge’. This method proved to be valuable as some of the topics arise by themselves, e.g. ‘Transparency and engagement’, ‘Usability’. Inversely, some of the topic noted during the first stage were underrepresented in the coding, e.g. learning through peers or online epistemic communities. Although nodes were generally tied to a question (see Figure 1), they were not exclusive to them. Indeed, some answers have been coded in several nodes when necessary. We went through the nodes as much as needed until nothing more interesting emerged. This ‘structural coding’ allowed us to explore and gather different topics thus creating major categories and themes.

Thirdly, we looked at the relationships and links between the nodes to reduce the number of nodes and create a tree view as in selective coding (ibid., p.86). In order to develop a more refined and focused analysis, we reconceptualised and merged nodes into broader nodes through several waves. Inversely, others where refined to seek variations in the nodes (ibid., p.87). It is through various readings that the selection begun to cohere. In the end, using magnitude coding (Saldana, 2016, p.58),

the nodes used were those with the highest occurrence. We went through all the nodes again and reassembled them using four meta-nodes following the same figure. Three layers were taken into account : organisation (societal model), citizen-users (community model) and usability of Spod (technology usability model). We kept in mind that the main idea was to assess change and impact of the experience. We ended with six main topics containing each sub-topics and sometimes third round topics. As seen on the mind map (Figure 1), those six topics are: Forms of Democracy and shared objects of activity (hence engagement); Community Development – Engagement; Usability Affordances – Engagement; Agency – Transparency; Meaning Making – Joint projects – Transparency and Forms of Democracy – Transparency. This coding process has both inductive and deductive elements (Given, 2008 p. 87) and was used as a preliminary approach to find nodes of interpretation of the data.



Key: 'name of the node - x (y)' x: number of sources and (y): number of references

Figure 4. Representation of the nodes found on NVivo

The data was collected in five ROUTE TO PA pilots, in which participants (users/citizens and Pas) were asked to fill out the SCUTE questionnaires. We first describe the different pilots (for more information, see D.5.3). Furthermore, we give details about the data collected by pilot, as well as about the profiles of participants.

### 5.1 DESCRIPTION OF THE PILOTS

Table 3 gives an overview of the different pilots. The five pilots in which SCUTE data was collected can be characterised according to their aim and to the type of participants involved. Indeed, the data expeditions held in the various pilots had slightly different aims. Some pilots focused on Data co-creation whereas others focused on the generation of ideas. In terms of participants, pilots involved either students/citizens or citizens. However, in the following of this deliverable, we will consider these two kinds of participants as “citizens” or “users/citizens” as students can be considered as future citizens.

Table 3. Overview of the pilots

	Data co-creation	Idea generation
<b>Students, participating schools</b>	Hetor Prato	CLEMI
<b>Citizens</b>	Data Challenged Hetor	Utrecht

#### 5.1.1 HETOR SCHOOLS SCENARIO

The main objective of this pilot was the co-creation of datasets that could be useful to the local communities by enhancing the local Cultural Heritage awareness. Each school focused on a topic based on its own territory. The creation of a series of datasets included, for instance, the number of records depending on a series of elements, the number of participants and activities timetable. Datasets contained information related to the local Cultural Heritage in an open format. Datasets were collected from different sources, through aggregation and disaggregation of data.

The 95 participants were all students. They produced 909 comments in the Agora rooms and the CoCreation ‘Discussion’ section. No data were used but participants created 19 datasets and 3416 records. All the students worked in small groups in a balanced way.

The activities have been carried out both at the Students’ schools and at Hetor’s University lab. Participants worked both online and offline. Depending on the type of collaboration settled within the national program, participants worked on average between 60 and 80 hours during five months.

Participants used SPOD only since TET was not associated with the SPOD Platform in this pilot. They used mainly the CoCreation rooms and the Newsfeed to publish the datalets. Participants used more sporadically the Agora since they were in the same room most of the time, often working at five on the same desktop computer. The technical problems participants encountered were: a poor internet connection, a lack of computers, the image size sometimes preventing the right upload and their visualisation on the platform. Each participants received technological support from a facilitator involved in the project. The facilitator followed users’ activities, solving potential problems.

Participants filled in the SCUTE at the end of the activities under the supervision of the persons in charge of the School-to-work transition program in the school. Participants received a minimum of

information about the goal of this evaluation tool, living aside the fact that the SCUTE was the final evaluation of the activities within the framework of a European project. There was no specific temporal constraints in the assessment of the SCUTE.

### 5.1.2 PRATO SCENARIO

The purpose of this experiment was to collect information about the street tabernacles in the city of Prato. The outcome of the experiment, i.e. the production of content, e.g. a dataset or a report, was successful since four datasets of tabernacles were achieved. The task assigned to the participants were structured in three steps. Firstly, participants had to find tabernacles around the city - in groups or alone and with parents and/or with teachers - and take them in pictures, either with the app or with a camera. Secondly, participants had to complete the dataset when the picture was taken with a camera. Thirdly, participants had to complete the description of the tabernacles in the dataset. The second task was carried out by teachers when students were not allowed to use the platform by themselves, while the third task was carried out as a school work in the classroom.

The sample was composed of 170 students between 12-13 years old on average and six teachers. The experiment was led by three junior high schools in Prato (Pier Cironi, Filippino Lippi, C. Puddu), both online and offline (through discussions inside and outside the classrooms and walks in the city) over five months. Participants used the following SPOD/TET tools: the co-creation room, the app and the agora both on their cell phones and computers.

Participants encountered some problems at the first login as well as minor problems when adding data in the datasets. Participants in Salerno and Prato received support during the login procedure and during the management of datasets. Support was given to teachers via email, phone and Spod by Elena (the researcher). She published the results on the Facebook page and on the SPOD platform. Moreover, in the case of the Filippino Lippi's school, the activity was intermediated by teachers since students were not allowed to use the app and the platform by themselves.

No specific information was given about the SCUTE evaluation tool to participants. The evaluation tool was sent to all registered users on the platform and to some teachers a month after the end of the experiment.

No previous data was used during this experiment. Four datasets were created representing approximatively 180 tabernacles listed. 41 messages were created in the Pier Cironi room and 32 in the room Discussione Tabernacoli on the Agora.

The distribution of activity per participants was rather balanced, although some of the students worked in groups to use the app, since only the Android version was available and some of them had an iPhone (info coming from the teachers). The evolution of activity over time was dependent on the experiment: in the Pier Cironi case, the filling of the dataset was evolving rather constantly. In other cases, things were much slower since the input in the dataset was created by the teacher once the students had collected the pictures.

### 5.1.3 OPEN DATA CHALLENGE SCENARIO CHARACTERISTICS

The purpose of this experiment was to propose to citizens to collaborate in groups of four people maximum. The tasks consisted in the data collection concerning their territory and the co-creation of re-usable datasets to promote the Cultural Heritage. The outcome was the co-creation of datasets useful to the local communities enhancing the local cultural heritage. The goals were achieved since the "local communities worked for the local communities". Participants created many datasets both on tangible and intangible resources, such as, a traditional children's games; a list of the medical records of an ex mental hospital located in Nocera Inferiore; monuments and artistic places and ancient vernacular proverbs and idioms.

The sample was composed of almost 40 participants from various ages: teenagers, young people and elderly people. Elderly people shared their knowledge with other but were not registered on the platform. Young group members were the only one to be registered and use the SPOD platform. Activities were almost balanced during the challenge time frame. The themes in relation to their local Cultural Heritage were suggested by citizens. Participants were divided in three groups: a first group of participants started from the oral sources, collecting information and inserting data, a second group used the app mobile to collect images using geolocation tools and completing the dataset afterwards. A third group looked at texts and articles published in books and online, implementing data on the platform subsequently.

While the activities were online and offline-based, the pilot took place in the Local Municipal Library between November and December 2017. Participants used only SPOD (TET was not associated with our SPOD platform) and more specifically the CoCreation rooms. Overall, 42 messages were exchanged by 36 citizens. 12 datasets, 9 datalets and 1276 records were created. Only 3 of the 12 groups used the app. While some participants initially worked with the app, they switched towards the desktop version at later stages. Indeed, app users encountered various problems, such as changes in the media room column organisation and difficulties when inviting other users in the rooms.

The participants received training every Tuesday and Thursday afternoon at the Municipal Library of Nocera Inferiore. Participants could also attend to extra sessions if necessary. Moreover, a discussion forum in the Agora room was created for the challenge on SPOD “Open data Challenge - Caccia ai Tesori di Nocera”. The SCUTE evaluation tools were filled on a Google form at the end of the Challenge. Participants had little more information than the fact that it was related to the European project. No specific temporal constraints were given to participants.

#### 5.1.4 CLEMI SCENARIO

The objective was twofold. CNRS Team’s objective was to study users’ engagement in terms of data processing and data visualisation as well as to analyse the co-construction of data meaning and intrinsically the community building process. CLEMI’s objective was to raise awareness among young citizens about the impact of data manipulation.

Three groups of participants were asked to evaluate accessibility and punctuality of railway transportation following a scenario. Each group played a different role: public administrator, user-citizen and investigator (data journalist). In this context, participants were asked to create visualisations based on a corpus of available open data. Participants could complete the visualisations with other datasets or articles (e.g. investigation).

The task assigned to the participants was divided in two steps. Firstly, each group was asked to find a line of argumentation in different co-creation rooms; transform provided datasets in visualisations; complete these datasets by using API files from external sources and by other information (e.g. press articles). Participants also had to find a common argument. Secondly, all groups were asked to present their argument, debate and ultimately find a consensus in a co-creation room.

The outcome of the pilot consisted in writing a report about the role of open data and the impact of data visualisation on the understanding of societal issues.

From a pedagogical point of view, participants were asked to carry out statistical analysis by using open data. The 24 participants produced 904 messages and 75 visualisations. Among these visualisations, on average 7.7 were built with external datasets. Two datasets were proposed at the beginning of the experiment. No data were created, participants used existing data.

30 high school students participated in the experiment, mostly at the beginning of the study. The experiment took place every week in a High school classroom. The technological support, SPOD moderation and animation were conducted by J.Groff (researcher) and D.Cambay (teacher), who was already working on the digital school platform. In this context, moderators intervened at three levels. Firstly, they taught participants how to manipulate the platform and they showed them the main steps

for creating datalets and for integrating them in a discussion thread. Secondly, they supported them in finding information (on the platform and on the external sources). Thirdly, they launched discussions, they supervised the co-creation process and they stimulated interactions.

All activities were carried out online using a computer during the last week of September and the second week of December 2017. Participants used a computer to access to the co-creation room and ISSY SPOD. Participants were asked to debate only through the computer on the co-creation spaces since the Agora did not allow the selection of participants. During the experience, participants encountered only one main technical problem: their discussions were translated in Italian.

The SCUTE evaluation tool has been modified to correspond to high school students' needs by focusing on the relation between young citizens and open data. The SCUTE was assessed at the end of the experiment, during the week after the last session. Emphasising on the importance to build "relevant answers", students were allowed thirty minutes to fill in the evaluation tool on computers in a classroom.

#### 5.1.5 SCENARIO HEALTH BALANCE LIVABILITY AND LIVELINESS IN THE CITY CENTRE OF UTRECHT

The City of Utrecht identified a 'healthy balance' as an important theme for both the city and their residents. Indeed, residents in the city centre experience disturbances caused by noise from e.g. events, traffic, supplying, cleaning and crowds in the centre in general. On the other hand, the economic activity, e.g. restaurants and the city centre functions, needs to be taken into account.

The objective for the city of Utrecht is to substantiate how to maintain a balance or create a new balance in the city centre. The Healthy Balance offers the opportunity to explore the value of open data for societal issues and to gain insight into ways of developing a sound balance in the city centre. The main question for the city was: *How can the bustle be managed in way that enables a sound balance between livability and liveliness in the city centre?* The desired outcome of the data expedition is a report with evidence-based insights based on open data regarding the balance between livelihood and liveliness.

The development of the scenario "Healthy Balance between Livelihood and Liveability in the City Centre of Utrecht" started in the Spring of 2017 and lasted until the spring of 2018, which includes both the preparation and the aftermaths. The data expedition took place between November and December 2017 (four weeks) and consisted of students, policy makers and citizens working together on the SPOD/TET platform regarding the healthy balance. During the dataexpedition, the participants were asked to search for relevant datasets in SPOD and TET, create their own dataset if relevant or import relevant data from other websites. In addition they were asked to visualise the data in SPOD and TET and discuss the visualisations in the AGORA. Finally participants were asked to interpret the data and visualisations and draw conclusions for the healthy balance. In addition students were asked to work in the Co-creation room and create a report based on the visualisations and discussions in SPOD.

The community consisted of 28 participants: 6 civil servants (policy and open data expert), 8 stakeholders (citizens and a business owner), 11 students and 3 researchers. The students were divided in three groups. Each group worked on a specific sub-question. During the data expedition 11 students, three civil servants, one stakeholder and two researchers made comments in the AGORA. This led to 193 comments, 43 visualisations of which 14 were made in SPOD (no visualisations were made in TET) and three reports.

At the end of the data expedition the students presented their reports to the participating public administrators and citizens during a meeting at the University. During the meeting, the participants reflected on the findings and were also asked to fill out a paper version of SCUTE. They were told that they would have at least 15 minutes to fill out the questionnaire and they were specifically asked to

also take the time to fill out the open-ended questions. Two students did not attend the meeting and they were asked to fill out SCUTE online.

## 5.2 DATA COLLECTED

In our five pilots, 170 participants filled out the SCUTE. 162 of participants are citizens, 8 are PAs. Table 4 presents the number of SCUTE collected by pilots. It is worth noting that citizens (95%) and Heter pilot (57%) are overrepresented in the sample.

Table 4. Overview of the SCUTE data per pilots

Pilots	Citizens' SCUTE	PAs' SCUTE	Total	Percentage
CLEMI	36	0	36	21%
Utrecht	14	5	19	11%
Open Data Challenge -Heter	11	0	11	21%
Heter	97	0	97	57%
Prato	4	3	7	4%
Total	162	8	170	n/a

## 5.3 PROFILES OF SCUTE PARTICIPANTS

The citizen participants (students or not students) who filled out the SCUTE had the following profile. On average, participants use digital technology very often in their daily life (40% very often and 48,5% often). In most cases, participants are using their mobile (59,2%) (see Figure 2). Participants are very often users of social networks (42,3% answered often and 27,7% very often)(see Figure 4). However, they rarely use open data (never 28,5%, rarely 30,8%, sometimes 30%). In a professional context, 35,4% of them are never using open data, whereas 22,3% use open data rarely, 24,6% sometimes and 12,3% often (see Figure 3). The majority of open data users have been using open data for less than two years (41,5% less than a year and 46,9% between one year and two years). The vast majority of the sample (85%) is between 15 and 25 years old, 9% between 36 and 59 years old, 5% had between 36 and 59 years old and 2% were over 60 years old. To summarise, the profile of participants is rather young, digital literate and rather new with open data.

Public administrators generally use very often digital technology in their daily life (eight out of eight). They use often (five out of eight) and very often (two out of eight) social networks in their daily life. They tend to use Open data as a citizen rarely (3 out of eight), sometimes (2 out of eight), often (2 out of eight) and very often (1 out of eight). In a professional context, they use social networks rarely (1 out of eight), often (4 out of eight), very often (3 out of eight). PA participants have used Open data for 2-3 years (2 out of eight), 3-4 years (2 out of eight), more than 5 years (4 out of eight). In a professional context, they tend to use Open data very often (3 out of eight), often (3 out of eight), sometimes (1 out of eight), rarely (0 out of eight), and never (1 out of eight). In Open data projects, they work with companies (3 out of eight), citizens (4 out of eight) and other PA's (8 out of eight). Public administrator participants are generally older than 36 years : 3 declared being between 36-59 and 3 over 60 years old.

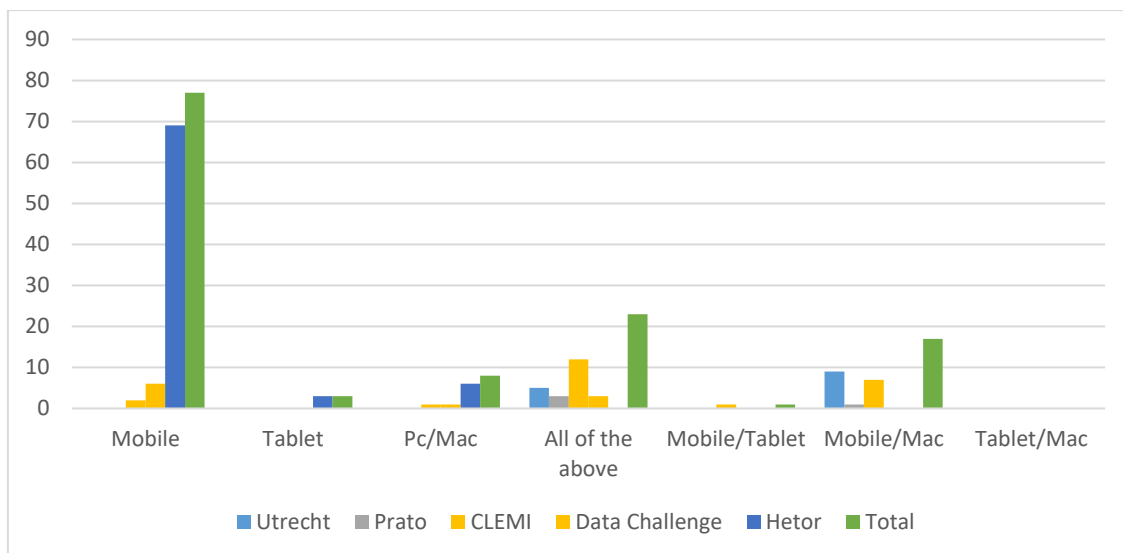


Figure 5. Question 1b on the use of digital technology in daily life (citizens only)

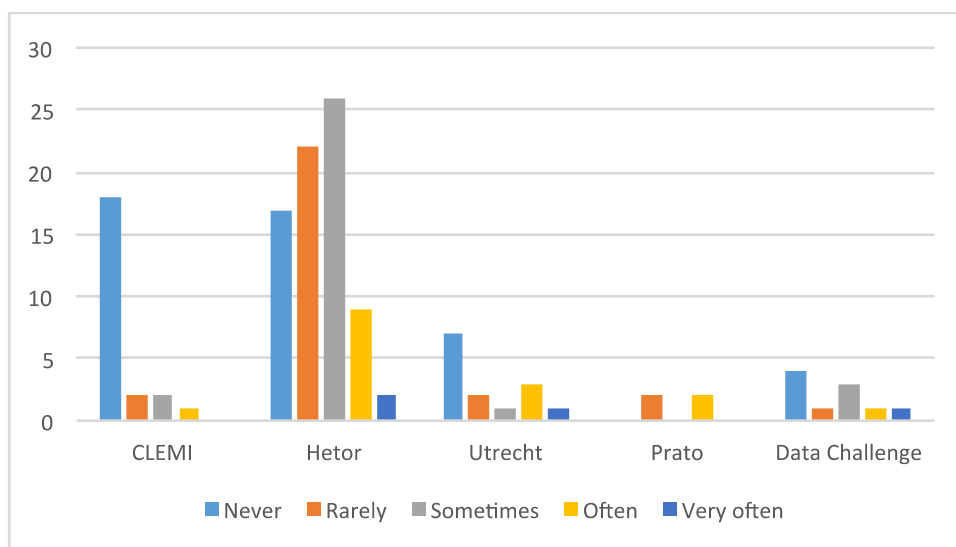


Figure 6. question 3a on the use of Open Data in a professional context (citizens only)

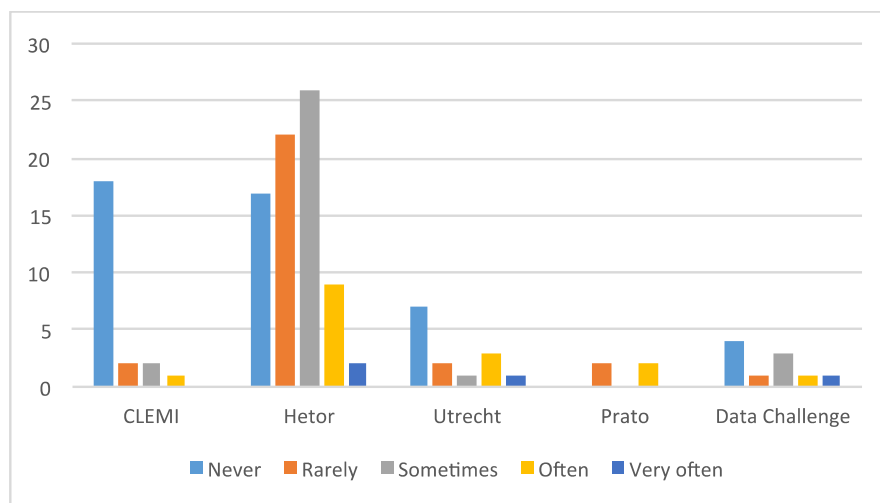


Figure 7. Question 4 on the use of social network in a professional context (citizens only)

No significant correlations were found between this data on individual respondents and the SCUTE results described below.

## 6 SCUTE QUANTITATIVE RESULTS

Table 5 shows the average and standard deviation for answers (Likert scale) to the core SCUTE questions (Q10 to Q15). These descriptive statistics are presented for the students/citizens only, as there was very few SCUTEs filled out by PAs.

Table 5. Averages and standard deviation per question

	Question	N	Average	Standard deviation
Societal Model Transparency	Q10a Understanding of PA	128	3,3984	,99874
Community model Transparency	Q11a Shared meaning of issue	128	3,3984	1,13179
Technology usability model Transparency	Q12a SPOD/TET tools are easy to use	129	3,1705	1,02412
	Q12b SPOD/TET tools facilitate the use of open data	128	3,4609	1,10048
	Q12c SPOD/TET tools facilitate the co-creation of datasets	128	3,3359	1,17907
Societal model Engagement	Q13a Engagement with PA	129	3,1163	1,15669
Community model Engagement	Q14a Empowerment in creating relationships with citizens	129	2,7519	1,25019
	Q14c Empowerment in creating relationships with PA	101	2,5743	1,17768
Technology usability model Engagement	Q15a SPOD/TET tools facilitate discussion	128	3,2656	1,14661
	Q15b SPOD/TET tools facilitate participation	128	3,2656	1,14661
	Q15c SPOD/TET tools facilitate collaboration	105	3,5333	1,21740


Likert scales were used for the closed-ended questions ranging from Strongly Disagree (1), Disagree (2), Neither (3), Agree (4) to Strongly Agree (5). The average range from 2,5 to 3,5. In order to interpret these descriptive statistics, we have considered arbitrarily that an average below 2,8 shows a very negative trend (in dark grey in Table 4), and an average below 3,3 shows a negative trend (in pale grey in Table 4).

On this basis of analysis, we can note that the answers to questions relating to transparency are rather positive (all questions except Q12a) while the answers to questions relating to engagement are rather negative (all questions except Q15c).

In order to test possible dependencies between answers to questions, we have calculated the correlations between the core questions<sup>6</sup>. For the sake of interpretation, correlations between 0,4 and 0,5 are considered as low, correlation between 0,5 and 0,6 are considered medium, and above 0,6 high<sup>7</sup>. Table 5 displays the main correlations between core questions that are above 0,6. As results show, there are high correlations between questions on the Technology usability model and community model.

Table 5. High correlations between questions

.	Transparency	Engagement
Societal model	Questions 10	Questions 13
Community model	Questions 11	Questions 14
Technology usability model	Questions 12	Questions 15

Key: Correlations above 0,6: 

### Concluding remarks

Overall, statistics show a possible interdependency between the two layers of analysis: there are high correlations between questions on the technology usability model, and on the Community Model . Therefore, we could assume that the Technology usability model needs to be satisfied to validate the community model (and ultimately to the Societal model).

## 7 SCUTE ANALYSIS MIXED-METHODS RESULTS

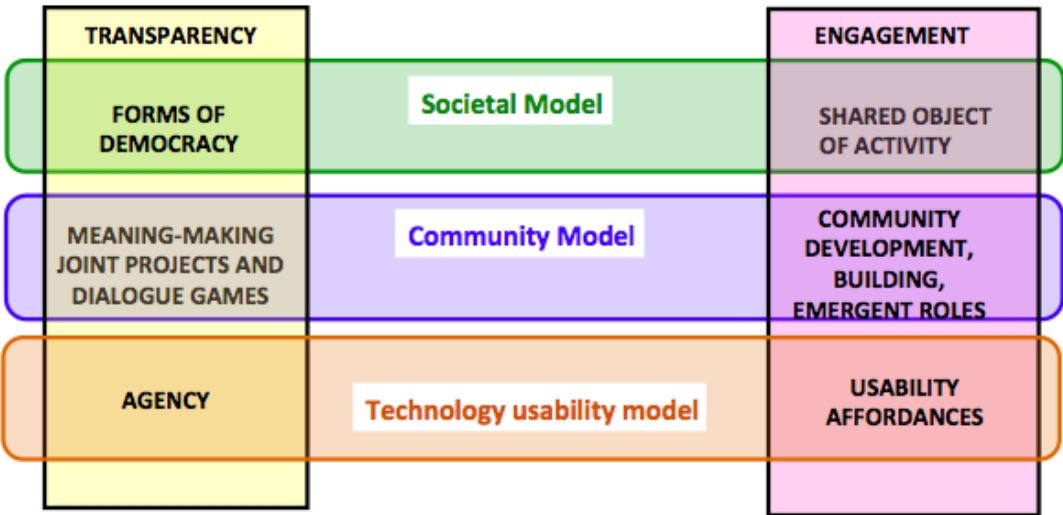


Figure 8. Structure of the SCUTE assessment tool (cf. Figure 2, reproduced here for ease of reading)

<sup>6</sup> No significant correlations were found between all the questions from 1 to 9 (participants profile) and the questions 10 to 15 (core questions).

<sup>7</sup> For an analysis of the correlations below 0,6, see the Appendix.

The section is structured around each model of Figure 8; 'Structure of the SCUTE assessment tool', echoing the structure of the SCUTE evaluation tools. We will present successively the quantitative (based on closed-ended questions) and qualitative results (based on Nvivo coding of open questions) for the societal model, the community model and the technology usability model.

However, it is worth noting that the relation between the questions and the level of interpretations shown in the Figure 5 is only indicative for the open questions. Indeed, as presented in the Nvivo coding strategy section above, nodes are not exclusive to specific questions.

For each model, we will present the results of our mixed method and discuss, when necessary, the difference between the pilots. By default, the results outlined below consider mainly the citizens' results. It is true for all models at the exception of the technology usability model since the data from all participants (citizens and Pas) are merged. At the end of each section we outline some tendencies found for PAs.

## 7.1 SOCIETAL MODEL

### 7.1.1 FORMS OF DEMOCRACY

Almost half (49,3%) of the *students and citizen* users (strongly) agreed that, as a result of participating in RTPA, they understood their PAs or city better. Moreover, 13,8% (strongly) disagreed and 36.2% indicated to neither agree nor disagree on this matter. In Figure 2, some differences between the pilots<sup>8</sup> can be observed. 50.8% of the CLEMI users, 46.6% of the Heter users, 40% of the Utrecht users (and 75% of the Prato users) agreed that as a result of participating in RTPA, they understood their PA or city better.

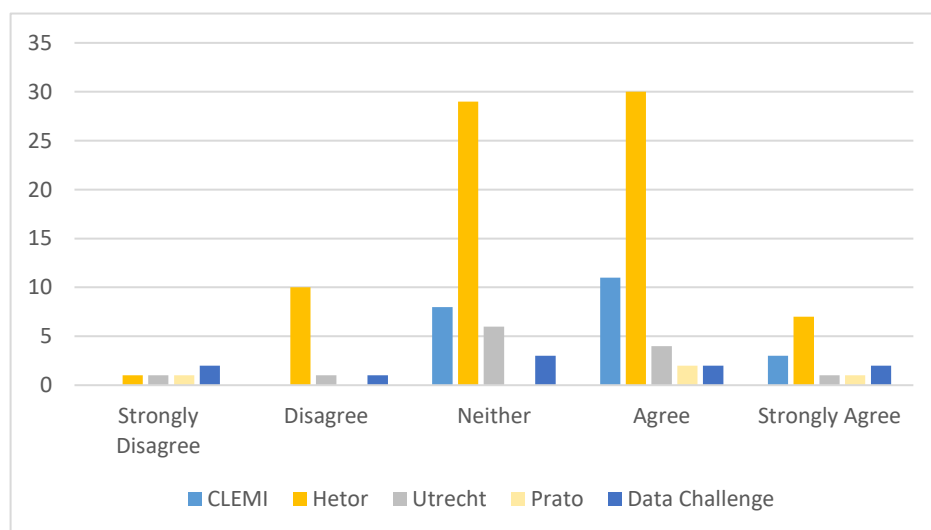


Figure 9. Better understanding of the PA/City (Q10a - citizens only)

Most students and citizens who agreed, indicated<sup>9</sup> that they gained *insights and knowledge* based on open data regarding the shared object they were working on e.g. territory or societal issue:

<sup>8</sup> These differences are indications. No check for significance has been made. However, the number of participant respondents in groups varies enormously. For Heter, N=88, CLEMI, N=25, Utrecht, N=15, Prato N=4. In Prato's case especially, the sample appears too weak to draw conclusion

<sup>9</sup> The qualitative answers were coded in the software NVIVO version 11.4.3

*"The project has helped me to gain knowledge about my territory and become more aware about my roots, giving me the possibility to collaborate with farming culture experts who live in my town, responding precisely to my needs and expectations." (Hetor participant).*

*"This platform allowed us to "open the eyes" on different data - and - on their use in a specific framework for certain people." (Clemi participant)*

A few participants indicated that due to participation in RTPA, decision making processes of public administration or territory became clear:

*"I understood how data can be used in choices of the city. I have learned how relevant this can be also for next projects and research studies to get insights in development and choices based on data." (Utrecht respondent)*

*"By having insights in data and trends I understand the choices of public administration better." (Utrecht participant)*

In addition, several citizen and student users also mentioned a gain in terms of participation and collaboration with the city or other experts:

*"The project has helped me to gain knowledge about my territory and become more aware about my roots, giving me the possibility to collaborate with farming culture experts who live in my town, responding precisely to my needs and expectations." (Hetor participant).*

*"Because of my study I already had a lot of insight in public administration. It is interesting to see the willingness of the city to work on these types of projects." (Utrecht participant)*

*"Interactions with different subjects and the organisation of the pilot activities." (Prato participant)*

Several citizen and student users who had indicated to neither agree nor disagree also indicated that they had gained insights and knowledge but this insight was not necessarily new to them:

*"It was more an additional insight instead of a new insight that cities are busy getting their information management in order and the city of Utrecht is one of the early adapters." (Utrecht participant)*

Users who disagreed, mainly indicated that it was due to either a lack of participation, a lack of data or a dysfunction coming from the SPOD/TET tool itself:

*"The main obstacle has been the lack of PAs participation to the open data projects." (Hetor participant)*

*"There were few relevant datasets available that directly learned me something about public administration." (Utrecht participant)*

In addition, when the nine *public administrators* from the Prato and Utrecht pilots were asked whether participation in RTPA led to any changes in the organisation or not (question 11), 37,5% agreed and 37,5% were neutral. The Prato users indicated that both the quantity and quality of their datasets have increased and that the project has stimulated them to publish more datasets. The Utrecht users indicated that there was not necessarily a change in the organisation but they indicated that the data expedition was a first step and the approach had a potential value for the city. The time period, however, was considered as too short to observe any change.

*"We are only at the start of using open data. ROUTE-TO-PA is seen as an interesting development to use open data more often and to indicate data quality." (Utrecht participant)*

*"Quantity and quality of published datasets have increased". (Prato participant)*

### 7.1.2 SHARED OBJECT OF ACTIVITY

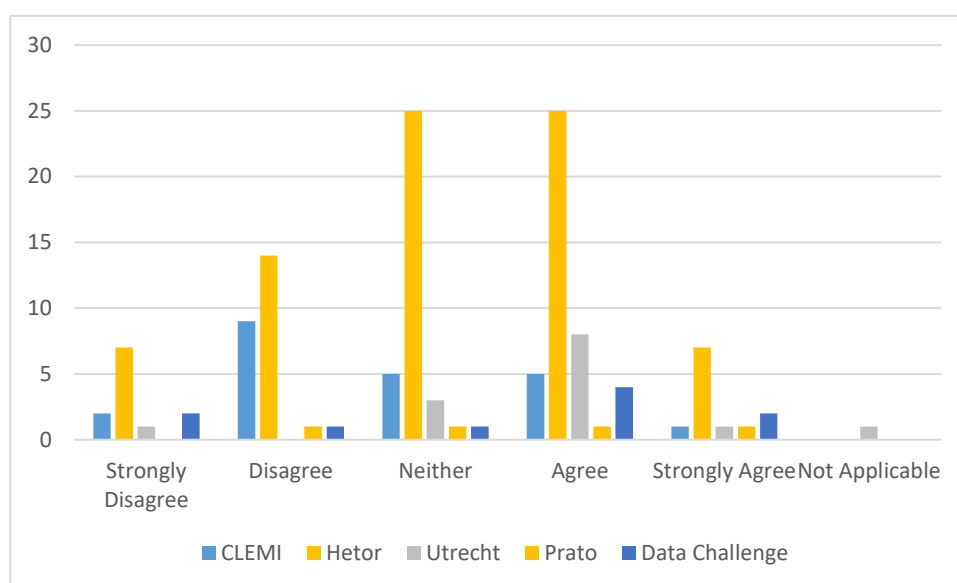


Figure 10. Engagement with PA/City (Q13a - citizens only)

In total, 45% of *students and citizens* indicated that they had become more engaged with their PA as a result of participating in RTPA, 20% disagreed and 27% neither agreed nor disagreed. Looking at the different pilots, some differences can be observed: whereas 57% of the Utrecht users indicated that they have become more engaged with their PA, only 25% of the Prato users, 32% of the Hector users and 23% of CLEMI users said so.

The students and citizens indicated that they have become more engaged due to the insights and knowledge acquired regarding the issues they were working on.

*"Because the project is in collaboration with the city and I got more insight in pa." (Utrecht participant)*

*"I become more engaged with my territory, knowing the way the open data can impact my town." (Hektor participant)*

In addition, users enjoyed their collaboration with their city, PAs or representatives:

*"The city became more accessible to me. Because I know they monitor and this will be shared with them and therefore I feel involved." (Utrecht participant)*

*"I successfully worked with open data and, thanks to the project, I had the possibility to know some personalities of the local cultural environment, who helped us to collect information derived from historical and oral sources." (Hektor participant).*

In the Utrecht case, another positive point mentioned was that it provided insight in decision-making and in policy of public administration in the Utrecht case. In the Hektor case, the promotion of Cultural Heritage was also mentioned.

Citizens and students users who did not get involved in the experiment blamed others for the lack of participation, particularly from PAs.

*"Because of the inadequate PA's participation." (Hektor participant)*

In other cases, citizens and students users explained their lack of involvement by a lack of interest in the topic due, at times, to its ordinariness.

*"I'm already engaged in the promotion of the territory outside the ROUTE-TO-PA project. Anyway, its value stands in the fact that it promotes thematic related to open data." (Hektor participant)*

Among the nine public administrators, five (56%) expressed no change (neither agree nor disagree) concerning their view on citizens' communities working on scenarios. Utrecht PAs considered open

data, as a result of the experience, as valuable but not new. Moreover they pointed out the lack of citizens' engagement.

### 7.1.3 CONCLUDING REMARKS

Some impact seems to contribute to the societal level due to participation in RTPA. About half of the users have a better understanding of their PA/city and have become more engaged. The users who agreed mainly mentioned aspects such as insight, knowledge and decision-making, which are associated with institutional transparency in the monitoring of democratic processes. In addition, few participants also mentioned gains in terms of deliberative and participatory democratic processes such as participation and collaboration with the city or other experts. Considering PAs, no change have been observed.

## 7.2 COMMUNITY MODEL

### 7.2.1 MEANING-MAKING, JOINT PROJECTS AND DIALOGUE GAMES

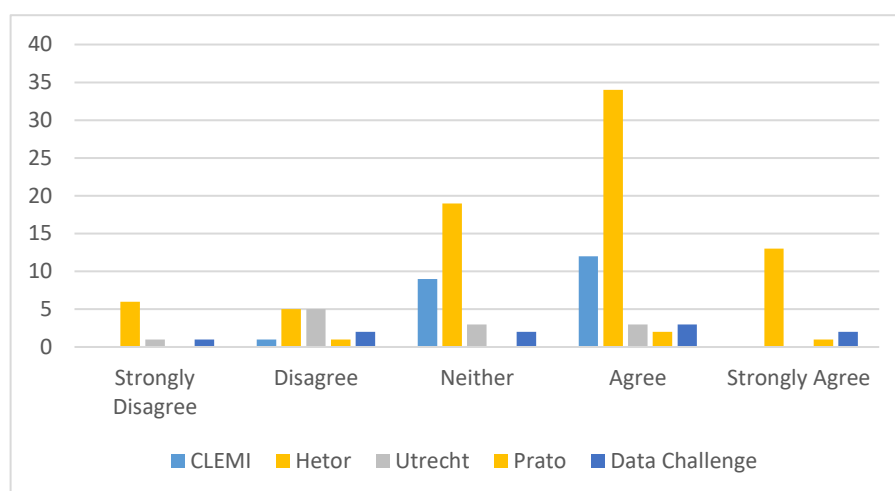


Figure 11. SPOD/TET Community and Shared Meaning (Q 11a - citizens only)

When asked the question: 'SPOD/TET community helped you to achieve shared meaning in your group concerning the issue (e.g. population decline, employment, transport, wifi-positions, budget, cultural heritage, etc.)', participants gave in the majority of cases a positive answer (56%). Only 6% of participants answered that they strongly disagree and 27% gave a neutral answer. Overall, many participants were rather positive, acknowledging that they have gained shared meaning and developed a sense of community, for example :

*'We have participated and collaborated in groups and we discussed with some public authorities, as well.'* (Data Challenge participant)

*'The collaboration between me and my colleagues, together with the professionals of open data, has been really productive because, apart from the re-evaluation of the territory, it has helped us to understand the importance of the open data, thanks to which it is possible to carry on the re-evaluation process.'* (Data Challenge participant)

*'We achieved shared meaning because each group member equally participated to the project, becoming more aware of the territory'* (Data Challenge participant)

*'My group and I have reached a shared knowledge thanks to the professionals.'* (Utrecht participant)

However, a comparison between descriptive statistics and the comments show incoherencies, albeit minor. Various examples showed that answers on 11a on community and shared meaning concerning an issue were ranked 3, i.e. neutral, but comments on 11b – when participants were asked to justify

their answer - were rather positive. These incoherencies may illustrate the fact that people did not necessarily see any changes but were confident about the value of the project for the organisation. The extract below shows that facilitators played a crucial role in helping participants making a meaning of the experiment.

*'My group and I have reached a shared knowledge thanks to the professionals.'* (Hetor participant)

*'SPOD Platform has been crucial for my way of relating with a new experience for me, the world of work, and for the interaction with professionals of open data, who have perfectly guided us in this experience.'* (Hetor participant)

*'SPOD community has helped me to achieve shared meaning concerning the selected topic of discussion, interacting with professionals of open data.'* (Hetor participant)

Comments show how the community helps to engage people. Indeed, preliminary engagement helps to foster a feeling of belonging to the community and in return, this feeling of community helps people to engage and create meaning making:

*'SPOD community helped me to gain knowledge about the selected topic, interacting with the professionals of open data.'* (Data Challenge pilot)

However, participants also tend to keep a 'top down' relation with the SPOD/TET, declaring that they discovered or learned things while being often poorly engaged. Indeed, participants tend to be in the position of 'receiving' (passively) information at first, before feeling engaged enough in the task to develop meaning-making. Such limitations are shown in the comments below:

*'Thanks to the SPOD Platform I discovered many things about Aquilonia town.'* (Hetor participant)

*'Thanks to SPOD I learnt new information about my territory to create datasets.'* (Hetor participant)

*'ROUTE-TO-PA project gave me the possibility to gain knowledge about my own territory and to better understand things belonging to my Cultural Traditions, which I ignored before.'* (Hetor participant)

Moreover, this illustrates the fact individuals need time to get to know the SPOD/TET tools. The time needed may be explained by the required time to feel 'at ease' with a new tool before developing meaning-making. Consequently, a negative or neutral answer may also express the inherent time needed to handle a new tool. In the extracts below, the expression of a frustration may not reflect the absence of potential meaning, to the contrary:

*'The Spod/Tet tools were generally too difficult to use for individuals, partly because of the lack of time (and partly when facilitators did not engaged with them?).'* (Utrecht participant)

*'It confirmed the images and impressions I had regarding the questions that rose concerning the livelihood and liveability. SPOD and TET and the results on Agora were too limited and also difficult to link to the initial questions.'* (Utrecht participant)

### 7.2.2 CONCLUDING REMARKS

Answers were overall quite positive about the fact that the SPOD/TET tools achieved shared meaning. The presence of a high number of 'neutral' answer may also be explained by the fact that people lacked time to experiment by themselves the SPOD/TET tools. This also means that even when people did not see any change (the answer was ranked 3, i.e. neutral), they may be confident about the value of the project for the organisation, as in the following extract:

*'The additional value is clear but making it available takes time' and 'not yet but I do think it can lead to changes.'* (Utrecht participant)

### 7.2.3 COMMUNITY DEVELOPMENT, BUILDING, EMERGENT ROLES

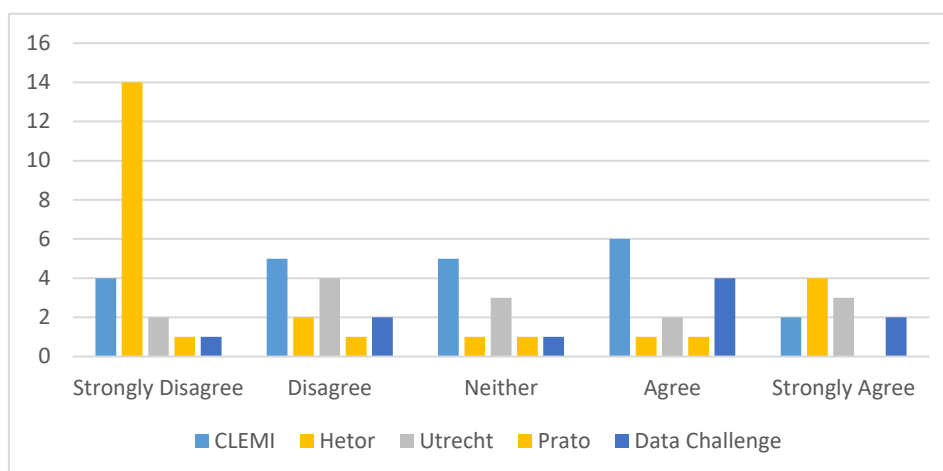


Figure 18. Empowerment in relationship with others (Q14a - citizens only)

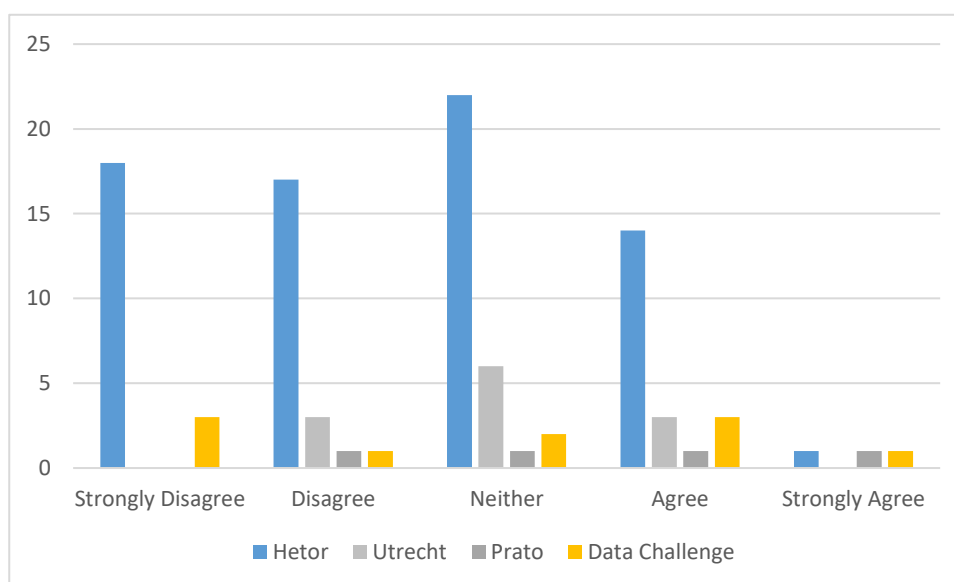


Figure 19. Empowerment in relationship with your PAs (Q14c – citizens only)

50% of the participants disagreed (with 31% of them strongly disagreeing) with the fact that *as a result of participating in RTPA, they have become more empowered in creating relationships with other citizens, having shared interests and concerns*. However, 34% of the participants agreed with the same statement. Some participants declared, for instance, the following:

*'The platform - and the project in general - has been important to create relationships with experts and the Museum administrators, empowering the group cohesion.'* (Hetor participant)

*'SPOD and the open data encouraged me to create relationships with other fellow citizens, especially concerning the research of some useful sources to complete the dataset. We established a good relationship with the owner of the journal, who was also one of its writers.'* (Hetor participant)

*'SPOD encourages me to create relationships, especially in the data collection phase.'* (Hetor participant)

*'Working with SPOD gave me the possibility to join a valuable work group with shared interests.'* (Hetor participant)

*'It encourages me because thanks to it I can talk to other citizens about common interests, sharing opinions.'* (Hetor participant)

Here again, facilitators played a crucial role in the construction of the community :

*‘Our group has been cohesive and we successfully completed our work, organizing the assignment of the tasks and operating for a common cause: make available for a huge number of users information concerning the historical buildings of Calitri. Furthermore, thanks to the help of our teachers and experts from the Salerno team, we completed our project and we got in touch with the world of work.’ (Hetor participant)*

Numerous comments show that people regret the absence of intervention of the PAs.

*‘PAs have been neutral. Sometimes they were absent, sometimes they were available to give us information’ (Data Challenge participant)*

*‘The project has helped me to create discussions with other students involved in the project, concerning common interests. However, it didn’t help me with the PA.’ (Data Challenge participant)*

*‘PA didn’t participate to our project. As a matter of fact, the mayors of the neighbouring territories didn’t participate to the final event’ (Data Challenge participant)*

*‘More interaction would have been preferred’ (Utrecht participant)*

As the extract below shows, participants often regretted the lack of common interests with other participants. Comments shows that they considered it as a prerogative to the building of a community and their participation to a project:

*‘It hasn’t been a real construction of relationships with others because there’s a lack of people interested in the Cultural Heritage of our territory.’ (Hetor participant)*

#### 7.2.4 CONCLUDING REMARKS

People generally need facilitators, training or lead from a coordinator to make sense of the use of open data. This may be due to the fact that people were asked to participate to the project and to the fact that the experiences were in most cases led in educational environments. In non-educational environment, such as in the Utrecht case, people were also dependent on ‘formal rules’, awaiting to be said what to do:

*‘There has hardly been any contact with the other stakeholder and therefore it was unclear what we were supposed to do.’ (Utrecht participant)*

### 7.3 TECHNOLOGY USABILITY MODEL

#### 7.3.1 AGENCY

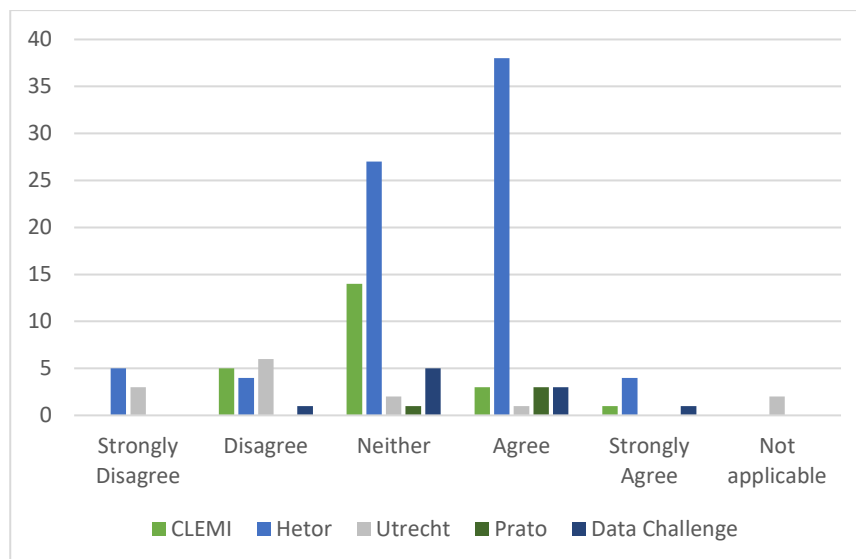


Figure 20. SPOD TET as tools easy to use (Q12a - citizens only)

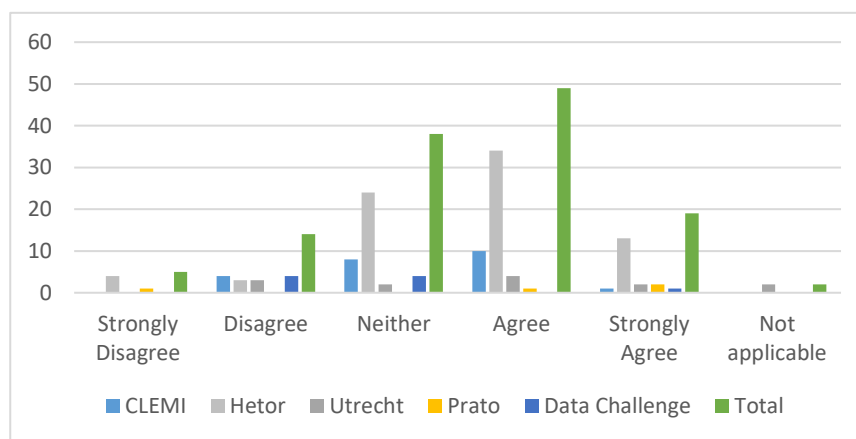


Figure 21. SPOD TET tools facilitate the use of open data (Q12b - citizens only)

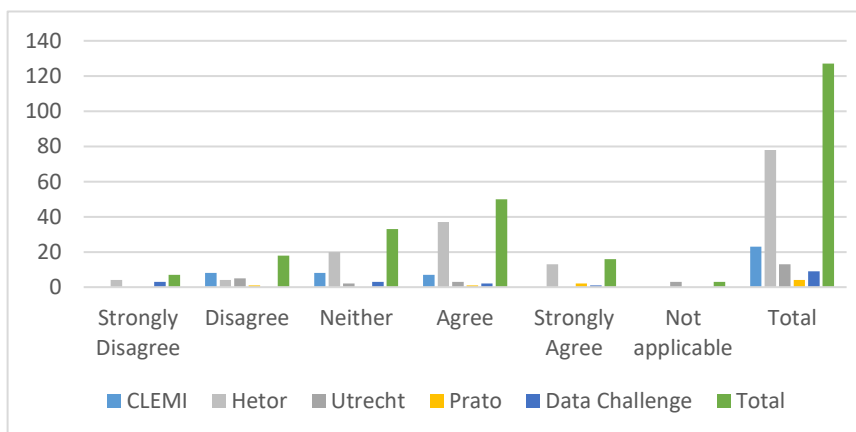


Figure 21. Q12 SPOD TET tools facilitate the co-creation of datasets (Q12c - citizens only)

40,3% of all users (PA's, students and citizens) indicated that SPOD/TET tools are easy to use. 20.9% (strongly) disagreed and 37.5% indicated their neutrality. There are, however, differences between the pilots. Whereas 52.3% of the Heter users, and 71% of the Prato users agreed that SPOD/TET tools were easy to use, only 16.7% of the CLEMI users and 5 % of the Utrecht users said so. Both CLEMI and Utrecht scored low on usability.

Furthermore, 52,9% of all users indicated that SPOD/TET tools facilitate the use of open data, whereas 15,9 % (strongly) disagreed and 29.7% neither agreed nor disagreed. The users of the different pilots scored about the same on this question: 49.3% of the Heter users, 45,9% of the CLEMI users, 36.8% of the Utrecht users, (and 71% of the Prato users) indicated that SPOD/TET facilitate the use of open data. Finally, 50% of participants indicated that SPOD/TET tools facilitate the co-creation of data, 21.7% (strongly) disagreed and 26,2% of the users indicated to be neutral. Here again there are differences between the pilots. Whereas 61.3% of the Heter users and 71.4% of the Prato users agreed that the SPOD/TET tools facilitate the co-creation of data, only 29.2% of the CLEMI users and 15.8 % of the Utrecht users said so. Furthermore, the CLEMI and Utrecht pilots scored low.

Users' experiences were diverse. While half of users' comments referred to SPOD friendliness, the other half mentioned difficulties. Users pointed out the good usability of the platform, particularly concerning the insertion of data in the Heter co-creation scenario, the creation of datalets and the insertion of data from different providers. Finally, users also referred to the discussion section as 'easy to use'.

*"The platform and its various functions are really easy to use, apart from few bugs." (Heter participant)*

*"SPOD Platform is really user friendly. The transformation of datasets into datalets and data co-creation is easy, as well." (Heter participant)*

*"The co-creation is easy to use because it can be used by several people at the same time, facilitating the work". (Heter participant)*

However, the other half of participants indicated 'bugs' and difficulties related to the making of visualisations; interpretation of visualisation; creation of metadata; co-creation of notes; compatibility with the browser internet explorer, and PA's lack of priority. This was particularly the case for the Utrecht and Clemi users. However, some of the Heter users indicated that while the creation of a dataset was easy, they experienced difficulties in creating datalets.

*"It's easy to create the dataset; more difficult to create the datalets." (Heter participant).*

*"TET did not work for me, SPOD was simpler but if the datasets were not compatible for a certain visualisation then it took a lot of time." (Utrecht participant)*

*"I think this platform is not easy to use because there are many "bugs" and it is slow. But it is useful for collaboration between students and for consulting each other." (Cleml participant)*

*"The platform is difficult to understand even with explanations. It is difficult to use. We do not understand everything. There are a lot of bugs and problems. Experiment was instructive." (Cleml participant)*

### 7.3.2 CONCLUDING REMARKS

The SPOD and TET tools provide, to a certain extent, the functionality for enhancing *technological transparency*. Interestingly, the technological transparency appears to be higher in the Heter and Prato cases than in the Cleml and Utrecht cases. It remains unsure whether if this difference relates to bugs, technological problems or to technological support. Yet, even the Heter users point out the difficulty of making datalets.

### 7.3.3 USABILITY AFFORDANCES (PAS , STUDENTS AND CITIZENS)

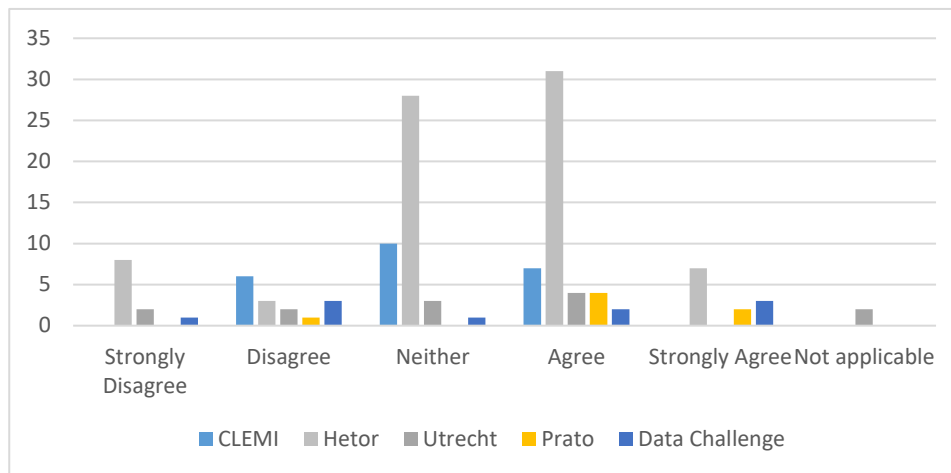


Figure 23. SPOD/TET tools facilitate discussion (Q15a - citizens only)

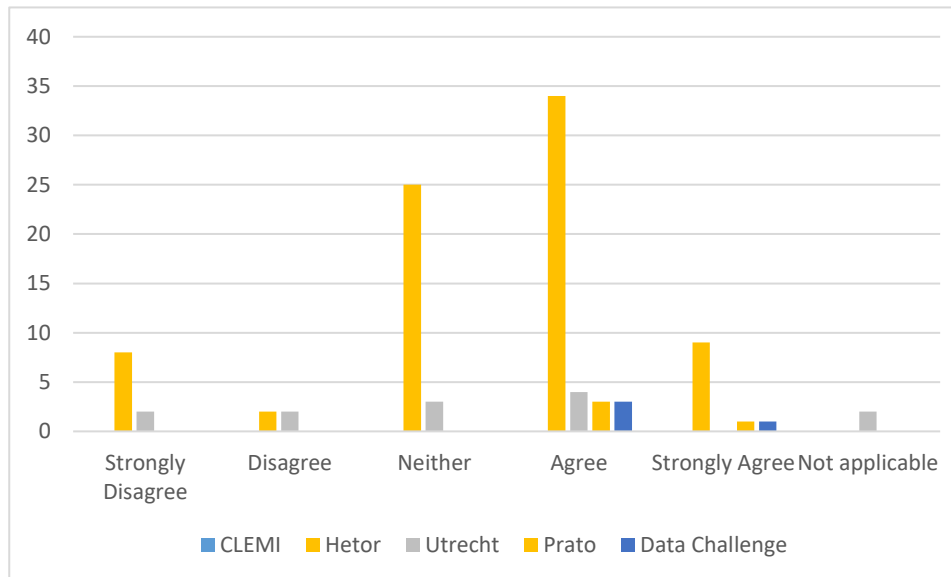


Figure 24 SPOD/TET tools facilitate participation (Q15b - citizens only)

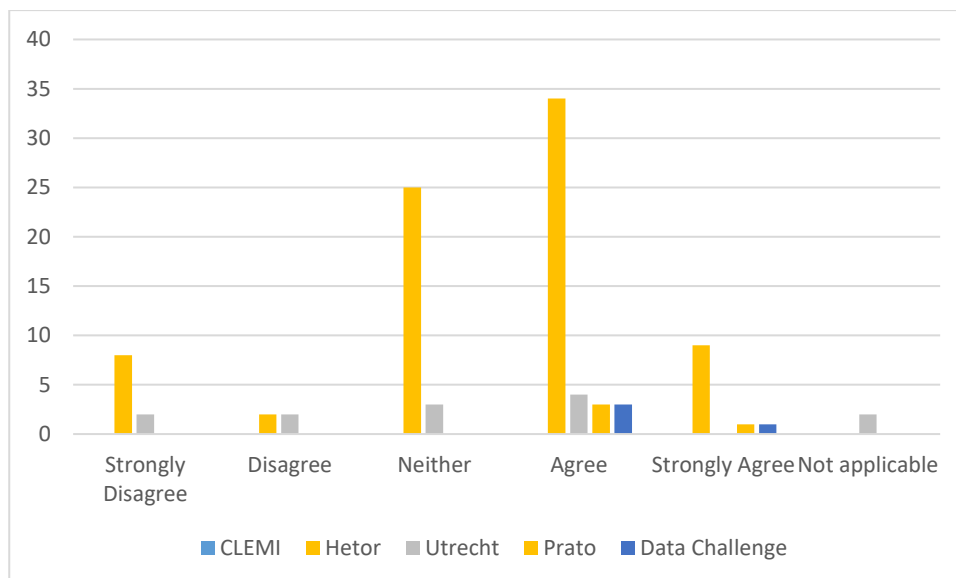


Figure 25. SPOD/TET tools facilitate collaboration (Q15c - citizens only)

In terms of engagement, 49.6% of all users (*PAs, students and citizens*) strongly agreed that SPOD/TET tools facilitated discussion, 17.4% strongly disagreed and 32.6% indicated that they neither agreed nor disagreed. There was no significant difference between the pilots : 48.9% of the Heter users, 42.1% of the Utrecht users and 41.6% of the CLEMI users agreed that SPOD/TET facilitated discussion.

Additionally, 49.2% of the users strongly agreed that SPOD/TET tools facilitate participation, 18.1% disagreed and 31,2% neither agreed nor disagreed. 85% of the Prato users, 54.5% of the Heter users, 31.6% of the Utrecht users, and 29.2% of the CLEMI users strongly agreed that the SPOD/TET tools facilitate participation.

Finally, most users (64.2%) indicated that SPOD/TET tools facilitate collaboration, 17% (strongly) disagreed and 17 % neither agreed nor disagreed. However, there is a difference between the Prato, Heter and Utrecht cases: 100% of the Prato users, 67.1% of the Heter users, 35.7% of the Utrecht users strongly agreed that the SPOD/TET tools facilitate collaboration.

*'It facilitates the collaboration because we worked in groups, improving our participation and concern in the project.'* (Heter Data Challenge respondent)

*'You can't analyse everything so discussion and collaboration are very useful.'* (Utrecht participant)

*'The room idea in the Agora facilitates aggregation/discussion on a given topic The co-creation tools are a very powerful instrument to increase collaboration.'* (Prato participant)

*'if a participant is not interested there are few discussions and participation - but in general , the platform is accessible.'* (CLEMI participant)

## 8 DISCUSSION, CONCLUSIONS AND LESSONS LEARNED

### 8.1 SUMMARY AND DISCUSSION OF RESULTS

For ease of reading and discussion, the principal results obtained here are summarised in Table 7 below. Results are presented in a manner to facilitate understanding in terms of both the two main conceptual ‘pillars’ of our conceptual model — transparency and engagement — as well as the different analytical levels at which these are understood.

These summaries are to be understood with reference to the detailed quantitative and qualitative analysis described above.

Table 7. Summary of principal SCUTE evaluation results.

	<b>Transparency</b>	<b>Engagement</b>
<b>Societal model</b>	[Forms of Democracy] Almost half of the citizen respondents strongly agreed that RTPA had helped them to gain better understanding of their PA or city.  (Few PAs who replied: mostly neutral; not yet enough time for change)	[Shared object] (Citizen-users) Around half esteemed that the scenario had enabled better engagement with their PA or city.  (PAs expressed no change)
<b>Community model</b>	[Meaning-making] (Citizens) generally positive answer. Qualitative analysis showed facilitators played crucial role (especially in some scenarios)	[Community development] For citizens, concerning empowerment to create relationships with others having shared concerns, judgements rather negative. Facilitators judged to play a crucial role: without their help, citizens had no clear idea what to do. Absence of PA participation regretted by citizens.
<b>Technology usability model</b>	[Agency] Citizen users mostly judged that SPOT-TET tools facilitated user of open data and the co-creation of datasets. Generally, SPOT judged easier to use than TET, where half of citizens indicated bugs or difficulties.	[Usability affordances] Citizens mostly agreed that tools facilitated discussions, and judged even higher the facilitation of collaboration.
<b>Overall</b>	Overall, with respect to <b>transparency</b> (understanding of PA, creating shared meanings, tools facilitating open data use/creation) results on user perceptions are <b>positive</b> (> 3 out of 5 on average)  Strong correlations between judgements of transparency and engagement at technology usability level, these being preconditions for judgements at community level; i.e. positive judgement of meaning making in community depends on positive judgement of tools.	Overall, with respect to <b>engagement</b> : (a) user perceptions of empowerment to create relations with PAs/other citizens are <b>negative</b> (< 3 out of 5) (b) user perceptions of technology usability (facilitating discussion, participation, collaboration) are <b>positive</b> (> 3 out of 5)

We remind readers of the following points before discussing results:

- results mostly concern citizen-users, few PAs having responded to SCUTE;

- the principal aim of the ROUTE-TO-PA project is to improve **transparency** (effective transparency as a new type of relation between citizens and between them and PAs, around open data) by means of stimulating citizen/PA **engagement**, via SPOD-TET **tools**.
- Given the large differences between pilots and scenarios, it is not possible to study differences between them in detail.

**With respect to transparency**, understood in terms of our models as relating to forms of democracy, shared meaning-making and agency, citizens expressed overall a **positive evaluation** of the scenarios in which they were engaged, involving use of SPOD-TET tools. These tools were judged to facilitate understanding of either PAs or the city/region, to facilitate shared meaning-making and to facilitate open data use/creation. The SPOD tool, for open-data visualisation focussed discussion, was seen as easier to use than TET, for creating visualisations in the first place. In this process, citizens saw the role of facilitators as crucial.

**With respect to engagement**, understood in terms of our models as relating to the emergence of a shared object of activity, the development of online communities and affordances of technology, more **mixed results** were obtained. On one hand, citizen-users expressed an overall **positive evaluation** of the extent to which **the tools facilitated collaboration**. On the other, they expressed a **negative evaluation** with respect to the extent to which they were able to establish **new relations with Public Administrators and other citizens**.

**With respect to relations between the qualities of the SPOD-TET tools and the activities that were realised with them**, strong correlations between (positive) evaluations of the tools and of the activities that they were designed to favour, were found: usable tools are a precondition for establishing online communities.

**With respect to facilitators**, their presence and interventions were judged to be very important. These can be seen as intermediary variables. According to the scenario, facilitators played several specific interactive roles, such as “content expert” (e.g. in the case of teacher-facilitators), “technology helpers” and “discussion moderator”.

**With respect to Public Administrators** (*pace* the small number of respondents), they judged that there had been **little organisational change or impact** as a result of their participation in the ROUTE-TO-PA project, and in many cases stated that this was due to **insufficient time** to appropriate the tools.

## 8.2 CONCLUSIONS

The following conclusions are based on the results above, within the context of evaluation of the extent to which the aims of the ROUTE-TO-PA project have been achieved, in relation to the running of specific scenarios across partner organisations and countries, involving use of the SPOD-TET tools to create and collectively interpret open data of participating public administrations, on the basis of the application of the SCUTE evaluation tool (i.e. *individual participants’ subjective evaluations*). The conclusions are also tightly linked to our specific definitions of transparency and engagement as defined and operationalized throughout this document. All conclusions are to be understood within the limits of the dataset analysed here.

**Conclusion 1: the usability of SPOD-TET tools was perceived to be high.** TET was seen as harder to use than SPOD.

**Conclusion 2: SPOD-TET tools were perceived as increasing transparency.** This was *the principal aim of the ROUTE-TO-PA project, which is therefore considered to be achieved* (within the framework of the SCUTE evaluation. The tools enable better understanding of municipalities, regions and public administrations, as well as enabling effective collaboration and meaning-making

**Conclusion 3: the high usability of SPOD-TET tools was a precondition for increased transparency** in online communities.

**Conclusion 4: facilitators in online interactions play a crucial role** within scenarios.

**Conclusion 5: there was a perceived lack of Public Administration engagement** within SPOD-TET mediated scenarios.

**Conclusion 6: from the Public Administrators' point of view, the ROUTE-TO-PA project had little tangible impact**, on the organisational level, due to insufficient time for tool/approach appropriation.

**Overall general conclusion 7:** From the point of view of citizen/student users of SPOD-TET, in specific open data co-creation and use scenarios, **transparency was increased** by their participation in these activities, despite perceived insufficient engagement of Public Administrations.

### 8.3 COMPARATIVE SYNTHESIS OF D3.3 (SCUTE) AND D5.3 (SCENARIO) RESULTS

In this section, we discuss relations between results of D5.3, concerning development of scenarios for usage of SPOD-TET tools on public administrations' open data, and results of D3.3, concerning experiences of participants in these scenarios. Such relations correspond to a *dialogical vision* of the projects' empirical results, between the *narratives of the collective user activities* and the *perceptions of individual participants* on (some of) those activities.

**With respect to transparency**, understood as relating to forms of democracy, shared meaning-making and agency, involving use of SPOD-TET tools, citizens expressed overall a **positive evaluation** of the scenarios in which they were engaged. these tools were judged to facilitate understanding of either PAs or the city/region, to facilitate shared meaning-making and to facilitate open data use/creation. The SPOD tool, for open-data visualisation focussed discussion, was seen as easier to use than TET, for creating visualisations in the first place. In this process, citizens saw the role of facilitators as crucial.

This is reflected in many scenarios: when the barrier of working with data was taken, many possibilities emerged. The most important quality of the tools that can be seen in the narratives was that the tools afforded serious data work and serious interaction. In the age of Facebook and Instagram, this seems a remarkable asset!

**With respect to engagement**, understood in terms of our models as relating to the emergence of a shared object of activity, the development of online communities and affordances of technology, more **mixed results** were obtained. On one hand, citizen-users expressed an overall **positive evaluation** of the extent to which **the tools facilitated collaboration**. On the other, they expressed a **negative evaluation** with respect to the extent to which they were able to establish **new relations with Public Administrators and other citizens**. However, for public administrators, enabling new connexions with citizens on extant issues requires exploiting existing relationships and a clear community building strategy (see D5.4). Working within an existing community such as students in the same school, who already know each other, or a public administrator contacting employers she knows already quite well, clearly works. Another option would be to work from a physical location, where people meet and discuss, such as community centre or a library.

**With respect to relations between the qualities of the SPOD-TET tools and the activities that were realised with them**, strong correlations between (positive) evaluations of the tools and of the activities that they were designed to favour, were found: usable tools are a precondition for establishing online

communities. Citizens could be engaged to collect data in scenarios that focused on regional and local heritage. This is a good first step in the process of increasing transparency. The narratives revealed many organisational barriers for public administrators for engaging in similar activities. However, in chapter 5 of D5.3, we will discuss options for increasing their engagement in working with citizens and with data (see also section 8.3 in D3.3).

Several online and offline activities in the scenarios related to increased meaning making: different types of moderation, concrete activities with visualisations and reporting to external parties, discussions between students about datasets (e.g. in Utrecht or in Galway). As a conclusion, meaning making did not only happen through dialogical interactions, but also through other types of interactions. We also found meaning making in data creation scenarios, in which dialogical interactions were not the focal point. **Transparency in meaning making is not a state, it is activity.**

#### 8.4 LESSONS LEARNED

- ❶ Open-data usage scenarios in municipalities and regions are potentially good ways for citizens to become more fully engaged in their social environments: they come to feel involved when the topic is of interest to them. However, a first lesson learned from this work is that this requires, in turn, a greater degree of engagement from Public Administrations. As we described in D3.1, this requires **a more systemic approach** to understanding and encouraging **political engagement** in open data approaches that involve (tool-mediated) dialogue with citizens around open data. In other terms, the success of broader impact requires addressing political engagement in alternative forms of democracy. Our results show that citizens can and do want to co-create meanings for open data. Such a “*grass roots*” approach and demand from citizens needs a response from Public Administrations.
- ❷ A second lesson learned concerns the crucial issue of the availability of **resources of Public Administrations**. In order to change organisations in terms of forms of democracy for which ROUTE-TO-PA tools and approaches are designed, **public administrations require more time** as well as human resources to act as facilitators.
- ❸ Thirdly, the **role and training of facilitators in open-data based SPOD-TET online communities is crucial**. Additional resources are required here too, at first within research organisations and then once this role is transferred to Public Administrations.
- ❹ Fourthly, creating workable and useful scenarios for open-data use by citizens could start with young future citizens, i.e. in schools, and in other educational situations. ROUTE-TO-PA tools have strong **potential for training the future “data scientist”** and thus contributing to innovation in Europe. ■

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10.1 APPENDIX 1: FINAL VERSION OF SCUTE QUESTIONNAIRE FOR PUBLIC ADMINISTRATORS

## PA Questionnaire

### Participant Information (2 pages)

You & TIC In a personal context:

1. a. Please, indicate on this scale, how often you use digital technology in your daily life:



b. Which technology do you use? (Please underline the answer(s))

- ☐ Mobile
- ☐ Tablet
- ☐ Pc/Mac
- ☐ All of the above

2. a. Please, indicate on this scale, how often do you use social network(s) in your daily life:



b. Which social network(s) do you use ?

.....

3. a. Please, indicate on this scale, how often do you use Open data as a citizen:



b. If you use Open Data as a citizen, please specify in which context ?

.....

.....

You & TIC in a professional context:

4. Please, indicate on this scale, how often do you use social network(s) in a professional context:



5. How did you get involved in an Open data project(s) ?

.....

.....

6. How long have you been using Open data?

- ☐ less than a year
- ☐ 1 -2 year
- ☐ 2-3 years
- ☐ 3-4 year
- ☐ more than 5 years

7. Please, indicate on this scale, how often do you use Open data in a professional context:



8. What is your main purpose when you use open data? (e.g. answering a societal question, developing an application / a service)

.....

.....

9. In open data projects:

a. Do you work with private companies ? Yes ☐ No ☐

b. If yes , in which domain(s) ?

.....

.....

c. Do you work with citizens?

Yes ☐ No ☐

d. If yes , in which domain(s) ?

.....

.....

e. Do you work with other pa's?

Yes ☐ No ☐

f. If yes, in which domain (s)?

.....

.....

10. Today, in which context do you use open data (the three main topics) ?

.....

.....

.....

## Questions on the RouteToPA project

**11. a** As a result of having participated in the RouteToPA project, there have been changes in your organisation, with respect to your form of democracy :



*b. Please justify your answer, by explaining:*

- *if you are Agree or Strongly Agree : what are these changes (e.g. you have provided additional datasets)?*
- *If you have selected Strongly Disagree, Disagree or Neither: according to you, what could have prevented any changes (e.g. a lack of available data)?*

.....

.....

**12 a.** As a result of having participated in the RouteToPA project, there have been changes in your (PA) view of working towards shared meanings with citizen groups :



*b. Please justify your answer, by explaining:*

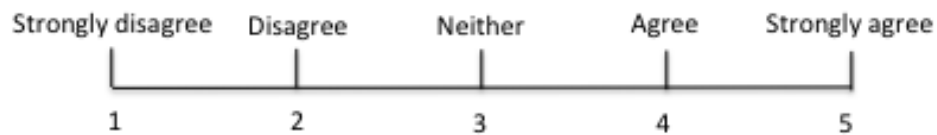
- *if you are Agree or Strongly Agree: what are these changes (e.g. development of open data projects with citizens - on SPOD/TET)?*
- *If you have selected Strongly Disagree, Disagree or Neither: according to you, what could have prevented any changes (e.g. a lack of converging goal between participants)?*

.....

.....

**13.** The SPOD/TET tools:

*.a are easy to use :*



*.b facilitate the use of open data :*



*c facilitate the co-creation of datasets :*



*d. Please justify your answers by explaining what is easy to use (e.g. creation of open data visualisations) and what are the barriers (if any) (e.g. a lack of intuitiveness):*

.....

.....

.....

**14. a.** *As a result of participating in RTPA, there have been changes concerning your engagement with groups of citizens:*



*b. Please justify your answer by explaining:*

- *if you are Agree or Strongly Agree: what are these changes (e.g. an increase in the number of participative projects around Open Data)?*
- *If you have selected Strongly Disagree, Disagree or Neither: according to you, what could have prevented any changes (e.g. a lack of consistency between data that you provided and issues addressed by citizens/other PAs)?*

.....

.....

**14. c** *As a result of participating in RTPA, there have been changes concerning your engagement with other pa's:*



d. Please justify your answer by explaining:

- if you are Agree or Strongly Agree: what are these changes (e.g. an increase in the number of participative projects around Open Data)?
- If you have selected Strongly Disagree, Disagree or Neither: according to you, what could have prevented any changes (e.g. a lack of consistency between data that you provided and issues addressed by citizens/other PAs)?

.....

.....

15. a. As a result of participating in RTPA, there have been change in your (PA) view of citizen communities i.e. extent to which they are working with YOU (the PA)? [SCENARIOS, common goals, e.g. population decline, employment, ...] :



b. Please justify your answer by explaining:

- if you are Agree or Strongly Agree: what are these changes (e.g. development of projects from communities related to SPOD/TET) ?
- If you have selected Strongly Disagree, Disagree or Neither: according to you, what could have prevented any changes (e.g. a lack of cooperation between PAs & Citizens)?

.....

.....

16. The SPOD/TET tools

.a facilitate discussion:



.b facilitate participation :



*.c facilitate collaboration :*



*d. Please justify your answer by explaining:*

- *how the SPOD-TET tools facilitate discussion, participation & collaboration (e.g. by accessing to several discussion spaces, by requesting members by email) ?*  
*what could limit the interaction, in terms of functionalities (a lack of privacy)?*

.....

.....

**17. More generally, do you have any further suggestions or remarks ?**

.....

.....

Some questions about you :

18. Family name:

19. First name(s):

20. Profession & Institution:

21. Role in this institution:

22. Age      ☐ 15-25    ;    ☐ 26-35    ;    ☐ 36 – 59      ☐ ≥60

23. Gender:

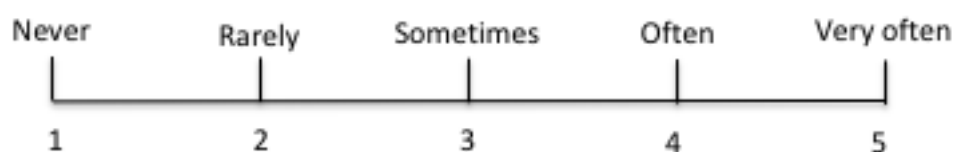
24. Login:

## CITIZENS' Questionnaire

### Participant Information (2 pages)

You & TIC in a personal context:

1. a. Please, indicate on this scale, how often you use digital technology in your daily life:



b. Which technology do you use?

- ☐ Mobile
- ☐ Tablet
- ☐ Pc/Mac
- ☐ All of the above

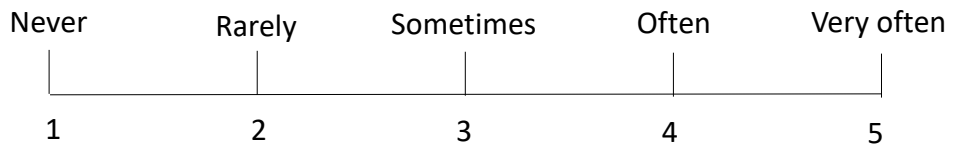
2. a. Please, indicate on this scale, how often do you use social network(s) in your daily life:



b. Which social network(s) do you use ?

.....

3. a. Please, indicate on this scale, how often do you use Open data :



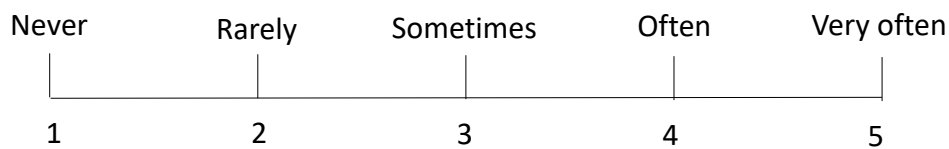
b. If you use Open data, please specify in which context ?

.....

.....

You & TIC in a professional context:

4. a. Please, indicate on this scale, how often do you use social network(s) in a professional context:



b. If yes, which one(s) ?

.....

.....

5. Please, indicate on this scale, how often do you use Open Data in a professional context:



6. If you use Open Data in a professional context, how did you get involved in an Open data project(s)?

.....

.....

7. And, how long have you been using Open data?

- ☐ less than a year
- ☐ 1 -2 year
- ☐ 2-3 years
- ☐ 3-4 year
- ☐ more than 5 years

8. What is your main purpose when you use open data? (e.g. answering a societal question, developing an application / a service)

.....

.....

9. In open data projects:

a. Do you work with private companies ?

Yes ☐ No ☐

b. If yes , in which domain(s) ?

.....

.....

c. Do you work with other citizens?

Yes ☐ No ☐

d. If yes , in which domain(s) ?

.....

.....

e. Do you work with public administrators?

Yes ☐ No ☐

f. If yes, in which domain (s)?

.....

.....

## Questions on the RouteToPA project

10. a. As a result of participating in RTPA, you have come to better understand your PA (e.g. how it functions) and/or your city/region that the PA is responsible for:



b. Please justify your answer by explaining :

- if you are Agree or Strongly Agree: how it has promoted your comprehension of PA/city/region activities (e.g. by responding to individual requests, by organizing special events)?
- If you have selected Strongly Disagree, Disagree or Neither: what could have prevented your comprehension of your PA/city/region activities (e.g. a lack of datasets, a lack of PAs participation in events/projects around open data)?

.....

.....

11 a. SPOD/TET community helped you to achieve shared meaning in your group concerning the issue (e.g. population decline, employment, transport, wifi-positions, budget, cultural heritage, etc.) :

Strongly disagree	Disagree	Neither	Agree	Strongly agree
<hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>				
1	2	3	4	5

b. Please justify your answer by explaining :

- if you are Agree or Strongly Agree: how SPOD-TET community has helped you (e.g. by interacting with professionals of open data) ?
- If you have selected Strongly Disagree, Disagree or Neither: what could have prevented SPOD/TET community from assisting you to achieve shared meaning in your group concerning the issue (e.g. a lack of matching between the participants' profiles; privacy issues) ?

.....

.....

12. The SPOD/TET tools:

.a are easy to use:

Strongly disagree	Disagree	Neither	Agree	Strongly agree
<hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>				
1	2	3	4	5

.b facilitate the use of open data :

Strongly disagree	Disagree	Neither	Agree	Strongly agree
<hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>				
1	2	3	4	5

.c facilitate the co-creation of datasets:

Strongly disagree	Disagree	Neither	Agree	Strongly agree
<hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>				
1	2	3	4	5

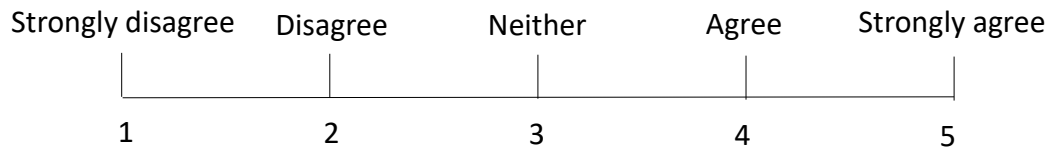
d. Please justify your answers by explaining what is easy to use (e.g. transformation of datasets into more understandable formats) and what are the barriers (if any) (e.g. a lack of relevance of the visualization formats in line with your skills and individual needs):

.....

.....

.....

13. a. As a result of participating in RTPA, you have become more engaged with your PA:



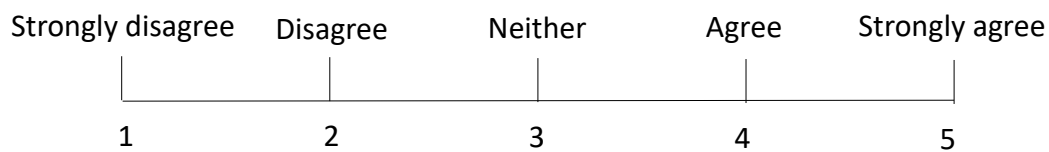
b. Please justify your answer by explaining :

- if you are Agree or Strongly Agree, how? (e.g. your work with open data - impacts policy/decision-making of your PA, impacts your city/region/society)
- If you have selected Strongly Disagree, Disagree or Neither: what might have limited your engagement with your PA ? (e.g. limited monitoring/deliberating on/co-creating open data)

.....

.....

14. a. As a result of participating in RTPA, you have become more empowered in creating relationships with other citizens, having shared interests and concerns:



b. Please justify your answer by explaining :

- if you are Agree or Strongly Agree: how SPOD/TET tools encourage you to create relationships (e.g. by enabling you to propose open data projects in line with your concerns) ?
- If you have selected Strongly Disagree, Disagree or Neither: what could have limited your empowerment in the construction of relationships with others (e.g. a lack of communities that address your concern) ?

.....

.....

c. As a result of participating in RTPA, you have become more empowered in creating relationships with PAs, having shared interests and concerns:



d. Please justify your answer by explaining :

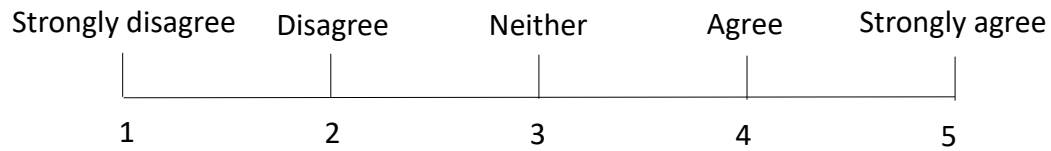
- if you are Agree or Strongly Agree: how SPOD/TET tools encourage you to create relationships (e.g. by enabling you to propose open data projects in line with your concerns) ?
- If you have selected Strongly Disagree, Disagree or Neither: what could have limited your empowerment in the construction of relationships with others (e.g. a lack of communities that address your concern) ?

.....

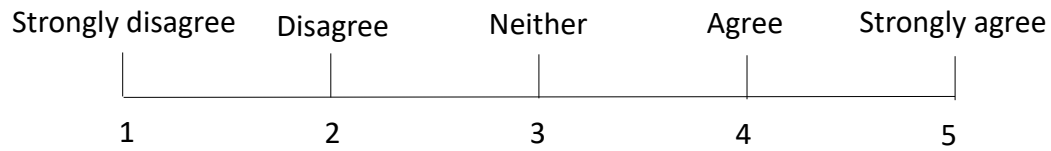
.....

15. The SPOD/TET tools

.a facilitate discussion:



.c facilitate collaboration :



d. Please justify your answer by explaining:

- how the SPOD-TET tools facilitate discussion, participation & collaboration (e.g. via an easy accessibility of the discussion tools – AGORA) ?  
 what could limit the interaction, in terms of functionalities (e.g. a lack of discussion spaces devoted to synchronous interactions) ?

.....  
 .....

---

**16. More generally, do you have any further suggestions or remarks?**

.....  
 .....  
 .....  
 .....

Some questions about you :

17. Family name:

18. First name(s):

19. Group(s) & role:

20. Age      ☐ 15-25    ;    ☐ 26-35    ;    ☐ 36 – 59      ☐ ≥60

21. Gender:

22. Login:

### 10.3 APPENDIX 3: ADDITIONAL TABLES OF DATA AND RESULTS FOR STATISTICAL ANALYSIS (SCUTE)

#### Descriptive statistics (citizens only)

	Mobile	Tablet	Pc/Mac	All of the above	Mobile/Tablet	Mobile/Mac	Tablet/Mac
Utrecht				5		9	
Prato				3		1	
CLEMI	2		1	12	1	7	
Data Challenge	6		1	3			
Hetor	69	3	6				
Total	77	3	8	23	1	17	0

Q1b Type of technology used

	Never	Rarely	Sometimes	Often	Very often
CLEMI			3	16	4
Hetor	5	6	19	28	29
Utrecht			1	10	3
Prato	1	2		1	
Total	6	8	23	55	36

Q2a Use of social network in daily life

	Facebook	Whatsapp	Instagram	Snapchat	Linkedin	Twitter	email	None
CLEMI	6	3	19	22				
Hetor	48	40	58	1		3		1
Utrecht	14	8	5	2	5	3	1	
Prato	3							1
Total	71	51	82	25	5	6	1	2

Q2b Type of social network used

	Never	Rarely	Sometimes	Often	Very often
CLEMI	14	9			
Hetor	16	26	28	8	
Utrecht	3	3	6	2	1
Prato	1	1	1	1	
Data Challenge	3	1	4		2
Total	37	40	39	11	3

3a Use of Open data

	Never	Rarely	Sometimes	Often	Very often
CLEMI	3	15	4	1	
Hetor	28	18	15	10	7
Utrecht	1	3	3	5	2
Prato	1	1	2		
Data Challenge	2	2		5	1
Total	35	39	24	21	10

Q4a Use of social network(s) in a professional context

	Never	Rarely	Sometimes	Often	Very often
CLEMI	18	2	2	1	
Hetor	17	22	26	9	2
Utrecht	7	2	1	3	1
Prato		2		2	
Data Challenge	4	1	3	1	1
Total	46	29	32	16	4

Q5 Use of Open data in a professional context

	Less than a year	1 -2 year	2-3 years	3-4 years	more than 5 years
CLEMI	1	14	2		
Hetor	33	44			
Utrecht	5	3	4	1	1
Prato	1		2		1
Data Challenge	8		1		1
Total	48	61	9	1	3

Q7 Longevity of the use of Open data with

Question/City	Utrecht - Yes	Utrecht - No	Prato - Yes	Prato - No	Hetor - Yes	Hetor - No
private companies	1	13		4	1	9
other citizens	1	13	3	1	4	6
PA's	3	11	2	2	5	5
Total	5	37	5	7	10	20

Q9a/b/c working with other in open data projects

## Societal model

### *Forms of Democracy*

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Total
CLEMI			8	11	3	22
Hetor	1	10	29	30	7	66
Utrecht	1	1	6	4	1	11
Prato	1			2	1	3
Data Challenge	2	1	3	2	2	7
Total	5	12	46	49	14	126

Q10 understanding of PA as a results of participating in RTPA

**Shared object of Activity**

Pilot/Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not Applicable	Total
CLEMI	2	9	5	5	1	0	22
Hetor	7	14	25	25	7	0	78
Utrecht	1	0	3	8	1	1	14
Prato	0	1	1	1	1	0	4
Data Challenge	2	1	1	4	2	0	10
Total	12	25	35	43	12	1	128

Q13 Engagement with PA/City

**Community**

**Model**

*Meaning-Making, Joint projects and dialogue games*

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Total
CLEMI		1	9	12		22
Hetor	6	5	19	34	13	77
Utrecht	1	5	3	3		12
Prato		1		2	1	4
Data Challenge	1	2	2	3	2	10
Total	8	14	33	54	16	125

Q11 SPOD/TET Community and Shared Meaning

**Community development, building, emergent roles**

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Total
CLEMI	4	5	5	6	2	22
Hetor	14	2	1	1	4	22
Utrecht	2	4	3	2	3	14
Prato	1	1	1	1	0	4
Data Challenge	1	2	1	4	2	10
Total	22	14	11	14	11	72

Q14a Empowerment in creating relationships with other citizens as a result of participating in RTPA

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Total
Hetor	18	17	22	14	1	72
Utrecht	0	3	6	3	0	12
Prato		1	1	1	1	4
Data Challenge	3	1	2	3	1	10
Total	21	22	31	21	3	98

Q14c Empowerment in creating relationships with PAs

## Technology usability model

Agency

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not applicable	Total
CLEMI	0	5	14	3	1	0	23
Hetor	5	4	27	38	4	0	78
Utrecht	3	6	2	1	0	2	14
Prato	0	0	1	3	0	0	4
Data Challenge	0	1	5	3	1	0	10
Total	8	16	49	48	6	2	129

### Q12a The SPOD/TET are easy to use

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not applicable	Total
CLEMI	0	4	8	10	1	0	23
Hetor	4	3	24	34	13	0	78
Utrecht	0	3	2	4	2	2	13
Prato	1	0	0	1	2	0	4
Data Challenge	0	4	4	0	1	0	9
Total	5	14	38	49	19	2	127

### 12b facilitate the use of open data

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not applicable	Total
CLEMI	0	8	8	7	0	0	23
Hetor	4	4	20	37	13	0	78
Utrecht	0	5	2	3	0	3	13
Prato	0	1	0	1	2	0	4
Data Challenge	3	0	3	2	1	0	9
Total	7	18	33	50	16	3	127

### 12c The SPOD/TET tools facilitate the co-creation of datasets

## Usability affordances

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not applicable	Total
CLEMI		6	10	7			23
Hetor	8	3	28	31	7		77
Utrecht	2	2	3	4	0	2	13
Prato	0	1	0	4	2		7
Data Challenge	1	3	1	2	3	0	10
Total	11	15	42	48	12	2	130

### 15a The SPOD/TET tools facilitate discussion

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not applicable	Total
CLEMI							

Hetor	8	2	25	34	9		78
Utrecht	2	2	3	4	0	2	13
Prato	0	0	0	3	1	0	4
Data Challenge	0	0	0	3	1	0	4
Total	10	4	28	44	11	2	99

15b facilitate participation

Pilot/ Answer	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not applicable	Total
CLEMI							
Hetor	4	5	16	38	15		78
Utrecht	1	3	4	3	0	2	13
Prato	0	0	0	2	2	0	4
Data Challenge	0	0	0	2	2	0	4
Total	5	8	20	45	19	2	99

15c facilitate collaboration

### Correlation charts

The correlation charts below were programmed with the SPSS Statistics 24 software. <sup>1</sup> \*\* The correlations are significant at 0.01 and \* at 0,05.

Significant correlations Q1a-Q7 and Q10a and Q15c

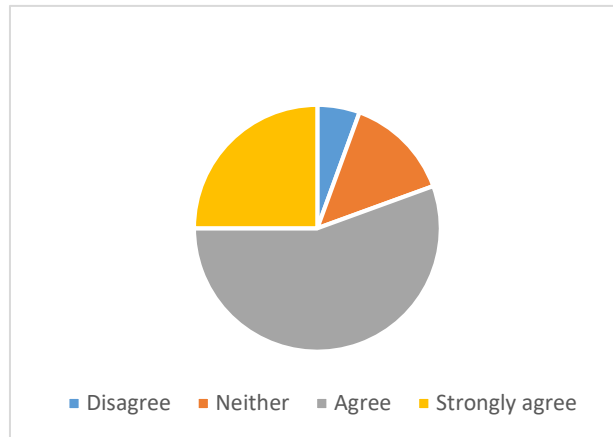
	Q10a	Q11a	Q12a	Q12b	Q12c	Q13a	Q14a	Q14c	Q15a	Q15b	Q15c
Q1a	-,224*	-0,135	-0,123	-0,084	-0,113	-0,121	-0,166	-0,172	-0,098	-0,014	-0,155
Q1b	0,03	-,244**	-,293**	-0,134	-,334**	-0,105	-0,125	0,056	-0,144	-,196*	-,315**
Q2a	-0,098	-0,128	-0,06	0,008	-0,061	-0,137	-,179*	-0,079	-0,087	-0,061	-0,141
Q3a	0,123	,213*	,278**	,208*	,271**	,395**	,284**	,351**	,192*	,260**	,245*
Q4	0,038	-,174*	0,014	-0,069	0,007	,224*	-0,024	0,05	-0,017	0,005	-0,15
Q5	0,132	,242**	,270**	,210*	,262**	,481**	,193*	,403**	,183*	,185*	,205*
Q7	-0,068	-0,086	-0,035	-0,004	0,062	-0,052	-0,013	0,023	-0,023	0,045	-0,028

	Q10a	Q11a	Q12a	Q12b	Q12c	Q13a	Q14a	Q14c	Q15a	Q15b	Q15c
Q10a	1	,534**	,354**	,448**	,440**	,539**	,463**	,278**	,436**	,421**	,442**
Q11a	,534**	1	,520**	,623**	,595**	,438**	,558**	,480**	,646**	,639**	,736**
Q12a	,354**	,520**	1	,528**	,589**	,311**	,372**	,261**	,519**	,532**	,526**
Q12b	,448**	,623**	,528**	1	,717**	,395**	,391**	,382**	,597**	,622**	,646**
Q12c	,440**	,595**	,589**	,717**	1	,460**	,456**	,340**	,630**	,642**	,640**
Q13a	,539**	,438**	,311**	,395**	,460**	1	,450**	,523**	,384**	,300**	,371**
Q14a	,463**	,558**	,372**	,391**	,456**	,450**	1	,638**	,542**	,531**	,558**
Q14c	,278**	,480**	,261**	,382**	,340**	,523**	,638**	1	,443**	,473**	,475**
Q15a	,436**	,646**	,519**	,597**	,630**	,384**	,542**	,443**	1	,844**	,771**
Q15b	,421**	,639**	,532**	,622**	,642**	,300**	,531**	,473**	,844**	1	,857**
Q15c	,442**	,736**	,526**	,646**	,640**	,371**	,558**	,475**	,771**	,857**	1

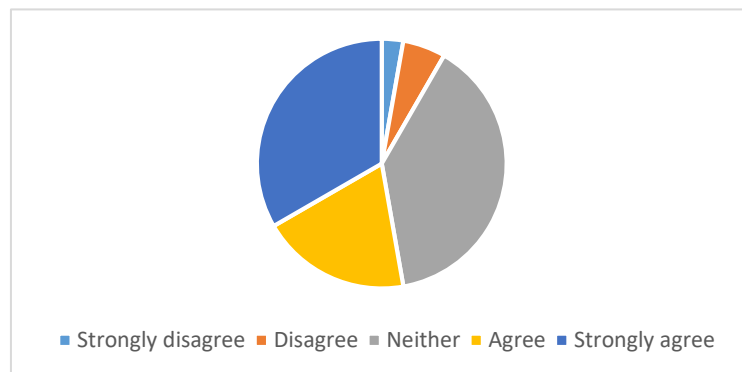
Significant correlations between Q10 and Q15c

#### 10.4 APPENDIX 4: PRATO “TABERNACLES” SCENARIO QUESTIONNAIRE AND RESULTS FOR YOUNG CHILDREN

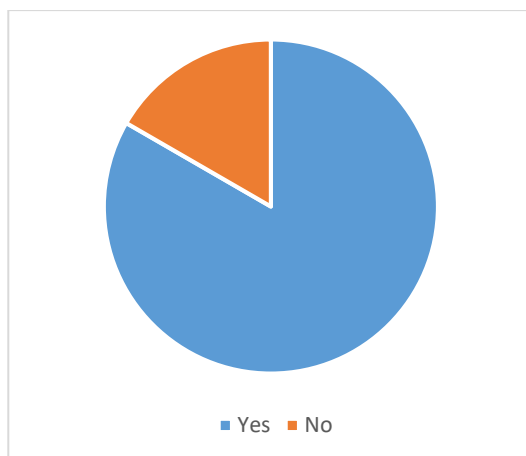
The results below correspond to the students' answers for the tabernacle's pilot (36 answers over a total of 170 students). Students worked with the Municipality of Prato.



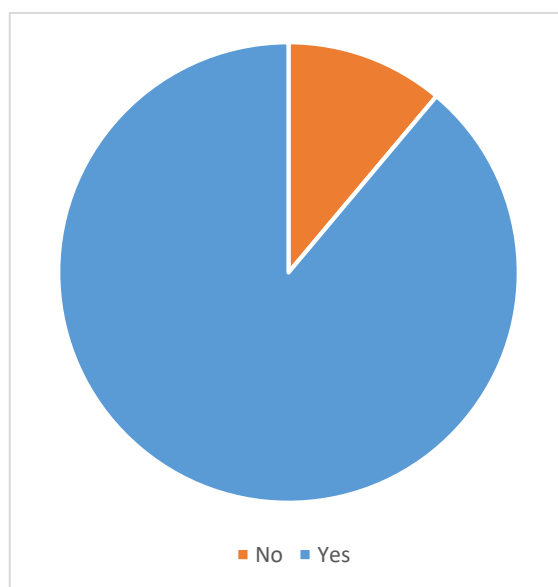
How much did you like this experience?



How do you judge the tools you used?



Did you learn anything new on your city through this experience?



Would you like to repeat this experience?