



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



Project number 645860
H2020-INSO-2014

D2.2 Analytical Framework and Initial Scenarios on Open Data and Transparency

(Version 1.1 - Revised - 19/05/2016)



WISE&MUNRO



Document produced by

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Subject: Analytical Model and Initial Scenarios

Due date: 31 July 2015

Dissemination level: [Select among Public PU **[X]**, Confidential CO, Classified CI]

Reviewed and approved by

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18.07.2015	Michael Baker	CNRS – Paris
20.07.2015	Elena Palmisano	Prato Municipality, Italy

Revision History

Version	Date	Authors	Status	Description of Changes
0.1	20.6.2015	A. Ojo	Outline	Drafting of report outline
0.2	05.7.2015	A. Ojo	Section 1 drafted	Completed initial draft of Section 1
0.3	06.7.2015	A. Ojo	Section 2 drafted	Completed initial draft of Section 2
0.4	14.2.2015	A. Ojo	Section 3 drafted	Completed initial draft of Section 3
0.5	15.7.2015	E. Osagie	Appendix compiled	Completed compilation of appendix section
0.6	15.7.2015	L. Powol E. Osagie	Section 4 drafted	Development of Scenarios and drafting of Section 4
0.7	15.7.2015	L. Porwol	Section 5 drafted	Analysis of scenarios and drafting of section 5
0.8	15.7.2015	A. Ojo	Section 6 drafted	Completed initial draft of Section 6
0.9	15.7.2015	A. Ojo	Executive Summary written	Completed initial draft of Executive Summary
0.91	16.7.2015	A. Ojo	Section 5 revised	Revised Section 5
0.92	16.7.2015	M. Hogan	Sections 1 – 6 revised	Revised deliverable
0.93	17.7.2015	M. Baker	Sections 1 – 6 revised	Corrections on deliverable
0.94	20.7.2015	E. Palmisano	Sections 1 – 6 revised	Corrections on deliverables
0.99	29.7.2015	L. Porwol	Corrections consolidated	Consolidation of corrections by reviews
1.00	30.7.2015	A. Ojo	Final revision of deliverable	Final version for submission
1.01	16.5.2016	A. Ojo	Revision of Executive Summary	Include how the deliverable relates to other deliverables
1.03	16.5.2016	A. Ojo	Section 2 updated	Update the methodology to reflect how data about the scenarios were gathered.
1.04	17.5.2016	A. Ojo	Section 3 updated	The integrated model in Section 3 was updated to reflect complementarity of models and how the democratic paradigms are used in our work.
1.08	18.5.2016	A. Ojo	Section 4 updated	Source of scenarios and user stories are better explained and tie back to Task 2.1.
1.09	18.5.2016	A. Ojo	Section 5 updated	Section description revised and more details about how scenarios were profiled were provided.
1.1	18.5.2016	A. Ojo	Formatting	

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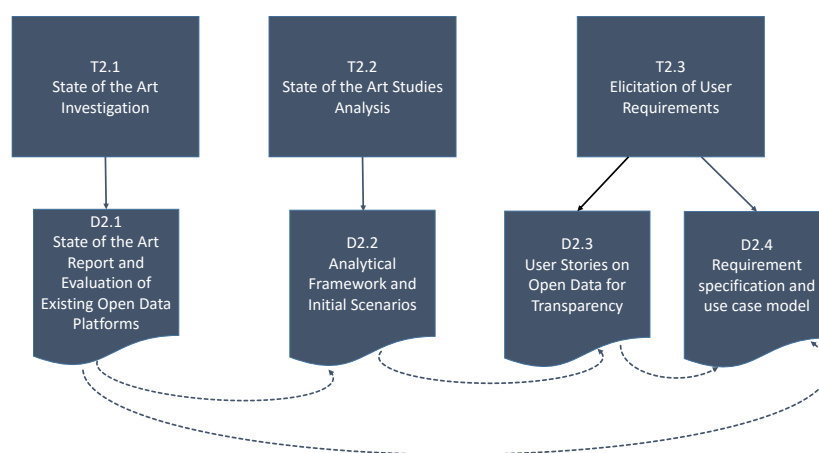
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EXECUTIVE SUMMARY

Route-To-PA (Raising Open and User-friendly Transparency-Enabling Technologies for Public Administration) is an innovation project focused on prototyping and piloting the enhancement and integration of an Open Data Platform and a Social Networking Engine to facilitate greater accessibility and better understanding of open data. Two primary objectives of the Route-To-PA project include: 1) enabling local government authorities transition into the use of next generation of Open Data portals integrated with tools that will enable citizens to socially engage over open data resources - to be provided via the *Social Platform for Open Data (SPOD)* sub-infrastructure, and 2) providing tools that could be integrated into existing open data platforms to enable significantly greater data accessibility, quality and understandability - to be provided via the *Transparency Enhancing Toolset (TET)* component.

This report entitled “D2.2 - Analytical Framework and Initial Scenarios for Open Data and Transparency”, presents the results of our analysis of the state-of-the-art in models for Transparency and Open Data. The work documented in this report takes as input some of the workshop and interview data partly carried out in Task T2.1 and partially analysed in Deliverable D2.1 titled “State-of-the-Art Report on Open Data Platforms” (see Figure 1). The report organizes existing theoretical models of transparency and synthesizes an integrated model for characterising detailed scenarios developed in Tasks T2.2. The developed analytical model and elaborated scenarios will serve as input into Task 2.3 for developing Deliverable 2.3 and for the evaluation models to be developed in Work package WP5.

Figure 1: Relationship between deliverable and other deliverables in WP2



The results presented are structured into two core aspects:

- 1) The Analytical Framework for Open Data and Transparency - comprises a set of simple models developed from existing theories and models on Transparency that will be used as a tool to analyse the transparency requirements and open data needs for the different scenarios associated with each of the pilots in Dublin, Groningen, Prato, Den Haag and Issy-les-Moulineaux. Specifically, the developed framework enables determining: specific conditions for effective open data mediated transparency in each of the presented scenarios; the different categories and roles of actors involved in the scenarios as well as the transparency relationships among them; the role of open data in the different transparency contexts; and finally the transparency measures that are relevant to each scenario. The

user scenario building and evaluation is a part of WP5 and the transparency measures are important particularly from the perspective of T5.1 an scenario evaluation. Another important use of the analytical framework as a tool is in the identification of primary or fundamental scenarios that other scenarios may build or rely upon.

- 2) Scenario Descriptions – comprises a set of descriptions of Route-To-PA platform's (TET and SPOD) usage by different actors (Sutcliffe, 1998). In the context of this report, scenario descriptions *capture sequence of events describing possible interactions with the future TET-enabled open data platform and SPOD platform*. These scenarios will be developed based on the initial scenarios provided by pilot partners. Essentially, the refined set of scenarios will focus on the interaction between different user categories and Route-To-PA platform.

The approach adopted comprises the following four steps: literature search, mapping of models and theories to views, integration of views and application of integrated model in scenario analyses. Four analytical facets corresponding to Pepper's (1942) world views were adopted for structuring different models and theories found in the literature. Forty (40) scenarios were developed from the five categories of initial high-level scenarios/stories provided by pilot partners. Analyses of the scenarios will underpin the development of the Transparency Enhancing Toolset (TET) and Social Platform for Open Data (SPOD) elements of the Route-To-PA platform. This design is consistent with the goal of building sound connections between the two components of open government as described in (Davies, 2013) — “vision” and “voice” —, where vision covers proactive transparency with open data publication (addressed by TET extension) and voice connotes both formal and informal arenas for end-users to engage (supported by SPOD social platform).

Overall, given the plurality of transparency model and the lack of an integrative framework, this report make an important contribution in area. The report demonstrates in concrete terms how scenarios involving the use of the envisioned Route-to-PA platform can be characterised using elements of the transparency models.

1 INTRODUCTION

Transparency is generally seen as a fundamental element of democratic governance (Ghaus-Pasha, 2007). It is commonly associated with an entity's revelation or disclosure of information about its own decision processes, procedures, functioning and performance to external actors (Grimmelikhuijsen & Welch, 2012). When transparency is conceived as a means to an end, transparency initiatives could have different goals ranging from limiting abuses of power, to tackling corruption, encouraging improved institutional performance and stimulating open innovation (Hilgers & Ihl, 2010) (Fox, 2007).

Over the years, perspectives and treatment of transparency as a concept have evolved. In Meijer (2015), two distinct phases or eras of transparency were identified – the era of transparency in a representative democracy and that of transparency in a participatory democracy. The later era of participatory democracy is associated with widespread availability of government documents on websites (Albert Meijer, 2015) and recently open data portals. The internet revolution and wide adoption of e-government across different parts of the world has made computer-mediated transparency a popular strategy for transforming transparency relationships between government and citizens towards greater trust (Meijer, 2009)(Bannister & Connolly, 2011).

Computer-mediated transparency is the ability to look clearly through the windows of an institution through the use of computerized systems (Meijer, 2009). Meijer (2009) characterises computer-mediated transparency as unidirectional or one-way in terms of: 1) communication between parties involved in the transparency relationship or act, 2) de-contextualization in terms of information being shared and 3) being inherently calculative although capable in supporting text processing. Interestingly, with recent developments in e-government and open government practices, these characterisations are likely to evolve. For instance, most e-government and open data portals have capabilities to support two-way interaction around contents published on them. In addition, the association of social networking platforms with several open data platforms affords users the possibility to discuss or deliberate over datasets of interest (Osagie et al., 2015). In this area, examples include data-informing dialogues or deliberations, e.g. on fiscal policies (Davies, 2013) (Granickas, 2013). Given the extensive metadata and provenance practices recommended in World Wide Web Consortium's (W3C) draft document on "Data on the Web Best Practices" (Greiner et al., 2015), publicly available datasets are expected to increasingly have significant amount of contextual information. Furthermore, the recent explosion in text analytics and social media analytics research and increasing adoption of these techniques in government (Ojo, Estevez, & Janowski, 2010) (Hassan & Ojo, 2014); points towards greater efficacy for computer mediated transparency. As a necessary condition for any form of transparency, computer-mediated transparency must ensure that external or receiving parties are capable of processing the information that has been made available (Heald, 2006).

Despite these promises, platforms for computer-mediated transparency and specifically open-data enabled transparency are far from fully implementing relevant data-explanatory and social features. Specifically, findings from Route-To-PA¹ deliverable D2.1 on State-of-art-of open data portals (Osagie et al., 2015) show that social media features of open data portals are limited to discussion about datasets with no integration between the

¹ <http://routetopa.eu>

open data and social networking platform. In addition, features for checking compliance with metadata standards and good practices published in (Greiner et al., 2015) are very limited.

This report presents the analytical model which comprises a set of simple models (developed from existing transparency theories and models) to be used as a tool for analysing the transparency requirements and open data needs for the different scenarios associated with each of five open data pilots in Dublin, Groningen, Prato, Den Haag and Issy-les-Moulineaux. The Analytical Framework will be used in determining: specific conditions for effective open data-mediated transparency in each of the presented scenarios; the different categories and roles of actors involved in the scenarios as well as the transparency relationships among them; the role of open data in the different transparency contexts; and finally transparency measures that are relevant to each scenario.

Analysis of the scenarios will underpin the development of the Transparency Enhancing Toolset (TET) and Social Platform for Open Data (SPOD) elements of the Route-To-PA platform. This design is consistent with the goal of building sound connections between the two components of open government as described in (Davies, 2013) - “vision” and “voice”, where vision covers proactive transparency with open data publication (TET extension) and voice connotes both formal and informal arenas for end-users to engage (SPOD). See Figure 2.

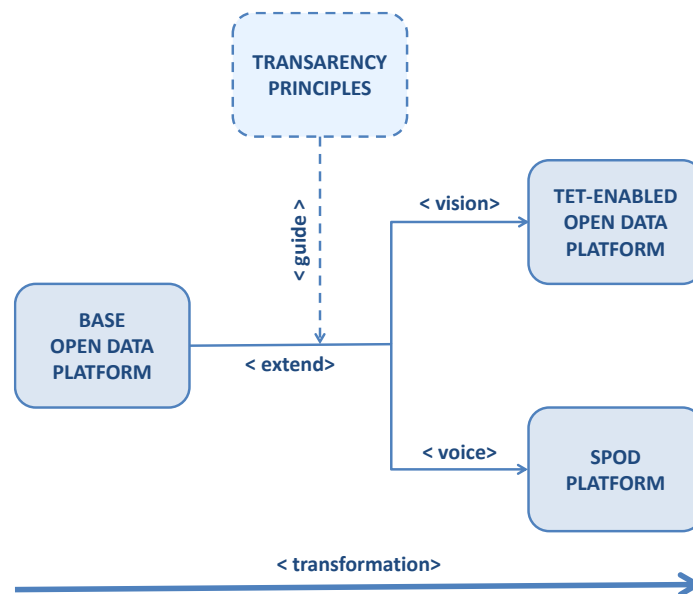


Figure 2: The Route-To-PA Platform

The rest of the report is structured as follows. The methodology for constructing the analytical models is presented in Section 2, while the constituent theoretical models of the analytical framework are described in Section 3. Scenarios describing the desired features of the to-be-developed TET and SPOD components of the Route-To-PA platform are described in Section 4. The scenarios are analysed in Sections 5 and final conclusions are presented in Section 6.

2. METHODOLOGY

This section describes the approach adopted for developing the Analytical Framework. The developed framework is a coherent collection and specializations of existing models, theories, frameworks related to transparency, computer-mediated transparency and open-data based transparency employed for analysing the scenarios associated with the projects pilot activities. While there are many existing theoretical frameworks for transparency, theoretical models for computer-mediated and open data based transparency such as (Meijer, 2009), (Zuiderwijk & Janssen, 2013) and (O' Hara, 2012) are rare. Given the multiplicity of transparency models and different perspectives employed by these models, logical organization of the models into complementary views is necessary to coherently exploit them.

There are a few possible ways to structure enquiries in domains including the use of Aristotle's four Causes, 5W1H (What, Where, When, Why, Who, How?), 5Ws and Pepper's World Hypotheses (Porwol, Ojo, & Breslin, 2013) . We adopted Pepper's World Hypotheses or Views as a generic set of aspects for the transparency. The premise for our choice of Pepper's Views is based on the following: 1) Pepper's Views are metaphorically richer when compared to journalistic questions (5W1H) - or Four Causes; 2) it is possible to map Pepper's Views to the journalistic questions and Four Causes; and 3) there is evidence of the suitability of applying Pepper's Views to structure and analyse socio-technical systems (Marca & McGowan, 1993). Pepper's World Hypotheses prescribes four different world views which enables inquiry into: 1) how transparency operates (Mechanism view); 2) the different forms and types of transparency and entities that participate in the transparency relationships (Formism view); 3) the different contexts measures of transparency (Contextualism view); 4) how to understand progression in transparency initiatives (Organicism view). The views are later employed complementarily in analysing scenarios to determine transparency requirements and their success criteria.

The overall approach adopted comprises of the following four steps: literature search, mapping of models and theories to views, integration of views and application of integrated model in scenario analysis (see Figure 3). We expatiate on each of these steps below:

Literature search – the development of the analytical framework began with detailed literature search on existing theories, models and conceptualization of transparency, computer-mediated transparency and open data driven transparency in major bibliographic databases including Scopus², Google Scholar³ and from specific publisher websites such as IEEE Xplore⁴. Keywords used for the search includes different combinations of terms like “transparency”, “open data”, “theory”, “model”, “conceptualization”, and “measurement”. We retrieved over 90 articles which were quickly reviewed to determine relevance. About half of these articles were studied in more detail for use in our work.

² <http://www.scopus.com>

³ <https://scholar.google.com>

⁴ <http://ieeexplore.ieee.org/Xplore/home.jsp>

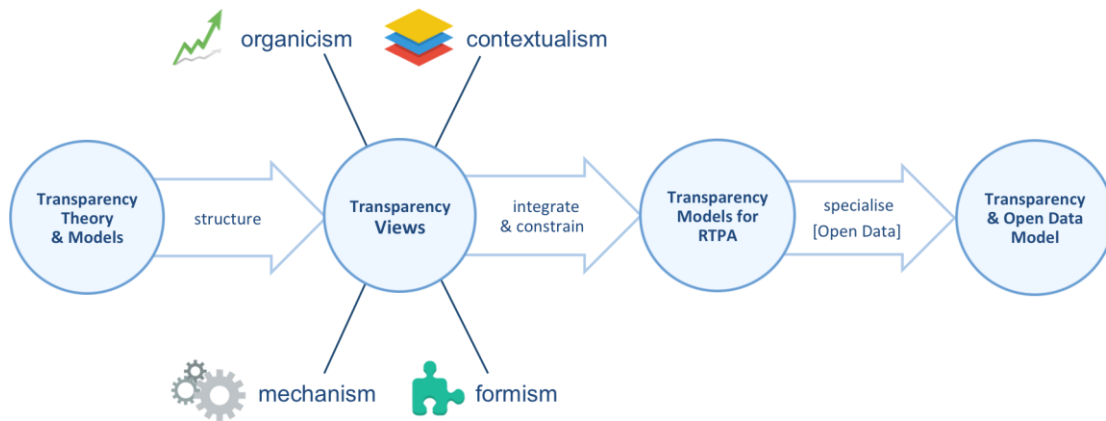


Figure 3: Analytical Framework Development Approach

Mapping theories and models into four views – After identifying the core set of articles on models and theories of transparency and computer-mediated transparency, we carefully mapped and consolidated their theoretical and conceptual contributions into the four Pepper’s world views (Hayes et al., 1988) - Mechanism, Formism, Organicism and Contextualism. We briefly explain each of these views below:

- *Mechanism View* – The root metaphor of this view is the “machine” which comprises of discrete parts related to other parts in some systematic way. The assumption here is that the relationship between the parts does not alter the nature of the parts and that some form of energy or force is transmitted through the machine to produce predictable outcomes. In addition the parts are inter-dependent and only functions collectively. In this view, the entire universe is like a machine. In our case, *transparency in this view is conceived as some instrument or device for achieving some ends*. The view also describes the different “elements” of the transparency concept and how they are related.
- *Formism View* – According to Pepper, the root metaphor of formism is similarity. In this view, the perception of any event involves contact with two aspects – character and particularity, which are distinct but inseparable in the terms of experience. Character refers to the qualities and relations associated with an object. A given object may have any number of characters and a given character may also occur in a large number of particulars. The concrete objects are particularization of specific characters. In addition, a collection or class of particulars (or objects) is another concept in formism. The participation of certain characters in an object enables the identification of that object. In our context, *we adopt this view to describe the different forms, types and classes of entities that are associated with the transparency concept*.
- *Organicism view* – The root metaphor for this view is the process of organic development. The view captures the orderliness of changes from one state or stage to another. The view also captures how the rules of change operate. In our context, *transparency is associated to state changes over time, for instance, changes from the state of opacity through translucence to full transparency*.
- *Contextualism view* – The root metaphor for this view is an ongoing act. Thus we conceive transparency as an ongoing act here. There are two aspects of contextualism namely quality and texture. Quality is the experienced act and texture is the details and relations that make up the quality. Thus, we adopt

this view to describe elements of the quality of transparency as perceived by actors and how these elements make up the quality. This view also captures the notion of *context* that could be *used to characterise the different contexts under which transparency could be studied or observed*, for instance e.g. monitorial, participatory or deliberative democracies.

We summarized important aspects or elements of the transparency concept in the reviewed articles under the different world views in Section 3.2.

Integrating the four conceptual views – After describing different aspects of transparency, we describe how the four different views could be consolidated and used complementarily as a robust analytical model for transparency. We take a strictly pragmatic approach in integrating these views by relying on Pepper’s hypotheses simply as a structuring device, thereby stepping away from philosophical debates on comparison or relative superiority of the views. In our context, the different views are simply modelling views.

Analysis of Developed Scenarios with Analytical Model – The last step involves using the developed analytical model to analyse the detailed scenarios describing the use of the Route-To-PA platform (TET and SPOD) to be developed identifying the actors and role in the transparency relation, category of information, and specific use of open data in the scenario, related transparency quality measure and additional Route-To-PA platform affordances exploited in the scenario.

Data for Generating Scenarios and User Stories– The exemplar scenarios described in Section 4 were developed from the initial scenarios and user stories produced from the different pilot workshops that took place in five locations including Dublin (Rep. of Ireland) on 17 April 2015, Prato (Italy) on 23 April 2015, Groningen (the Netherlands) on 19 May 2015, Den Haag (the Netherlands) on 11 May 2015 and Issy Les Molineaux (France) on 15 May 2015. In total, 77 stakeholders participated in the workshops across the five locations with 18 in Dublin, 17 in Groningen, 17 in Prato, 17 in Den Haag and 15 in Issy les Molineaux. The stakeholders ranged from platform providers and data publishers (Local Public Admin representative). Technology and open data platform developers, open government researchers, citizen representatives, entrepreneurs, civil society representatives, journalists, Information Manager in City Public Administrations, Census Office representative, open data specialist, software developers, Chief Executives of start-ups. Summary of the workshops are provided in the Table below.

Table 1: Summary of Pilot Workshops and Stakeholders types

No	Location	Workshop Date	Number of Participants	Stakeholders Type	No of Initial Scenarios
1	Dublinked Initiative (Dublin)	17 th April 2015 9:30 – 16:30	18	Platform provider, citizen engagement, technology developer, researcher, data provider.	4
2	Groningen, Netherlands	19 th May 2015	16	Researcher, PA(policy maker), journalist, PA(Information manager), PA(Open data expert)	

3	Prato	23 rd April 2015	17	Project contact/facilitator, researcher, open data specialist, representative of local SMEs, census data office, journalist, high school student, SW developer,	4
4	Den Haag	11 th May 2015	17	PA(project contact), employer, technologist, developed coach-R, researcher, PA(technologist),	4
5	Issy les Moulinaux	15 th May 2015 and 9 th July 2015	15	Geographic information system, communication service, social & human resources, association, researcher & CEO start up, CEO- construction industry, CEO- computer graphics, Developers, CEO-social network- community management	1

The initial set of scenarios were first refined into more granular scenarios through an iterative processes involving business analysts, collective intelligence experts and technical design team. This was achieved by identifying the threads in each of the initial scenarios. Each scenario thread was labelled as new granular thread. This was followed by identifying simple user stories demonstrating the use of the envisioned TET and SPOD components of the Route-To-PA platform. The stories are crafted to collectively accomplish the associated overarching scenario goal. The final sets of scenarios and user stories were reviewed to ensure feasibility.

Finally, each of the refined scenario set were characterised using elements of the integrated transparency models developed in Section 3 to elicit their transparency profiles.

3 ANALYTICAL FRAMEWORK

This section describes the development of the analytical model based on the approach described in Section 2. We start by brief review of existing theoretical frameworks on open-data mediated transparency in Section 3.1 before describing the different views of transparency as well as in integrated model in Section 3.2. Following Section 2, the goal here is to identify existing transparency models and employ an organizing framework like the Pepper’s World Views to identify the complementarity of the models.

3.1 REVIEW OF THEORETICAL FRAMEWORKS

We identified a few theoretical frameworks for open data mediated transparency in extant literature. Two of frameworks address the role of coordination mechanisms and framework in open-data mediated transparency (Zuiderwijk & Janssen, 2013) and the role of trust in open data-mediated transparency (O’ Hara, 2012). Two articles describe computer-mediated transparency) (Grimmelikhuijsen & Welch, 2012)(A Meijer, 2009) – a more general treatment of open data mediated transparency, while the last set of articles provides some understanding on the democratic paradigmatic contexts for transparency (Florida, 2013)(Albert Meijer, 2011)(Keane, 2009). However, before describing theses frameworks, we provide some definitions for the notion of transparency.

3.1.1 WHAT IS TRANSPARENCY

There are several definitions for the concept of transparency. These definitions range from simple ones such as “the ability to look clearly through the windows of an institution” (Meijer, 2009) to more formal definitions like “the measure of the degree to which the existence, content, or meaning of a law, regulation, action, process, or condition is ascertainable or understandable by a party with reason to be interested in that law, regulation, action, process, or condition” (Drabkin & Mishory, 2013). Existing definitions conceptualize transparency as an Act, Process, Capability, Organizational Characteristics, Relationship, Set of Principles and Quality measures. Some of these definitions are presented in Table 2.

Table 2: Examples of definitions of Transparency

No.	Definition	Perspective	Source
1	The disclosure of information by an organization that enables external actors to monitor and assess its internal workings and performance.	Act or Process	(Grimmelikhuijsen & Welch, 2012)
2	Transparency is defined as the ability to look clearly through the windows of an institution.	Capability	(A Meijer, 2009)
3	Transparency is openness to public scrutiny as defined by the rights and abilities of organizations and individuals to access government information and information about government.	Organizational characteristic	(Peled, 2012)

4	Fiscal transparency entails being open to the public about the government's past, present, and future fiscal activities, and about the structure and functions of government that determine fiscal policies and outcomes. Such transparency fosters better-informed public debate, as well as greater government accountability and credibility.		(Granickas, 2013)
5	The notion of democratic transparency consists of the four principles: First, Information about the operations and actions of large organizations that affect citizens' interests should be rich, deep, and readily available to the public. Second, the amount of available information should be proportionate to the extent to which those organizations jeopardize citizens' interests. Third, information should be organized and provided in ways that are accessible to individuals and groups that use that information. Finally, the social, political, and economic structures of society should be organized in ways that allow individuals and groups to take action based on Infotopia's public disclosures	Principles	(Fung, 2013)
6	"Transparency is a measure of the degree to which the existence, content, or meaning of a law, regulation, action, process, or condition is ascertainable or understandable by a party with reason to be interested in that law, regulation, action, process, or condition	Measure	(Drabkin & Mishory, 2013)

Fung associated his four transparency principles in Table 1 with the corresponding attributes of availability, proportionality, accessibility and actionability (Fung, 2013). He further distinguished three types of transparency to include: 1) Information on Demand or Freedom of information; 2) Open Government where data about government are published proactively and 3) Targeted Transparency which requires the disclosure of specific information for the common good.

In other characterisations, (Mei & Dewan, 2014) characterised *the nature of transparency* to include:

- *An action* - Transparency on the part of organizations involves the act of granting access or making information available.

- *A communication process* - Transparency, conceived as a communication process occurs when there is information flow, typically bidirectional information exchange. This conception of transparency can be commonly found in corporate accountability research targeted at financial and social reporting.
- *An instrument* - as an instrument, transparency is used for financial regulation compliance for creating accountability, for generating trust and for creating competitive advantage through customer relationships and product innovation. The public policy field employs transparency as a policy instrument to resolve controversial social issues about health, safety, corruption, civil rights and public services.
- *An outcome* - Transparency can be viewed as both a 'means' and an 'end' in organization management. Transparency described as an 'end' implies a perceived outcome of truth, trustworthiness and rationality by stakeholders, resulting in a trustworthy reputation and corporate brand for the firm
- *A quality* - The notion of quality in transparency is associated with setting standards to facilitate subsequent evaluation and measurement. In developing a transparency maturity model that attempts to measure the transparency level of organization practices, posited transparency as a relationship network of qualities. At the top level, qualities contributing positively to transparency are accessibility, usability, understandability, informativeness and auditability.

3.1.2 REVIEW OF THEORETICAL FRAMEWORKS

Guided by the different perspective above, we describe in more details existing theoretical frameworks for open data and transparency. We briefly review existing theoretical frameworks on democratic paradigms, computer-mediated transparency and trust and open data driven transparency and coordination mechanism for open data. The relationships between these theoretical frameworks are captured in Figure 4.

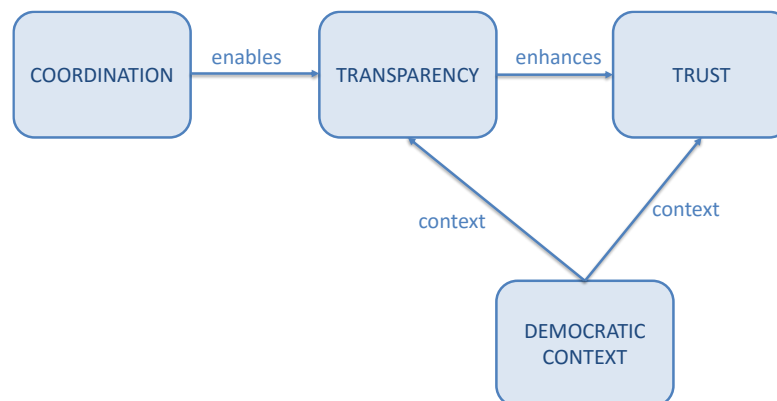


Figure 4: Relating Core Constructs in Theoretical Frameworks on Transparency and Open Data

3.1.2.1 DEMOCRATIC PARADIGMS FOR TRANSPARENCY

In this study, the democratic paradigms provide the context for understanding the different forms of transparency. Three types of democratic paradigms are dominant in literature. These paradigms include monitorial or monitory, participatory and deliberative democracy. We briefly describe these paradigms below.

Monitorial democracy (Keane, 2009) - is a type of democracy whereby government obtains a mandate from the people to rule, but the way this mandate is used is monitored and the mandate can be revoked if it is abused. This paradigm is characterised by the multiplication and dispersal of many power-monitoring and power-contesting mechanisms, both within the domestic field of government and civil society and beyond in cross-border settings. Monitorial mechanisms operate in different fronts including scrutinising citizen's inputs to government or civil society, monitoring and contesting policy throughputs or policy outputs produced by both government and non-governmental organizations. Structures include citizen juries, advisory boards, participatory budgeting and focus groups. As can be noted, the focus here is on public accountability rather than on decision-making. The role of the citizen is that of a watchdog. Citizen monitoring is crucial for reducing corruption and agency-drift. For example, if citizens can monitor how officials spend money and allocate resources they can monitor whether this is in line with legal rules and the will of the people. Open data are crucial for a monitorial democracy since citizens' access to government enables scrutiny of its actions.

Participatory democracy (Meijer, 2015)(Meijer, 2011) - adds an emphasis on collective action whereby citizens do not only give a mandate to government, but they can also actively engage in the production of services and policies. This also highlights that citizens are not only seen as voters, but also as problem solvers and co-creators of public goods. This democratic tradition is sometimes referred to as a Do-It-Yourself State. State activities are not only to be conducted by government officials, but also by active citizens. This tradition has gained momentum in the information age since projects such as Linux and Wikipedia have demonstrated the power of collective action facilitated by new digital platforms. In this perspective, open data are seen as a resource that can be used to develop new solutions for collective problems.

Deliberative democracy (O' Hara, 2012) (Florida, 2013) (Albert Meijer, 2011)- highlights that an open debate is needed to find collective solutions to societal problems. This is usually based on public debate and reciprocal reason-giving and usually aims at a rational consensus or shared solution. Viewpoints and information from a variety of angles are employed in the discussion to create options and find an optimal solution. Citizens are active participants in public debates and they are invited to present their opinions and perspectives on issues. The input from more citizens is expected to result in better argued and more legitimate government policies. Shared spaces on the social web are seen as the modern day equivalent of Habermas' coffeehouses in London and Vienna in the 19th century. Open data strengthen a deliberative democracy by creating a level playing field for all participants in the public debate.

3.1.2.2 RELATIONSHIP BETWEEN TRUST AND OPEN DATA BASED TRANSPARENCY

We briefly summarize here the link between trust and open data based transparency as described in (O' Hara, 2012). Trust is one of the important drivers for transparency and open data. Trust is a multifarious concept with an attachment to risk. Trust in politics or democracy is based on individual perspectives depending on experiences or participation. For example, a citizen with experience or even just an opinion of a government department might be able to extrapolate from that experience or opinion to the trustworthiness or otherwise of its agents. O'Hara (2012) identified three theories that are relevant to trust and transparency. These theories include: theory of social capital, rational choice theory of encapsulated trust and deliberative democracy.

- *Theory of Social Capital* - From the perspective of this theory, trust should be evident in the display of character and interaction of citizens in a society that is driven by the communally shared norms in

institutions of civil society. In this theory, greater social capital within a community increases the mutual trust. For instance, it has been argued that the spread of rights-based thinking in specific areas of the world has undermined social capital by legitimising and protecting individualist behaviour at the expense of social norms. It is important to identify if trust relationships actually contribute to the enhancement of social good, and thereby to reduce the incentives for hard-done-by individuals to assert and expand their rights. Thus the cultivating social interactions on social media platforms could significantly increase mutual trust in associated online communities. *Therefore, generating social interactions around open data could generate extended trust to providers of the open data if they are part of the interaction.*

- *Rational choice theory of encapsulated trust*- This theory analyses a situation whereby trustee actions have been influenced by trustor's interests for reasons grounded in the trustor's interests. Usually, there must be an alignment between a trustor and a trustee's interests. The role of transparency here is to make the trustor (e.g. citizens) make an informed and accurate judgement of the alignment. An important issue for rational choice theorists is how to avoid coercion, so that the trustee's adoption of the trustor's interests is a free choice.
- *Deliberative democracy* - This advocates the resolution of conflict through engaged deliberation. Parties come to understand each other, and partly neutralise conflict, through discussion and debate. Trust in this context plays two important roles: firstly, ensure a highly politicised issues to be addressed because the parties' trust of each other means that the negotiations can be made in good faith and with confidence that concessions will be rewarded, and promises kept, and secondly, ensuring that outcomes will have limited impact, and will not result in a hegemonic grab by the victor. The role of transparency here is to help establish the interests of the would-be trustee and enable the trustor to make a more accurate estimate of whether he or she is negotiating or debating in good faith.

In all the contexts above, open data increases the amount of information available to the trustor (e.g. citizen or residents) in his/her community such as crime data, food inspection or data about local businesses.

3.1.2.3 COORDINATION MECHANISMS FOR OPEN DATA

This theoretical framework, elaborated by (Zuiderwijk & Janssen, 2013), applies coordination theory to production and publishing of open data in government organizations. Institutional goals are achievable through a proper alignment of organization individuals, processes and activities. This alignment, referred to as the ability to harmonize different activities of an organization towards achieving a collective set of goals. Due to the different activities that need to be carried out in organization, it is imperative to provide linkage among these activities via the concept of coordination. Goals to be achieved especially by government institutions are underpinned by transparency and trust. Coordination theory is useful in plotting of goals to activities, connecting activities carried out by different actors and management of the various interdependencies identified between these activities (Zuiderwijk & Janssen, 2013). Interdependence in this context is considered to be the degree to which activities in the open data practice require elements such as the actors, systems and divisions to work together. The theory identifies a number of mechanisms that could be deployed to achieve coordination. These include standardization, planning and adjustment. We briefly explain these below:

- *Coordination by standardization*: development of a set of routines or rules, which constrain actions of each organizational part or position

- *Coordination by plan*: refers to the creation of schedules for interdependent organizational parts
- *Coordination by mutual adjustment*: involves the transmission of new information during the process of action. Also known as coordination by feedback, it is suitable for variable and unpredictable situations.

These mechanisms have been argued to be sufficient for addressing open data related challenges including: inappropriate regulatory environment, fragmentation of open datasets, unclear boundaries of responsibilities, lack of feedback on and discussion of data use, lack of interconnected processes, lack of standardized and planned processes. These mechanisms enable the availability and accessibility of open data.

3.2 ANALYTICAL FACETS OF TRANSPARENCY

We briefly describe the relevant theoretical frameworks for transparency organized under the four views highlighted in Section 2. The “contextualism” view captures quality measure for transparency; the “formism” view describes categories and classes of different entities associated with transparency; the “mechanism” view describes process and componential aspects of transparency while the “organicism” view deals with a model describing systematic stages and maturity of transparency practice.

3.2.1 CONTEXTUALISM VIEW

Two models are described under this view. The first model comprises characteristics of any information to be exchanged or shared in the context of transparency. Eight features were identified in (Lourenço, 2013) as data disclosure characteristics. These include quality, completeness, access and visibility, usability and comprehensibility, timeliness, value and usefulness, granularity and comparability. A similar characterisation of transparency is provided in (Cappelli, Engiel, Araujo, Cesar, & Leite, 2013). In their work, Cappelli et al. (2013) conceptualizes transparency in terms of its relationships with other qualities such as accessibility, usability, understandability, informativeness and auditability. In their conceptualization, transparency is a quality (or softgoal) to be “satisficed” (and not satisfied). Each of the related qualities is further related to other quality goals as presented in Figure 5.

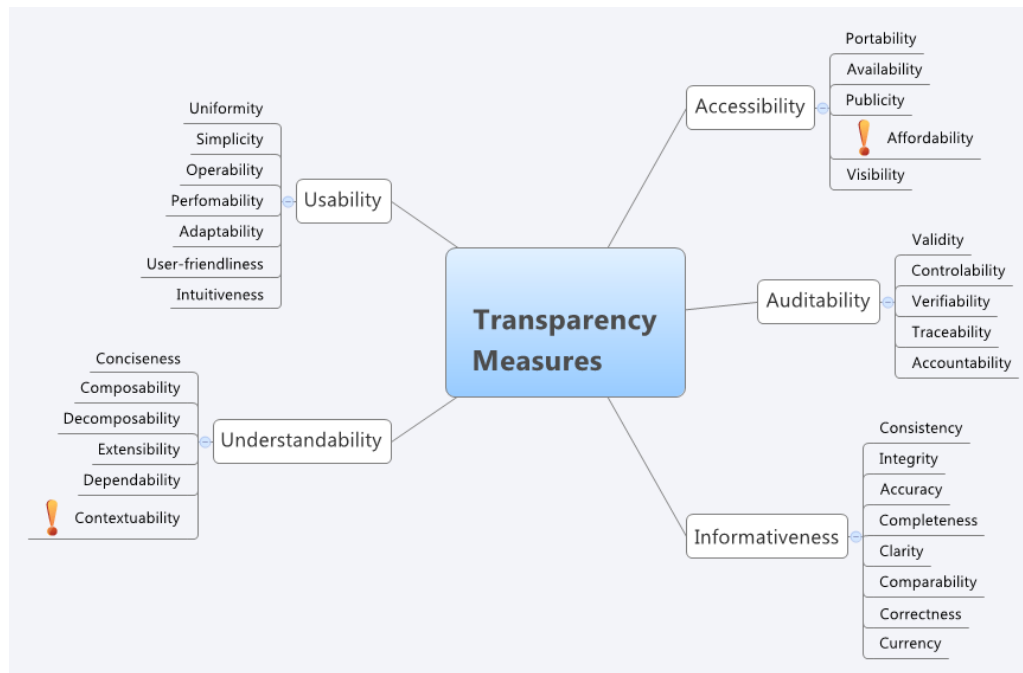


Figure 5: Transparency Softgoal Interdependence Graph

In terms of contexts for transparency, there are at least three democratic paradigms that could determine specific transparency requirements. These paradigms, which include monitory, participatory and deliberative democracy, will be employed along with the quality attributes to analyse the scenarios developed in Section 4.

3.2.2 FORMISM VIEW

There are at least *two categories of actors* involved in a transparency relationship (Drabkin & Mishory, 2013)– 1) the party whom the information is supposed to reach, 2) the party who is sharing the information. These parties in general share information relating to different aspects of an organization, government entity or society at large. In terms of the kinds or nature of transparency relation in question, three dichotomies of transparency were described in (Heald, 2006) including – 1) event versus process transparency, 2) transparency in retrospect versus transparency in real-time and 3) nominal transparency versus effective transparency. We briefly explain these dichotomies below:

- *Event versus process transparency* – this is related to public service production. Events are things like input, output and outcomes that are measurable in some sense. Processes are the transformations that place on events, e.g. to convert an input (an event) into outputs (another event). There are also linkage processes that are much less understood (e.g. the link between output and outcome). Thus event transparency focuses on the events (inputs, outputs and outcomes) whereas process transparency focuses on the underpinning operational and procedural elements.
- *Transparency in retrospect and transparency in real-time* – Transparency in retrospect allows an organization to conduct its business and then at periodic intervals, to release information relevant to its performance, on which assessment could be based. Transparency in real-time allows observers to continuously access the internal processes of the organization. While there is a reporting cycle in the former, the accountability window is always open and surveillance is continuous.

- *Nominal versus Effective Transparency* – this dichotomy explains possible divergence measured or nominal transparency and the actual level of transparency in reality. For instance, releasing volumes of open data or information (nominal transparency) may not directly impact the perception of citizens about transparency. Thus increase in nominal transparency does not automatically lead to increase in effective transparency.

In addition, two types of transparency directionalities were described in (Piotrowski, Conference, & Sasaki, 2011) - Vertical, Horizontal and Collaborative transparency. We briefly explain these three types below.

- *Vertical Transparency* - when supply (information provider) and demand (information consumer) sides of transparency operate between different levels, typically thought of as different sectors: governments supply transparency to citizens, or businesses to governments, for example.
- *Horizontal transparency* - when entities of the same level or sector supply and demand information to and from each other, as do firms within the private sector.
- *Collaborative transparency* - an iterated cycle of supply and demand, in which information that is made transparent travels through a process of horizontal and vertical enrichment.

The forms described here are useful in understanding the nature of transparency under study or examination (see Table 3 below).

Table 3: Transparency Forms and instances

Forms or Types	Transparency Participants	Transparency Dichotomies	Transparency Directionalities
Instances	○ Sending Party	○ Event versus Process	○ Vertical Transparency
	○ Receiving Party	○ Transparency in Retrospect versus Transparency in real-time	○ Horizontal Transparency
		○ Nominal versus Effective	○ Collaborative Transparency

Refining the directionality of transparency further, (Heald, 2006) describes four directions that transparency can take – Transparency upwards, Transparency downwards, Transparency outwards and Transparency inwards. These are briefly explained below:

- *Transparency upwards* - Transparency upwards means that the hierarchical superior/principal can observe the conduct, behaviour, and/or 'results' of the hierarchical subordinate/agent. This is akin to the type of transparency required by regulatory entities on businesses.
- *Transparency downwards* - is when the 'ruled' can observe the conduct, behaviour, and/or 'results' of their 'rulers'. The rights of the ruled in relationship to their rulers figure prominently in democratic

theory and practice, often under the umbrella of ‘accountability’. For instance citizens having access to information about government activities, performance etc.

- *Transparency outwards* - occurs when the hierarchical subordinate or agent can observe what is happening ‘outside’ the organization. The ability to see outside is fundamental to an organization’s capacity to understand its habitat and to monitor the behaviour of its peers and/or competitors.
- *Transparency inwards* - when those outside can observe what is going on inside the organization. Transparency inwards is relevant to freedom of information legislation, and also to mechanisms of social control that enforce behaviour patterns. It has the connotation of surveillance and being watched by peers. Good level of discussion of privacy involves setting limits on transparency inwards.

The first two directions are associated with vertical transparency while outwards and inwards transparency is associated with horizontal transparency.

3.2.3 MECHANISM VIEW

The mechanism view describes transparency as a machine for achieving several ends with different parts, including dimensions, aspects, frameworks and layers. Transparency could be regarded as an abstract system since it can be seen as a mechanism that produces trust in societies (Meijer, 2009). As an instrument, it is used for financial regulation compliance, creating accountability, generating trust, and creating competitive advantage through customer relationships and product innovation. The public policy field employs transparency as a policy instrument to resolve controversial social issues about health, safety, corruption, civil rights and public services (Mei & Dewan, 2014).

Transparency can be further characterised as a relationship with four basic components (Drabkin & Mishory, 2013): sharing party, receiving party, shared information and the object or goal of sharing. The relationship is exemplified in Figure 6.

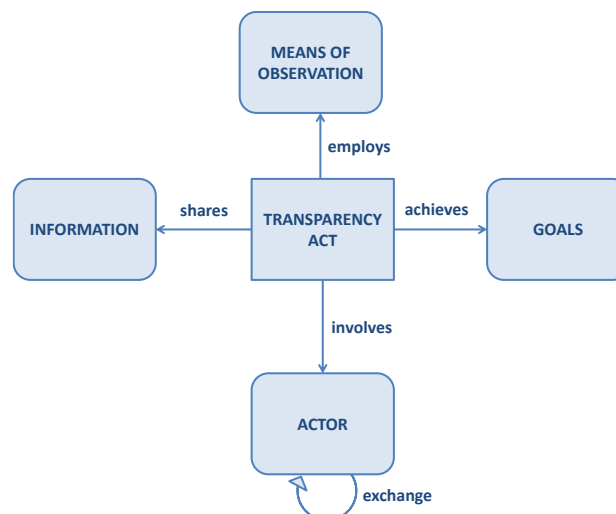


Figure 6: Elements of the Transparency Concept as a Relationship with Components

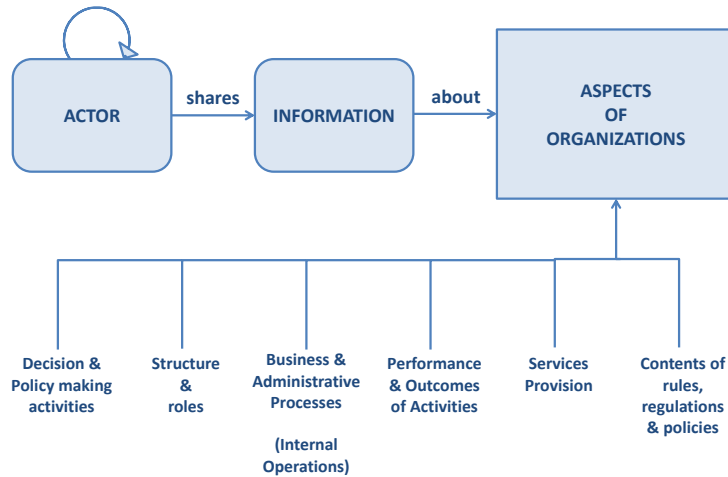


Figure 7: Examples of the types of information associated with organizational aspects

The information exchanged in a transparency relationship is usually associated with specific aspects of the organization including decision and policy making activities, structure and roles, business and administrative processes (or the internal operations), services as well as contents of rules, regulations and policies (Grimmelikhuijsen & Welch, 2012). This is shown illustrated in Figure 7.

In operationalizing transparency, (Piotrowski et al., 2011) identified two necessary conditions for transparency: i) Visibility – the degree to which information is complete and could be easily located, ii) Inferability – the degree to which information can be used to draw verifiable inference. The article further advances the following propositions regarding these two conditions:

- P1. Increased demand drives up visibility and demand is typically strongest for issues that represent acute ongoing pre-occupation for average people, such as finances, health and security
- P2. Inferability involves knowledge of supplier's intent - involves looking at or evaluating the quality of information supplied and the incentives of the supplier of such information
- P3. Mediation affects the user's or recipient ability to draw verifiable inference
- P4. Information is most useful and most easily verified when it is presented in the rawest form possible, verified by a trusted-third party
- P5. Visible and inferable information implies that information must be raw, verified and simplified, e.g. through graphs and charts

In some other work, (Grimmelikhuijsen & Welch, 2012) transparency is considered to include a number of components including - *inward observability*, *active disclosure*, and *external assessability*. Inward observability refers the ability of individuals and groups outside of the organization to monitor activities and decisions undertaken with the organization. Active disclosure concerns the extent to which an organization disseminates information about its activities and their outcomes. External assessability refers to the inclination of the organization toward evaluation and critique by external groups and individuals.

A model of e-transparency was described in (Bannister & Connolly, 2011) which is characterised by three categories of transparencies – data transparency, process transparency and decision and policy transparency. These are elaborated below as presented in Bannister & Connolly (2011):

- Data transparency - concerned with the facts and figures of government. Although expressed as “what?,” it may include “who?,” “when?,” and “where?” as appropriate
- Process transparency - making available information on the steps in various processes of government, from policy formulation to issuing a dog licence, with question here including “how?,” although “where?,” “who?,” and “when?” may also be relevant
- Decision and policy transparency - encompasses the requirement to explain the rationale for decisions and/or the actions and policies of government and addresses primary question like “why?,” although other questions may also be of importance, depending on the circumstances

Finally, (Økland, 2010) describes a time-based framework for transparency which includes: Pre-activity transparency pertains to plans for an activity; Per-activity transparency is related to an ongoing activity, and post-activity transparency which has to do with completed activities.

3.2.4 ORGANICISM VIEW

In the last view, we consider models that describe stages or levels associated with progressions in the practice of transparency in organizations. We consider four different models here as examples including: the Ladder of participation model (Arnstein, 1969), the levels of transparency model by (Grimmelikhuijsen & Welch, 2012), the levels of engagement data informing dialogues described in (Davies, 2013) and the transparency maturity model described in (Cappelli et al., 2013). We explain these models in turn below.

Ladder of participation (Arnstein, 1969) - the model describes the different stages associated with powerholder’s attempt at enlisting the participation of citizens. The model consists of three major phases and 8 basic steps. The stages include – non participation, tokenism and citizen power. The non-participation phase is characterised by two steps; therapy and manipulation. The next phase Tokenism involves three stages, informing, consultation and placation. The final phase comprises three steps of partnership, delegated power and citizen control.

Levels of Transpiration (Grimmelikhuijsen & Welch, 2012) - the model describes three level of transparency from transparency of decision making through to transparency of policy outcomes. Decision making transparency concerns the degree of openness about the steps taken to reach a decision and the rationale behind the decision. Policy content transparency refers to the information disclosed by government about the policy itself: what the adopted measures are, how they are supposed to solve a problem, how they will be implemented and what implications they will have for citizens and other affected groups. Finally, policy outcome transparency captures the provision and timeliness of information about the effects of policies.

Data informing Dialogue (Davies, 2013) - the so-called five stars open data engagement model prescribes that open data initiatives should:

- 1) *Be demand driven* – focusing attention on the data that citizens ask for and prioritising data release based on demand

- 2) *Put data in context* – with good metadata (i.e. descriptions of where the data came from, guidance on how to analyse them and examples of existing analysis)
- 3) *Support conversations around data* – online and offline. These conversations should be able to involve people from inside Government who know the dataset and it should be possible for citizens to communicate with the data owner
- 4) *Build capacity, skills and networks* – don't stop at just publishing data, seek to build communities around the datasets and make sure all key stakeholders have the capabilities they need to work with them
- 5) *Collaborate on data as a common resource* – recognising that Government should be open to data coming in from citizens and giving data out; and that tools and services for working with data can be created collaboratively between citizens, state and private enterprise

In the model above, attaining a particular level of engagement is contingent on achieving the immediate lower level (Davies, 2013).

Transparency Maturity model (Cappelli et al., 2013) – the last example of a stage or maturity level described in this report consists of five levels – opaque, disclosed, comprehended, reliable and participative. At the “Opaque” level, the organization provides information access to the external environment in a non-systematic fashion. In the “Disclosed” level, the organization provides and allows information access to external environment. “Comprehended” stage enables access to understandable information to the external environment. At the “Reliable level”, the organization allows the auditability of the information provided. Finally at the “Participative” level the organisation allows the dialogue with external environment about the information provided.

3.2.5 THE INTEGRATED ANALYTICAL FRAMEWORK

We describe here our approach to integrating the models associated with the different facets or world views (Figure 8). The Contextualism view provides the possible contextual options and measures for transparency activity or initiative. The contextual option chosen informs the transparency approach selected in the mechanism view. Entities and types described in the formism view are employed in describing the concrete transparency mechanisms contained in the Mechanism view. Finally, transparency stages described in the organicism view are operationalized in terms of measurement with transparency qualities defined in the contextualism view.

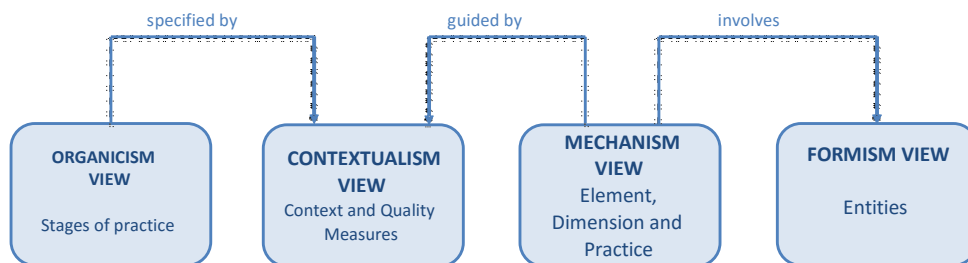


Figure 8: Approach for integrated Analytical Facets

In using the above analytical framework, we propose the use of contextualism view to explore the democratic paradigms and corresponding goals for open data mediated transparency as well the design of concrete measures or metrics to determine the efficacy of associated or exemplar initiatives. Specifically, the democratic paradigms described in Section 3.2 provides contextual options for examining open data and transparency in our

analysis. Consequently, we associate each of the scenarios developed in Section 4 with a concrete democratic context in the scenario profiles presented later in Section 5. Models in the Mechanism view could be used to determine how open data will be used to achieve specified transparency goals (e.g. those obtained from the use of contextualism models above). It could also be used to determine concrete strategies for achieving different transparency goals such as better visibility or inferrability. The organicism view could provide a prescriptive model and roadmap for computer-mediated or open data driven transparency in government organizations with specific measures. Finally, the Formism models are useful in determining the different classes of actors and the type of transparency that are of interest in a given case. As remarked earlier, we expect the democratic context to shape the options available in the formism, mechanism and organicism views of our scenarios.

4 EXEMPLAR SCENARIOS FOR PILOTS

In this section we present scenarios and corresponding user stories reflecting the specific user-information, collaborative interaction and understandability needs expressed in the scenarios and user-stories developed during the pilot workshops, see Table 5. The user stories have been developed to support better understanding of the particular open data platform features with respect to the SPOD and TET components. As indicated in Section 2, the refined scenario set were developed from scenarios threads identified from original set scenarios and user stories provided by pilot workshop participants provided as part of Task 2.1. These initial scenarios are described as the opening text in Sections 4.1 through Section 4.5 for Dublin, Prato, Groningen, Den Haag and Issy respectively.

4.1 SCENARIOS FOR DUBLIN

4.1.1 RESIDENT KAY

Resident Kay is Interested in putting down more roots and getting involved in her local community. She initially got involved in community issues when a group of her neighbours got together to object to a big new development that would have caused a lot of disturbance in her quiet street. As a concerned citizen she wants an easy way to put her issues on a **public platform**, to **share and find out** about local news, to **discuss with other local residents** and have an input into what is happening in her community. She would like a **meaningful exchange with public administrators** and to **build local social networks** to highlight the good things that are happening in her community and perhaps to start up a **skill-share/ local volunteering** exchange. Kay wants to be able to **access information** on other similar local groups, so that she can **get advice** on starting her own.

Resident Kay 's scenario tackles the problem of exploration of Open Data for community development. In particular Key represents a group of local activists and volunteers seeking the most effective way to connect with local authorities and fellow-citizens and to leverage Open Data-based co-creation to solve socio-economical problems that directly affect their environment.

We present two scenarios describing a set of actions on the platform that could be taken by Kay to achieve her goals.

Scenario: 1.Dublin.Resident Kay.1 – Data Exploration, Data Request and Sharing

Kay logs into her account using SPOD or Facebook profile

Kay browses the latest posts from her friends on her wall and posts new information to her network about her interest to get involved in community projects.

1. Kay browses the wall of the local council Authority's public page to read the latest news and events.

2. Kay creates a post on the Administrators page to enquire about a local road problem and uses the “insert image” button to upload the pictures she took the previous day.
3. Other residents view Kay’s latest post with pictures on road problems
4. Some residents demand explanations from PAs for the delay in fixing the problem.
5. The Council Secretary posts to queries informing all about the attempts made by local authority and inserts a link to a 5-year dataset on road reconstruction contracts in the county.
6. Network members view the replies from council authority, open the dataset link on Open Data Portal
7. Kay Analyses the dataset and in addition creates a visualised report using analysis/visualisation (TET) tools on Open Data Platform and continues to SPOD by dragging objects created in ODP to SPOD
8. In SPOD, Kay posts the analysed/visualised reports to the public network for discussions.
9. The network members view the graphical presentation of dataset and explore using different formats.
10. A network member responds to the reports and thanks Kay for the reports sent to members

Scenario: 2.Dublin.Resident Kay.2 – Enquiry and Collective Action on Dataset

1. Kay logs into her account using SPOD or Facebook profile
2. Kay creates a post on the Administrators page to enquire about how to start local skill-share and volunteering exchange programme and how to access information from similar local groups
3. A local council representative posts a reply with links to the requirements for registration of non-for-profit organisation and to a list of existing groups with similar interests.
4. Kay traces both links and got to the data store on open data portal.
5. Kay posts messages to groups coordinators of forums on SPOD asking for information about their activities
6. Some coordinators post their replies to Kay inviting her to orientation sessions
7. Other coordinators post links to Kay pointing to records of their activities for consultation.
8. Kay clicks on the data links received from “*LikeMyChild*” orphanage home and automatically arrives at the dataset on the local Open Data portal
9. Kay uses TET tools to analyse and visualise the financial contributions from various sponsors, expenditures one each child as well as other overhead costs for a period of 10 years in an interactive visualisation dashboard.
10. Kay sees on the interactive dashboard that indirect (overhead and support staff) expenses are greater than direct (education and core staff expenses on children’s) in the centre.
11. Kay “exports” annotated graphical reports to SPOD and clicks on “Share” with a message: explaining the need to invite volunteers including herself (using SPOD forum) to handle some professional and handyman jobs to reduce indirect expenses.
12. *LikeMyChild* orphanage manager posts: “thank you Kay, I invite you to our centre at your convenient time to discuss your great idea further”
13. After some weeks, Kay thinks it will be helpful to unite similar non-profit organisations in order to share resources and reduce cost, so she logs into CKAN-TET and searches for datasets to support her idea
14. Kay receives a dataset result supported by previous SPOD discussions on 4 humanitarian organisations that once unified their services
15. Kay analyses the dataset and sees the cost reduction and Downloaded the corresponding SPOD discussions upon the unification of the organisations, then “exports” report to SPOD
16. On SPOD, Kay clicks on forum, then selects “humanitarian org forum”, enters a message asking all groups to unite. She clicks “insert” button to insert the link to raw dataset, her annotated report graphs her created and a portion of the SPOD comments she downloaded and clicks “share”.
17. All groups get into discussions about the new suggestion, view the supporting files and many post their replies
18. Some network members post agreement with the suggestions while others post disagreement pointing out with annotated graph (from CKAN-TET) that there was a drop in number of staff due to unification and the confusion among organisers in selection of the new management team reported on SPOD discussions.

19. All network members agree to vote on unification or no unification on SPOD platform and use TET tools to analyse result.
20. Finally, members vote “like” or “dislike” and Kay (being the moderator) analyses the vote result using CKAN-TET tools.

4.1.2 ENTREPRENEUR ANNIE

Entrepreneur Annie is interested in **starting a locally based** café/food business and would like to **connect** with **public administrators** and **potential customers** to **find out** if there is a demand for this new business, what kind of premises or permissions she might need, what **supports are available** and to connect with other people who might **partner/work** with her in **starting this business**. She would like to use technology to **build local social networks** to connect with her **business peer network** and build a local customer base.

Annie’s scenario tackles the problem of exploration of Open Data for business purposes. In particular Annie represents a group of businessman seeking the most effective way to leverage Open Data to create new value and to connect, collaborate and co-create with other businesses.

We present two scenarios describing a set of actions on the platform that could be taken by Annie to achieve her business goals.

Scenario: 3.Dublin.Enterprenur Annie.1 - Data Quality Request

1. Annie logs into her account using SPOD or Facebook profile
2. Annie browses the latest posts from her friends on her wall and posts a new information to her network about her interest in café/food business
3. Annie searches for data on “registered café/food shops in Galway city” in CKAN-TET platform to know about the number of café/food shops in the city, but got very few shops in the result.
4. Annie drills down on the result by using advance search button to search for “location of café/food shops”, but finds no visualisation on map.
5. Annie browses the wall of the local council Authority’s public page to see if she could contact the any PA with her inquiries
6. Annie finds “request dataset” button and clicks on it to request for datasets on café/food shops and locations in town
7. PA officer replies Annie with information: “we currently have no comprehensive datasets on café/food business in the new portal, but effort is being made to migrate datasets from the legacy records we have”
8. PA informs Annie: “Hi Annie, available dataset on café/fast food in the county now accessible on portal but sorry the dataset is not anything satisfactory. I guess you got the alert yesterday if you enabled the alert option. If you can wait, we have sent out notices to all café operators to update their records with us”
9. Annie replies, “Yes, I received the alert. The dataset is really poor. I choose to wait, anyway, for the updated version. Please let me know if there is any arrangement to keep data update more regularly e.g. quarterly”
10. Following week, Annie receives the café/food shop data update alert on phone. She opens logs into her CKAN-TET account and finds a satisfactory dataset.
11. Annie uses the TET tools to analyse the data according to her needs, then visualise report interactively on various graph formats.

Scenario: 4.Dublin.Enterprenur Annie.2 – Social Network Development

1. Annie logs into her account using SPOD or Facebook profile
2. Annie browses around to explore different services on the portal then finds social media tool
3. Annie reads the short message on how to use the tools to build a network of followers

4. Annie creates a forum to build a network of café/food business operators, enthusiast and customers using her SPOD profile and inserts the café/food reports she created and saved in her account the previous day. She adds a short message: “Hi friends, I got inserted reports by analysing the dataset obtained from the city council. Galway city is Ok but other cities/towns are unavailable”
5. Coilett (a café operator) receives Annie’s post (SPOD) and clicks on the link to CKAN-TET platform. She downloads (TET tool) the dataset and observe gaps. She takes a screenshot and saves in her account (TET). Then clicks back into SPOD and clicks reply, then “insert” screenshot and types a message: “Hi Annie, Galway data isn’t fine, check the attachment, focus on my pointers” and clicks “post”
6. Annie posts “so we should join hands to ask the county PA to act”
7. A long time café/food operator in town posts: “your idea is most welcome, we have no union in this town ever since”
8. Another operator replies to the posts: “I guess we need to start one urgently so we can influence government decisions on café/tea import duties and push for supports”
9. Annie posts her main question “do we have a good demand for café/food services in this city?”
10. A forum member posts in rely Galway city council doesn’t have any good dataset but “CSO may have a good dataset because it has better easy-to-use online form for data collection in Dublin but not sure of Galway.”
11. Another participant posts: “Hi Annie, I guess you will have to carry out a survey to get the right answer for your second question - prices”
12. Annie posts her third request: “Is anyone of you interested in partnership to run a more standardised café/food business together?”
13. A forum member replies to her post: “Well, it depends on interest and lots more. And that will have to be discussed off line in a more serious face-to-face meeting”

4.1.3 PUBLIC ADMINISTRATOR JANE

Jane is a public administrator in a Dublin Local Authority. Jane is helping to **prepare a new plan to promote local community and economic development** in Dublin and wants to **explore** how technology might be used to **engage** a wider demographic and to **facilitate** bottom up community building. Jane is particularly interested in consulting with **young people** and **people with a disability** or other citizens who may not engage in more formal consultations. Jane wants an **easy to use platform** to gather and give **feedback to citizens** on issues that matter to them to inform policy and to build public trust. Jane also wants to be able to **negotiate and plan activities** with other **public administrators** in her **community development group** in her local authority public administration offices. She wants both **citizens** and her colleagues in the local community development group to have some flexibility in the way they **draw upon data** and information when working together to **develop** community projects. Jane is very passionate about **promoting local community and economic development** in Dublin and she wants a **platform and set of services** that will help her do good work.

Jane’s scenario tackles the problem profession related exploration of Open Data. In particular Jen represents a group of public administrator seeking for the most effective way to connect with citizens and to promote local community and economic development.

Scenario: 5.Dublin.Public Administrator Jane.1

1. Jane logs in to her account on Dublin council CKAN-TET platform using personal details on SPOD or her Facebook profile
2. Jane browses around the pages of the platform to explore available tools, functionalities and services on offer
3. Jane finds “Forum” button and a short note which explains how to create a forum and maintain a network

4. Jane creates a forum; makes herself the moderators; customises it to enable participant personalise details according to their demographic status.
5. Jane enables the “user content storage” options and completes the short security form with her PA credentials so that *“she can harvest residents’ comments for policy making and development programmes”*.
6. Jane clicks “submit” to activate forum.
7. Jane invites her colleagues at the Dublin Local council to subscribe to the forum by clicking on the “Invite PAs” button and typing in their email addresses before clicking “invite” button.
8. Jane activates “PA/Citizen Interaction” option which enables invited PAs to receive posts and also post messages to all forum participants

Scenario: 6.Dublin.Public Administrator Jane.2

1. Jane logs in to her account on Dublin council CKAN-TET platform using personal details on SPOD or her Facebook profile
2. Jane posts a “call for topics” of interest to participants for discussion in the forum
3. Jane receives a few subscription to the post from citizens but not encouraging enough
4. A PA advises Jane to activate the “Reward” option for the forum
5. Jane activates the “reward” button and selects different reward options according to participant categories and ticks “Highest Likes” as a measure for deciding rewards.
6. In addition, Jane confirms from platform back-end managers that platform facilities support UI “Accessibility” and “adaptation” functionalities for disability and the elderly
7. Jane begins to receive increasing number of participants within the following weeks with various topics for discussion
8. Participants post various topics e.g. *“I want data on education, courses & employment so that I may know when to start my future education and where there are jobs”*; *Data on planning and planning decisions and disabled people facilities so that I may know why planning decisions are made”*
9. As the moderators, Jane asks the networks members to “Like” their most favourite topic
10. Jane uses TET tools to analyse and visualise the highest score of “Likes” as the topic voted for discussion.
11. Many network members agrees to the decision for topic selection
12. Jane Announces the duration for discussion of the selected topic as well as the sub-topics under which discussions should be addressed.
13. Resident Kelly posts *“We have heard so much about the so called “open date” but like me, I guess not many people understands what this means. I suggest the council opens and adult open data class”*
14. Resident Sean posts *“Hi Kelly, I like your idea and actually I searched London CKAN-TET platform for such training. The school in London has trained over 10,000 adults on OD, TET and SPOD functionalities”*
15. Resident Alnoid posts *“Yes I know about that. The training on platforms and OD concept led to increased citizen participation in democracy making London local government to be better trusted as residents had the opportunity to suggest services for implementation by government.”*
16. At the end of the period, Jane asks for members to vote their best solution options.
17. Jane uses TET tools to organise comments/votes then analyse and visualise reports on a dashboard and export to SPOD and then posts reports to network members (residents)
18. Many members “Like” the final decision reached.
19. Jane creates a report of the crowd-sourced data and presents to the council meeting.

4.1.4 CIVIC HACKER JOE

Civic hacker Joe is part of the **civic hacker community** and a member of an **active citizen group**. He is a keen advocate for **social equality** and feels that citizens need a more **participatory democracy** to create a better society for all. He is interested in open data as a means of **opening access to public information and promoting transparency**. He wants to be able to interact with public data to understand how public decisions are made, to **give his views in an easy and transparent way** and receive feedback on them from **public administrators** who are leading local projects, so that he feels he has been part of the decision and policy making process. Joe also wants to be able to **share ideas and data with other citizen groups**, with a view to **collaborating** on projects and common goals.

Joe's scenario tackles the problem exploration of Open Data for personal and community good purposes. In particular Joe represents a group of citizen activist interested in active participation in policy making, opening access to public information and promoting transparency.

Scenario: 7.Dublin.Civic HackerJoe.1: Data Evidence-based Discussions

1. Joe (a civic hacker) is a registered and frequent user of the community CKAN-TET open data platform in Dublin county; he logs on to his account.
2. Joe searches for "List of private sector officers in county Dublin in order to get idea about gender representation in public offices.
3. Joe gets a dataset, clicks on the "bar chart", "pie chart" buttons and views the original tabular report in graphical formats but not satisfied.
4. The report excludes educational institutions, so Joe clicks "requests datasets" from PAs and enters details required.
5. PA Sec informs Joe that a comprehensive and updated version (including salaries) of the requested dataset is now available on platform
6. Joe logs into his account again and searches once more and gets the updated dataset.
7. Joe is satisfied with the dataset on platform as it is possible to analyse the dataset and to interactively reproduce it in visualised graphs and on dashboard and even save report on your account using TET tools.
8. Joe clicks on "screenshot" of the graph of the dataset and annotates it, then saves to this account (TET).
9. Joe clicks back to SPOD and inserts the saved screenshot to a new message then clicks "post" to his network where he has been in argument with colleagues over gender inequality in the county.
10. Meg (a resident) views Joe's post and replies: "women are actually holding more positions while men occupy fewer but highest positions"
11. Vera posts: "This is contrary to the popular opinion prior to this revelation",
12. A few network members receive the post and opted to know where Joe got his data.
13. Thomas doubts this report, so decides to post: "I always know men hold the highest positions but never realised there are more women in the public services. Can you point me to the source of you data, Joe?"
14. Joe reads Thomas' and others' posts and clicks "reply", then "insert", then selects "CKAN-TET platform", navigates to the link to raw data and the analysed report he saved on his account, and click "share" which brings Joe back to SPOD. Then Joe types in a short message: "Hello people, please see for yourself, the dataset requested", then clicks "post".

Scenario: 8.Dublin.Civic HackerJoe.2: Data Evidence-based Political Participation

1. Joe maintains a column on a local magazine and a forum corner on SPOD, on the "importance of citizens' participation in democracy" but these media have not attracted any significant attention.

2. Joe decides to support his forum posts with facts, so he searches for “citizens’ participation impact” in the CKAN-TET open data platform his city, from the 3 nearby cities.
3. Joe receives results of citizens’ participation in government decisions and planning of local services and monitoring public amenities for repair purposes.
4. Joe drills down on the report by using “analyse”, “visualise” (TET) buttons and discovers measurable savings on government spending on comparing the 3 cities. Joe saves the report in his account and navigates into SPOD
5. Joe inserts the saved report graphs (annotated with pointers) then type a short message highlighting the need for government to open up more datasets, encourage citizens’ debate and input to democratic life. Then Joe posts the report to his ODP forum in which PAs and many county residents participate.
6. Joe receives lots of responses among which is the one from the county mayor, “Hi Civic Joe, safe for your post, I could never have thought of the possibilities you reported”
7. Another PA officer posts, “so how can we initiate or encourage citizens to participate in running the activities of our county since we are now sure it will lead to better utilisation of city resources?”
8. Joe posts: “simple, we just ask them to suggest their community problems for discussion and ask them to suggest solutions also; to rate the satisfaction they get from public services, etc.
9. Mayor posts “Good, but how do we go about that?”

Scenario: 9.Dublin.Civic HackerJoe.3: Data driven e-Participation

1. Joe creates a new forum and customises it for participants to be able to personalise their details including *using anonymous names*.
2. Joe posts a “call for public discussion” on community problems/solutions and development projects.
3. Several participants join the forum and post their concerns e.g. *“I want to provide opinions and get feedback so that my needs are considered in decision-making process”, “I want to be able to view information/data that is specific to where I live”, “I want view datasets on ambulance call out, times and emergency services so that I can decided whether or not to push for better emergency services in my area”, “I want PAs to explain to the residents why the introduction of water rate based on the situation in Europe but not considering child care is free for parents in Europe due to government provisions”*
4. Joe moderates the forum and initiates voting to rate the topics contributed to problem solutions
5. Participants agree to the number of “Likes” received as criterion for prioritising discussions attention
6. Network members (Civic Joe, Citizens and PAs) discuss the problems, and reach solutions
7. PA Sec organises the comments/suggestions/solutions etc. and exports into text file as crowd-sourced conclusions from the forum and use it as inputs for their policy-making and budget decisions.

4.2 SCENARIOS FOR PRATO

4.2.1 PUBLIC ADMINISTRATOR IRENE

Irene is the head of the Public Green Office in the City and must prepare the annual plan of work, taking into account the fact that the figures at her disposal are lower than the previous year. She decides to ask for the contribution of citizens to identify areas with higher priority, using data on the work carried out in previous years, the related costs, the new estimates and all other information, such as data on the management of green areas in other cities. Therefore she requires a platform that enables her to easily organize threads through the use, the comment and the custom view of the data, in order to encourage feedback from citizens. Through the platform, Irene is also able to organize ideas provided by citizens according to a shared priority criterion and then include them in her annual plan, which is then made available on the platform.

Irene's scenario tackles the problem profession related exploration of Open Data. In particular Irene represents public administration interested in public participation in policy making (citizen-expert opinion input), opening access to public information and promoting transparency.

Scenario: 10.Prato.Public Administrator Irene.1: Data Request

1. As a PA, Irene is already a registered user of the local ODP, so she logs on to her account using SPOD or Facebook, clicks on "Release Data" button, then select "Projects, 2014" and clicks "Open Data"
2. Irene creates a forum: "Suggestions for Projects, 2015"; customizes the forum using "settings/customise" button to enable participants personalize their profiles according to their demographic and social status.
3. Irene provides sub-headings for discussions as she customizes the forum setting
4. Irene clicks "invite PAs" button and types in the email addresses of the executive members of the local PA office on the field provided, and clicks "OK".
5. In the "resources" which automatically takes her to -TET open data platform interface. Irene inserts a link to the raw datasets for 2014 community projects, some pictures and videos of the work sessions and clicks "activate" button to activate the forum.
6. Irene receives subscriptions from citizens to participate in the forum activities.
7. Gregorio, a civil engineer, views Irene's post and clicks on the link to datasets which automatically switches interface from SPOD to Prato City CKAN-TET open data platform. Using TET tools, Gregorio explores all dataset available, analyses and visualises relevant datasets, then saves reports in his account (TET) on and then clicks on "SPOD" to navigate back to SPOD interface.
8. While on SPOD, Gregorio clicks "Forum" selects "Suggestions for Projects, 2015", then clicks "insert", selects files on project 2014 saved before, and "OK". Again He clicks on Insert, then select pictures files from his local device and clicks "OK", Gregorio then enters his message: "Hi Irene, I am sorry to say that the green project of 2014 was a horrible job. The park is waterlogged already and the rain has not even started yet. Please view the pictures of the park I inserted against yours. *In your pictures, I annotated* (TET) the side that was poorly constructed. The annotated report graphics I inserted is for you to view the comparison of project values from 2010 to 2014. Note trend: complains against project satisfaction are rising steeply inspite of the increasing project values"
9. Irene reposts "Well, Gregorio, I see what you mean. But remember inflation factor and also we had to short-pay the contractor anyway for the use of some unapproved materials in the park of which you inserted the picture."
10. Linda, a teacher, posts: "well, Engr. Gregorio, you're right, but take a look at the *annotated visualized charts* (TET) I prepared from the raw data obtained from the link supplied by Irene and also the newspaper report I inserted (TET). The low cost of the project and the delay in payment to the contractor both might have affected the poor quality job"

Scenario: 11.Prato.Public Administrator Irene.2: Data Exploration and co-creation

1. Lorenzo, a community activist, logs on to his account on using SPOD or Facebook details. He reads the thread on forum (Suggestions for Projects, 2015) then posts "We already know that PAs say one thing but do another. So, no need for heated arguments but let us move forward.
2. Angela, another community activist, "Simple ideas – first get a repair work done on 2014 park project, second, I suggest the Authority converts the Calvana Isolated woods into a fun and resting park by building seats and tables, footpaths and BBQ facilities, kids fun facilities into the park. I think it will attract tourists also."

3. Angela, a citizen, posts: "Cool, Lorenzo! I was in Spain, last summer and visited a similar Chavez fun park. See it here, follow the link (TET).... And if you drill further, you will find datasets about how many tourists the park has attracted since it was developed 3 years ago".
4. Lorenzo posts a reply "Hi Angela, thanks for *"liking"* my idea. Never knew a park like that actually exists somewhere. I viewed your annotated picture of the park you inserted and also saw dataset which I analysed to see the economic impact of the fun park (TET). Thanks again."
5. Many more posts were submitted including suggestions for 2015 Green project.

Scenario: 12.Prato.Public Administrator Irene.3: Data co-creation

1. Irene has been following the discussions and getting interested in the ideas. At the end of the period set for idea generation from forum members, She clicks "organize comments" which take her to CKAN-TET open data platform.
2. Irene organizes comments into categories using TET functionalities by – number of "likes" per comment, then by contributor; or by topic, then by "likes" then by contributor, etc. according to her need.
3. Irene analyses the comments received statistically by TET tools and displays graphically to visualize best options according to residents' vote of "likes".
4. Irene exports reports to different document formats – pdf, word, excel and prints hard copy output
5. Irene navigates to SPOD and clicks "reply", then "insert" to insert her saved reports and links to organised "Suggestions for Projects, 2015" forum now available as open data on CKAN-TET platform. Irene post with a message "thanks to all forum participants, please view the result of your contributions attached which is also available on the local ODP via this link..."
6. Irene saves forum user contents to her profile space and clicks "Deactivate" forum after 3 months.

4.2.2 STUDENT ANTONIO

Antonio is a student selected by his school to attend a meeting with the Mayor on the **subject of educational policies of the City and its spending**. To prepare for the event, he needs to deepen his knowledge about the size and terms of expenditure in this sector. For this he needs a tool that allows him to quickly gather all available data, even in previous years and in other cities, and to begin discussions with people who are able to clear his doubts on the various issues and to answer his questions. It would also be very useful if he could produce a small report on the information obtained, to use as a reference during the meeting with the Mayor. Finally, he wants to share his report on the platform with the other students and teachers, in order to gather comments and additional contributions.

Antonio's scenario tackles the problem occupation related exploration of Open Data. In particular Antonio represents citizens from education sector (students and teachers) interested in contributing to improvement of the domain directly affecting their lives. Here Open Data acts as a bridge for better argumentation in discussions with public administration.

Scenario: 13.Prato.Student Antonio.1: Data Exploration

1. Antonio logs on to his account on his City council ODP using SPOD or Facebook profile
2. Antonio searches for data on "Policies", then selects "Education" for category, and "2005-2014" for a 10-year period of interest to him
3. Antonio searches for "council budget and expenditures", and drills down by advance search word "education" then selects period "2005-2014"

4. Antonio gets good datasets from both searches but wants query results in a single tabular format – matching policies, budgets and expenditures with period
5. Antonio queries the database using relevant search words and gets the desired result.
6. Antonio observes some discrepancies: educational expenditures have been reducing for some years and also not in conformity with the policy statements on educational improvement.
7. Antonio clicks “analyse” to analyse data further to arrange policies, budget actual expenditure side-by-side (TET functionalities).
8. Antonio decides to compare educational spending with other 5 cities within EU, so he clicks on “Federate” button, selects the CKAN-TET platform for the city of choice, then enters relevant search words and saves result. Antonio repeats the procedure for all cities of his choice and save results to his account (TET)
9. Antonio uses TET tools to combine the raw datasets from all cities including his city, analyse, compare and visualise them interactively in various graph styles and on a dashboard.
10. Antonio exports reports – raw, tabular, and visualized – into word, pdf and excel file and even embed portions of reports on his PowerPoint file then saves the report in his account and prints hard copies.

Scenario: 14.Prato.Student Antonio.2: Data Sharing

1. Antonio logs on to his account using SPOD or Facebook profile. He reads the posts on his wall and selects the existing “student/teacher” forum, then clicks “reply” and “insert” button which switches interface to his local CKAN-TET open data platform.
2. Antonio selects the relevant previously saved reports on education budget and expenditure including annotated portions extracted from graphs (TET) and clicks “share” which switches interface back to SPOD.
3. On SPOD, Antonio enters a short message inviting ideas for the scheduled meeting with mayor and points attention to the facts he provided on the attachments and clicks “post” to forum.
4. Students A,B, & C visit the links and view annotated report and some re-annotate the report to confirm facts and even add more facts that were not originally obvious on the raw dataset. They post various commendations afterwards for Antonio’s effort in searching datasets and supplied more facts to the meeting
5. Students D, E, F & Teacher Z post ideas on how to agree out the case for increased educational funding in the county referring to the datasets provided by Antonio.

Scenario: 15.Prato.Student Antonio.3: Data Co-Creation

1. Antonio receives various posts in reply – ideas, suggestions, counter-suggestions and “likes”
2. Antonio organizes the ideas and suggestions according to preset categories – most “liked”, “institution”, “Student”, and “Teacher” using TET tools
3. Antonio filters the report to extract the best options and then “exports” comments to a word file; “saves” a copy on his account and “prints” hard copies for the meeting.

4.2.3 COMMUNITY LEADER ANNA

Anna is the president of the Friends of the Bicycle and intends **to promote a city campaign for the creation of new bike lanes and related services**. To do this she needs to know the situation on costs sustained by the City for bike lanes, also referring to the past years, and to connect these costs with the actual construction and maintenance of the infrastructures and related services. Therefore she needs to use a platform that will allow to create a citizen group in support of her campaign and that can connect her with data available on public expenditure for the different types of mobility, both for the town of Prato and for other cities, so as to structure a proposal to be presented to the administration. Finally she wants to share her proposal with citizens and with the administration using the platform to get feedback and comments.

Anna's scenario tackles the problem of exploration of Open Data for community purposes. In particular Anna represents citizen activists and local community leaders interested in contributing to improvement of the living conditions in the region they live in.

Scenario: 16.Prato.Community Leader.1: Data-Driven Discussions

1. Anna logs on to her account on Prato CKAN-TET open data platform using SPOD or Facebook details
2. Anna creates a "Bike Lover" forum on the platform SPOD to promote creation of bike lanes
3. Anna post a call for bike lovers to suggest ideas on how to push the demand for more and better bike lanes in Prato.
4. A few residents reply to Anna's post but their comments show commitment to the campaign
5. Marianna posts: "In this recession, government has reasons to reduce spending on bike lane at the expense of job creation and provide supports for local SMEs"
6. Erasmons posts: "Hi Mariana, in the last 5 years or so, available jobs have been decreasing faster than creation, if any. That's according to the news; so your information is incorrect"
7. Based on these posts, Anna believes she needs to verify this point of dispute and to use facts and figures to back the bike campaign in order to get more supporters.

Scenario: 17.Prato.Community Leader.2: Data-Driven Discussions

1. Anna logs on again to her account on Prato CKAN-TET open data platform using SPOD or Facebook profile
2. To get more facts to support bike lane campaign, Anna queries the open data portal using relevant keywords: "Bike lane Budgets", "actual expenditures", "maintenance costs", and also searches for available datasets for job creation (TET) and receives a comprehensive report in tabular format for period of 10 years (TET)
3. Anna analyses the datasets using TET tools into a better summarised data table to see the comparison between bike line data and job creation data.
4. Anna creates a visualised format in various graph types and explores the bike lane distribution on Prato town map (TET)
5. Anna takes screen shots of visualised map, graphs, saves all reports and screenshots on her TET account and exports them to excel, word and pdf files (TET),
6. Anna navigates to SPOD and clicks on "bike lover" forum and then "new message". She clicks "insert" and upload all relevant support documents, links and screenshot which she annotates to point out the position of bike spending in contrast to job creation. She posts the message to the forum members
7. Andriano posts "thanks Anna for the visualized reports/screenshots and the link to the raw datasets you posted. I analysed the datasets again and discovered that by proportion government has actually spent less on both SME support and bike lanes. So there is no question of saving on bike lane to support job creation" (TET)
8. Anna posts "so what do we do, how do we present our case for increased funding on bike lanes at it now clear that that government has not been spending on either projects in Valencia"
9. Garzia "why don't we create a 'collaborate text file' like a wikipage on the platform so that everyone can enter ideas and links to datasets to be used to develop a proposal on how government can raise more money for bike lane projects"
10. Anna creates a "collaborative google text file" and enables participants to edit file, set duration of idea generation and "inserts" the wikipage link in her reply post
11. Many bike lovers add their ideas, insert annotated pictures and links to the collaborative file

12. At the end of the idea generation period, Anna exports the wiki file to word (TET) and develops the final copy of the proposal using the dataset reports, bike lovers' comments and ideas
13. Anna reposts the final version of the proposal to bike lovers via SPOD for them to appen their signatures
14. Anna sends the final proposal to the local authority mayor via SPOD email tool.

4.2.4 JOURNALIST GULIO

Giulio is a journalist of a city online magazine and wants to make a jargon-free article to explain to the citizenship as the administration is proceeding in the drafting of the new budget. He also wants to include in his article a series of explanatory definitions that clarify in a simple way which are the various items and how they are calculated. Therefore he needs to recover the balance sheet data of recent years and to organize them in a clear way with simple graphics and he also needs to discuss with experts that can provide the necessary clarifications on the various items. He also wants to be able to make comparisons with other comparable cities on various categories of expenditure. After having analysed the collected data and the various information he also wants to use the platform to discuss the setting of his article with his colleagues.

Giulio's scenario tackles the problem profession related exploration of Open Data for data journalism. In particular Gulio represents data journalists interested co-creation and generating interesting data stories derived from Open Data to improve the quality of articles published by providing a solid data evidence.

Scenario: 18.Prato.Journalist Giulio.1: Data Exploration

1. Giulio opens the Prato local CKAN-TET ODP and logs into his account using SPOD. He browses the pages
2. Giulio navigates into CKAN-TET interface and uses the search functionality to search for "county Prato balance sheet", but he gets: "No result found for query" message
3. Giulio browses further and sees "request dataset" button on one of the pages on the platform.
4. Giulio clicks on the "request dataset" and enters "balance sheets", selects period for "2010-2014" in fields provided.
5. Giulio enters reasons for dataset request, ticks on the option to receive alerts when messages arrive in his account from PAs in respect of the request and clicks "submit" request.
6. Giulio receives automated message: "request received, we will make effort to supply your need in 3 business days"
7. Giulio receives an alert on his mobile phone, then logs into his account on the Prato CKAN-TET ODP on his laptop and browses SPOD messages on his wall. He reads the message: "Prato county Balance Sheet dataset has been added to the Platform and is now accessible to platform users. Use this link or search for the 'balance sheet' to get to dataset"
8. Giulio sees "Rate our speed" button, apparently enabled by the PA on the page and clicks on it, then selects his choice from the drop-down options
9. Giulio clicks on the dataset link provided by PA but understands not much about the array of data and terms on the reports received.

Scenario: 19.Prato.Journalist Giulio.2: Data Exploration and Data-Driven Discussions

1. Giulio logs into his account on Prato CKAN-TET ODP using SPOD.
2. Giulio clicks "SPOD" icon, and navigates into SPOD interface.
3. Giulio sees the "Consult Expert" icon and hovers his cursor over it and gets a pop-up message box which explains how to contact an expert for explanations.
4. Giulio clicks on "Consult Expert", and completes required details

5. Giulio enters his requests for explanations of the balance sheet dataset and also the meaning of the terms in the dataset and ticks on “Accept Chat” option to notify his readiness for chat over his requests.
6. Giulio inserts a link to the balance sheet dataset supplied by the local authority and clicks “post”
7. Maurizio (a financial accountant) posts a reply: “Hi Giulio, I recognise your name ‘cos I read your articles sometimes on the ‘Comunidad’ online magazine. What’s on offer this time?”
8. Giulio posts “Hi Maurizio, my Fan, I need to write a powerful article on the county balance sheet to clarify important issues many people don’t even care about – the worth of our Prato county”
9. Maurizio receives Giulio reply on his tablet but chooses to “chat” this time: “I see your point Giulio, ingenious! Sorry, I am so busy this month as I need to prepare both month-end and year-end reports for my company but will help explain the terms on the sheets. Hope that helps”
10. Giulio receives instant chat message on his smartphone and chats back “Great, thanks for your help”
11. Luciana (an open data facilitator with the Prato ODP) posts “Hi Giulio, I see that Maurizio offered to explain the terminologies. Just wondering if you care about analysing the datasets to bring out some comparisons and trends across the years and perhaps compare with Pistoia county – don’t worry I get the dataset for Pistoia. (TET)
12. Giulio posts “that’s very kind of you. I seriously need the dataset analysed and please include visualised graphics and check whether various government assets locations are distributed on county map, if possible”. (TET)
13. Giulio receives the contributions, and clicks “organise” button to assemble all contribution to his requests. After that he exports the comments, analysed data reports and links to raw datasets to word file for further development into an article.

4.3 SCENARIOS FOR GRONINGEN

4.3.1 PRINCIPAL MARIANNE

Marianne is the principal of a primary school in Leens. Within **education population decline** is noticeable. Marianne is worried about **the quality of education and the possibility that her school might be closed down**. Due to a decrease in pupils, the school budget has been lowered. The **costs per student increase and the competition between schools** is becoming more severe. The region does not yet have **a broadband network**, making it difficult to work with new online teaching methods. Marianne searches for information that can help her solve the problems at her school. She would like to know, for instance, **what the pupil prognosis is for the next ten years**. She **furthermore questions what the province and municipality are doing in relation to population decline** and education and she **would like to get insight in the budget for education and related facilities**. From colleagues she has heard that in particular regions of the province a start has been made with the **construction of a broadband network**. Marianne would like to know **whether others in her village have an interest in the construction of such a network**. The more entrepreneurs, schools and households participate, the higher the chances of success. Marianne wonders whether and how local **government is facilitating a broadband network**. She **wants to get in contact with the municipality through a platform**. Marianne wants to **raise her voice and take part in the conversation about education policy**. This on behalf of the quality at her school.

Marianne’s scenario tackles the problem of profession related Open Data exploration and Open-Data-based elaboration. In particular Marianne represents a group of professionals who seek for data and expert opinion that will help them to innovate and improve the sustainability within their domain.

Scenario: 20.Groningen.Principal Mraianne.1: Personalized Data Discovery

1. Marianne logs into TET-enabled Open Data platform
2. The system detects Marianne's location (Groninger) and uses this information combined with her profile information such as her occupation (principal at school) recommends lists datasets that should be of interest to her – Groninger demographics 2005-2015 (a subset of the Netherlands demographics dataset), Groninger demographic prognosis, Dutch education spending 2015, quality of education index 2005-2015, Dutch education employment statistics 2014, world education innovation index 2014.
3. Marianne selects "demographics 2005-2015", "demographics prognosis" and "education spending 2015" datasets from the recommendation list.
4. The system displays the demographics history and prognosis graphs for her region along with education spending zoom-able map with various schools and education entities pinned on the map along with small notes on the budget assigned.
5. Marianne explores the graphs, maps and provided narratives.
6. She saves a couple of items and elaborations in her private space and prints the combined report in one document in order to present it at the school annual strategy meeting.

Scenario: 21.Groningen.Principal Mraianne.2: - Data Request

1. Marianne logs into TET enabled Open Data platform
2. She uses the search functionality with filtering for her location option enabled, to find a datasets on "Dutch population decline prevention government strategy", "Dutch broadband infrastructure development planning"
3. The system does not return any relevant datasets for her region.
4. Marianne selects "search for related on-going discussions" option.
5. The system takes Marianne to SPOD platform and presents her with list of discussion topics related to her data search query – "Dutch social policies", "Dutch IT infrastructure development plan", "Dutch Demographics", "Government IT spendings", "Duch IT sector development", "Dutch education policies"
6. Marianne selects the discussion on "Dutch social policies".
7. She posts a new thread "Data for population decline prevention" and explains her information needs in a short post.
8. Marianne selects "Dutch IT infrastructure development plan" and posts new thread with relevant explanation including request for broadband development plan for her region.
9. Marianne gets a response from one of the representatives of the national agencies that they are in possession of such documents and provide her with the links to the datasets uploaded on TET platform.
10. Marianne follows the links to TET and explores the graphs and provided narratives.
11. She saves a couple of graphs and elaborations in her private space and prints the combined report in one document in order to present it at the school annual strategy meeting

Scenario: 22.Groningen.Principal Marianne.3: - Data Evidence Based Discussion Request

1. Marianne logs into SPOD-enabled platform
2. She uses the search functionality with filtering for her location option enabled, to find discussions on "Dutch Education policy"

3. The system returns the following discussions (based on her profile): “Dutch social policies”, “Dutch IT infrastructure development plan”, “Dutch Demographics”, “Government IT spendings”, “Dutch IT sector development”, “Dutch education policies”
4. Marianne selects “Dutch education policies” thread and creates a post including her concerns about the quality of education, employment in education sector and availability of innovative teaching methods.
5. At the end of her posts she attaches the relevant graphs and data summaries from her private space that she had saved before while browsing TET platform for relevant evidence.
6. A couple of public officers and domain experts reply to Marianne posts spawning a lively discussion that is shared automatically on Social Media.

4.3.2 COMMUNITY MEMBER SANNE

Sanne is a member of the Groninger Bodem Beweging. She would like to have an insight in the problem of population decline and the housing market in the province of Groningen; in addition she would like to know how the government anticipates this matter. Eastern-Groningen deals with a surplus on the housing market. Citizens are worried about the low prices of houses as a result of the earthquakes. However, also other factors play a role. Due to the rise of the elderly, there is a changing demand for houses with healthcare facilities. In addition, the decline in youth across the ‘ommeland’ may have consequences after 2020 for the amount of young people who move from the countryside to the city of Groningen. The quality of the housing market for this group is subject to great pressure, but this may change. Sanne needs information about, for example, the forecast of households, the house prices, unoccupied houses and zoning plans, but also other information regarding the housing market in the province of Groningen. If the data is not available, she considers filing an information request. Sanne would like to lay out the information in such a way that citizens can find information about their own neighborhood. Sanne would like to get in touch (through a platform) with citizens, but also with the government in order to know how the new provincial government, the countryside municipalities and the municipality of Groningen cope with this development. Sanne would like to share her thoughts regarding housing policies. On top of that, she wants to be able to share data and her experiences with the data, with the members of the Groninger Bodem Beweging and other interested persons.

Sanne’s scenario tackles the problem of exploration of Open Data that has direct impact on personal matter. In particular Sanne represents a group of community activists sharing common problem and seeking the most effective way to help the group she belongs too.

Scenario: 23.Groningen.Community Activist Sanne.1 - Personalized Data Discovery

1. Sanne logs into TET-enabled Open Data platform
2. The system detects Sanne’s location (Groninger) and uses this information combined with her profile information such as her affiliation to Groninger Bodem Beweging and lists datasets that should be of interest to her – Dutch housing pricing 2005-2015 (a subset of the Netherlands pricing dataset), Groninger, Dutch Seismic Activity statistics 2010-2014, Dutch Tax Credit Options, Demographics 2005-2015, Demographics prognosis.
3. Sanne selects: “Dutch housing pricing 2005-2015”, “demographics 2005-2015”, and “Dutch Seismic Activity statistics 2014” datasets from the recommendation list.
4. The system presents her with combined plot graphs for her region showing correlation of housing prices and the drop in population. Moreover Sanne can see a map with housing areas marked along with

seismic activity epicenters. She can observe that the houses near the epicenters have significantly lower price than in other areas.

5. Sanne further explores the graphs, maps and provided narratives.
6. She saves a couple of items and elaborations in her private space and prints the combined report in one document in order to present it at the Groninger Bodem Beweging monthly meeting.

Scenario: 24.Groningen.Community Activist Sanne.2 - Data Request

1. Sanne logs into TET-enabled Open Data platform
2. She uses the search functionality with filtering for her location option enabled, to find a datasets on "Groningen housing strategy", "Groningen zoning planning"
3. The system does not return any relevant datasets for her region.
4. Marianne selects "search for related on-going discussions" option.
5. The system takes Sanne to SPOD platform and presents her with list of discussion topics related to her data search query – "Dutch housing policies", "Dutch zoning planning", "Dutch Demographics", "Dutch road infrastructure development"
6. Sanne selects the discussion on "Dutch housing policies".
7. She posts a new thread "Data for housing price projections for Groningen – earthquake market impact" and explains her information needs in a short post.
8. Sanne selects "Data on Groningen zoning plans" and posts new thread with relevant explanation including request for broadband development plan for her region.
9. Sanne gets a response from one of the representatives of the national agencies that they are in possession of such documents and provide her with the links to the datasets uploaded on TET platform.
10. Sanne follows the links to TET and explores the graphs and provided narratives.
11. She saves a couple of graphs and elaborations in her private space and prints the combined report in one document in order to present it at the school annual strategy meeting

Scenario: 25.Groningen.Community Activist Sanne.3 - Data Evidence Based Discussion Request

1. Sanne logs into SPOD-enabled platform
2. She uses the search functionality with filtering for her location option enabled, to find discussions on "Groningen housing policy"
3. The system returns the following discussions (based on her profile): "Dutch housing policies", "Dutch countryside development", "Dutch Demographics", "Dutch infrastructure spendings"
4. Sanne selects "Dutch housing policies" thread and creates a post including her concerns about the housing prices policy in the countryside municipalities and the municipality of Groningen.
5. At the end of her posts she attaches the relevant graphs and data summaries from her private space that she had saved before while browsing TET platform for relevant evidence.
6. A couple of public officers and domain experts reply to Sanne posts spawning a lively discussion on housing policies that is shared automatically on Social Media.

4.3.3 ENTERPRENUR BEN

Ben has recently graduated and started his own consultancy firm in Groningen. Ben would like to build an app for entrepreneurs in areas where population decline takes places, so that they can start using his services. For

companies in the region it is hard to find the right employees. High educated people want to work for big companies and move to the Randstad. The city of Groningen provides the region with important economical assets. Nevertheless, in order for the region to profit from these assets, good infrastructure is crucial in terms of both roads, and public transport. When the commute is long, people will look for jobs closer to their home. Therefore, Ben is for example looking for information about what the municipality and province are doing regarding the accessibility of the city. Furthermore, he would like to point out favorable locations for entrepreneurs to locate their shops based on facilities and demographic information. But other information might be useful as well for these employment issues. Ben would like to link the various data. Ben would like to get in contact with the municipality and the provincial government, but also with companies and applicants to explore the further possibilities of his app and collaborations.

Ben's scenario tackles the problem of exploration of Open Data for business purposes. In particular Ben represents a group of entrepreneurs seeking the most effective way to leverage Open Data to solve socio-economical problems.

Scenario: 26.Groningen.Enterprenur Ben.1 - Personalized Data Discovery

7. Ben logs into TET-enabled Open Data platform
8. The system detects Ben's location (Groninger) and uses this information combined with his profile information such as his affiliation – entrepreneur, businessman, social app developer, and lists datasets that should be of interest to him – “Dutch business support policies”, “Dutch Tax Credit Options for Businesses”, “Dutch Demographics 2005-2015”, “Dutch Demographics prognosis”.
9. Ben selects: “Demographics 2005-2015”, “Demographics prognosis” datasets from the recommendation list and adds them to the analysis “basket”.
10. Ben uses the search future to look for the dataset on “Dutch road infrastructure development”
11. The system returns corresponding datasets such as “Dutch road infrastructure development 2010-2020 plan” and “Dutch road infrastructure degrading rate 2000-2010”.
12. Ben adds the datasets to the analysis “basket”
13. Ben Opens the analysis tab
14. The system presents him with a combined map (localized) with population concentration areas marked along with population loss, population migration and road system infrastructure dynamics. He can observe a specific correlation between the areas in Groningen and surrounding towns facing a significant population drain and road infrastructure state.
15. Ben further explores the map and provided narratives.
16. He saves a couple of items and elaborations in his private space and prints the combined report in one document in order to include it in his business plan in the motivation section.

Scenario: 27.Groningen.Enterprenur Ben.2 - Data Request

1. Ben logs into TET-enabled Open Data platform
2. He uses the search functionality with filtering for his location option enabled, to find a datasets on “Groningen business facilities” and “Groningen accessibility ”
3. The system does not return any relevant datasets for his region.
4. Ben selects “search for related on-going discussions” option.

5. The system takes Ben to SPOD platform and presents her with list of discussion topics related to her data search query – “Dutch businesses income statistics”, “Groningen business facilities” and “Groningen accessibility ”
6. Ben selects the discussion on “Groningen business facilities”.
7. He posts a new thread “Data for Groningen facilities availability for businesses” and explains his information needs in a short post.
8. Ben selects “Groningen accessibility” and posts new thread with relevant explanation including request for Groningen accessibility maps.
9. Ben receives a response from one of the representatives of the national agencies that they are in possession of such documents and provide her with the links to the datasets uploaded on TET platform.
10. Ben follows the links to TET and explores the maps, graphs and provided narratives.
11. He saves a couple of maps, graphs and elaborations in his private space and prints the combined report in one document in order to include it in his business plan.

Scenario: 28.Groningen.Enterprenur Ben.3 - Data Evidence Based Discussion Request

7. Ben logs into SPOD-enabled platform
8. He uses the search functionality with filtering for her location option enabled, to find discussions on “Groningen business development and unemployment policies”
9. The system returns the discussions (based on his profile) including: “Dutch unemployment policies”, “Dutch government business support”, “Dutch Demographics”, “Dutch government social spendings”
10. Ben selects “Dutch government business support” thread and creates a post including his idea for an Open Data-based app for entrepreneurs in Groningen area.
11. At the end of her posts he attaches the relevant maps, graphs and data summaries from his private space that he had saved before while browsing TET platform for relevant evidence.
12. A couple of public officers from Groningen and business owners reply to Ben posts spawning a lively discussion on entrepreneurship, unemployment and business-essential facilities in Groningen.

4.3.4 ENTERPRENUR HENK

Henk is entrepreneur and lives in Ulrum. Ulrum is also dealing with the consequences of population decline. Henk is one of the initiators of the project Ulrum 2034. The purpose of the project is to make sure that Ulrum remains to be a pleasant place to live and work. Henk is planning to write a livability plan in cooperation with other citizens. This plan will concern various policy topics, from culture, tourism and economic matters, to health and youth facilities. In order to write his plan, he is searching for information that can help him map the problems in the region and find solutions. Henk would like to get in touch with local actors, such as entrepreneurs, but also governments and universities of applied sciences that are willing to help with writing and implementing the plan. Besides that, he wants to get in touch with groups that are not very easy to address, such as youth and elderly. Henk would like to share information with other project participants through a platform and would like to exchange data. The platform needs to facilitate the process of interchanging ideas and information, but also provide the possibility to vote on the most promising initiatives. The municipality provides financial support for the project Ulrum 2034. The public servants is a bit nervous, because in the end there needs to be accounted for the money that citizens have spent in line with their own preferences. In that respect, clear insight in the budget, the progress and results of the project are essential. The municipality would like to facilitate and collaborate with the initiators.

Henks 's scenario tackles the problem of exploration of Open Data for regional development. In particular Ben represents a group of businessman and political activists seeking the most effective way to leverage Open Data-based co-creation to solve socio-economical problems that directly affect their environment.

Scenario: 29.Groningen.Enterprenur Henk.1 - Personalized Data Discovery

1. Henk logs into TET-enabled Open Data platform
2. The system detects Henk's location (Ulrum) and uses this information combined with his profile information such as his affiliation – entrepreneur, businessman, social activist and lists datasets that should be of interest to him – “Dutch business support policies”, “Dutch Tax Credit Options for Businesses”, “Dutch Demographics 2005-2015”, “Dutch Demographics prognosis”, “Dutch public services”, “Dutch health services statistics 2005-2015”.
3. Henk selects: “Demographics 2005-2015”, “Demographics prognosis” datasets from the recommendation list and adds them to the analysis “basket”.
4. Henk uses the search future to look for the dataset on “Dutch tourism statistics”, and “Youth facilities”
5. The system returns corresponding datasets such as “Dutch tourism statistics 2010-2020”, “Dutch tourism strategy 2015”, “Dutch Sport & Leisure facilities 2015”, “Dutch Museums and Cultural Centers 2015”.
6. Henk adds the datasets to the analysis “basket”
7. Henk Opens the analysis tab
8. The system presents him with a combined map (localized) with population concentration areas marked along with population loss, population migration and facilities and points of interest. He can observe a specific correlation between the areas in Urlum rich with facilities and population migration to these places.
9. Henk further explores the map and provided narratives.
10. He saves a couple of items and elaborations in his private space and prints the combined report in one document in order to include it the Urlum 2034 project strategy document.

Scenario: 30.Groningen.Enterprenur Henk.2 - Personalized Data Discovery

- Data Request

1. Henk logs into TET-enabled Open Data platform
2. He uses the search functionality with filtering for his location option enabled, to find a datasets on “Urlum youth facilities development” and “Urulum economical development plan ”
3. The system does not return any relevant datasets for his region.
4. Henk selects “search for related on-going discussions” option.
5. The system takes Henk to SPOD platform and presents her with list of discussion topics related to her data search query – “Dutch youth facilities development plan”, “Urlum economy” and “Urlum Tourism and Culture”
6. Henk selects the discussion on ““Dutch youth facilities development plan”.
7. Henk posts a new thread “Urlum youth facilities development pland” and explains his information and collaboration needs in a short post.
8. Henk selects “Urlum Tourism and Culture” and posts new thread with relevant explanation including request for Urlum Tourism, Culture and economical development data.

9. Henk receives a response from one of the representatives of the national agencies that they are in possession of related documents and provide him with the links to the datasets uploaded on TET platform.
10. Henk follows the links to TET and explores the maps, graphs and provided narratives.
11. He saves a couple of maps, graphs and elaborations in his private space and prints the combined report in one document in order to include it in the Urlum 2034 project strategy document.

Scenario: 31.Groningen.Enterprenur Henk.13- Data Evidence Based Discussion Request

1. Henk logs into SPOD-enabled platform
2. He uses the search functionality with filtering for his location option enabled, to find discussions on "Urlum Economical Development"
3. The system returns the discussions (based on his profile) including: "Urlum Business support", "Urlum Tourism and Leisure", "Urlum Demographics"
4. Henk selects "Urlum business support" thread and creates a post including his idea for collaboration in economical and social development of Urlum area s along with a call for collaboration to business, academia and organizations.
5. At the end of her posts he attaches the relevant maps, graphs and data summaries from his private space that he had saved before while browsing TET platform for relevant evidence. Moreover he includes a widget for listing & voting on most interesting and promising ideas.
6. A couple of public officers from Urlum, academics and business owners reply to Henk posts spawning a lively discussion on entrepreneurship, unemployment and youth-essential facilities in Urlum. The community provides Henk with many interesting ideas and collaboration opportunities and votes on others' propositions for Urlum area development.

4.4 SCENARIOS FOR DEN HAAG

4.4.1 PUBLIC ADMINISTRATOR MARTIN

Martin is an experienced public administrator on the department of Social Affairs and Employment. He is responsible for implementing the Participation Act which aims at helping and promoting job opportunities for people who are unemployed for a longer period. Within the Participation Act, there are various instruments available in order to stimulate employment of people with some distant to the labour market. Martin wants to prepare a plan in consultation and collaboration with local business leaders as to stimulate and improve the organization and implementation. Martin is also interested in consulting with (representatives of) disabled and jobless people in relation to their possibilities, needs and preferences. In order to communicate both with business leaders and jobless people, Martin wants an easy to use platform to access and understand data and information and to gather and give feedback and information on policies and projects to citizens and business leaders. Furthermore Martin wants to be able to plan and negotiate activities, involving his own staff, business leaders and (representatives of) jobless people. Martin wants both citizens and his colleagues in the local community development group to have some flexibility in the way they draw upon data and information when working together to develop job creation projects. Martin is very passionate about promoting local community and economic development in the Hague and he wants access to the Route-to-PA platform and its associated services to help him do good work.

Martin's scenario tackles the problem of exploration of Open Data for public administration. In particular Ben represents a group of public administrators seeking the most effective way to leverage Open Data-based co-creation to solve socio-economical especially in the area of Social Affair and Employment.

Scenario: 32.Den Haag.Public Administrator Martin.1- Personalized Data Discovery

1. Martin logs into TET-enabled Open Data platform
2. The system detects Martin's location (Den Haag) and uses this information combined with his profile information such as his affiliation – public administration and lists datasets that should be of interest to him.
3. Martin selects: "Dutch Employment statistics 2005-2015", "Dutch government disabled employment support " datasets from the recommendation list and adds them to the analysis "basket".
4. Marin uses the search future to look for the dataset on "Disabled employment business support", and "Unemployed re-employment"
5. The system returns corresponding datasets such as "Disabled employment business support statistics 2005-2015", "Dutch re-employment statistics 2005-2015"
6. Martin adds the datasets to the analysis "basket"
7. Martin Opens the analysis tab
8. The system presents him with combined graphs of employment and disability statistics. He can observe that increased unemployment does not stimulate more support from the businesses to employ disabled. Also very few people get reemployed who lost-their job.
9. Martin further explores the graphs and provided narratives.
10. He saves a couple of items and elaborations in his private space and prints the combined report in one document in order to include it the Den Haag re-employment strategy document.
11. Martin choose the "Share report with the community" function.
12. The system takes Martin to the SPOD platform.
13. Martin starts new thread where he puts the analysis stored in the private space along with his comments and observations.

Scenario: 33.Den Haag.Public Administrator Martin.2- Data Request

1. Martin logs into TET-enabled Open Data platform
2. He uses the search functionality with filtering for his location option enabled, to find a datasets on "Dutch Disabled re-employment support" and "Dutch businesses job creation efforts "
3. The system does not return any relevant datasets.
4. Martin selects "search for related on-going discussions" option.
5. The system takes Martin to SPOD platform and presents him with list of discussion topics related to hia data search query – "Dutch business innovation through disabled employment", "Dutch disabled employee issues" and "Dutch job creation through social innovation"
6. Martin selects the discussion on "Dutch business innovation through disabled employment".
7. Martin posts a new thread "Den Haag disabled employability in businesses" and explains his information and collaboration needs in a short post.
8. Martin receives a response from one of the representatives of the national agencies that they are in possession of related datasets and documents and provide him with the links to the datasets uploaded on TET platform.

9. Martin follows the links to TET and explores the maps, graphs and provided narratives.
10. He saves a couple of maps, graphs and elaborations in his private space and prints the combined report in one document in order to include it in the Den Haag re-employment strategy document.
11. Martin posts his comments on the datasets on the SPOD platforms under a new thread.

Scenario: 34.Den Haag.Public Administrator Martin.3- Data Evidence Based Discussion Request

1. Martin logs into SPOD-enabled platform
2. He uses the search functionality with filtering for his location option enabled, to find discussions on “Unemployed disabled job creation support”
3. The system returns the discussions (based on his profile) including: “Den Haag unemployed disabled job hunters” and “Den Haag business job offers for disabled”
4. Martin selects “Den Haag unemployed disabled job hunters” thread and creates a post including his idea for collaboration to business and organizations.
5. At the end of her posts he attaches the relevant maps, graphs and data summaries from his private space that he had saved before while browsing TET platform for relevant evidence. Moreover he includes a widget for listing & voting on most interesting and promising ideas.
6. A couple of business owners reply to Martin’s posts spawning a lively discussion on disability and unemployment in Den Haag. The community provides Martin with many interesting ideas and collaboration opportunities.

4.4.2 CITIZEN HANS

Citizen Hans has a mild intellectual disability that makes some types of work difficult for him. He was waiting for a job in a special social employment facility, but with the Participation Act Hans is supposed to find a regular job. With help from his employment coach, he has found a nice job. During the first months he is coached intensively, to see if there is need for any adjustments to his workplace as a result of his mild disability. His coach shows Hans the Route-to-PA platform, where municipality, employers, job seekers and other citizens can interact and work together regarding employment issues. Hans sees several discussions among job seekers about finding suitable jobs. He is asked to share his success story, to inspire other job seekers. Besides that, Hans shares information on adjustments that were done in order to make his job suitable for him. Hans’ coach uses this information in his contacts with other employers, to show it is not very hard to create a suitable work place for people with disabilities.

Hans’s scenario tackles the problem of leveraging discussions on Open Data to realize particular professional and personal goals. In particular Hans represents a group of disabled job seekers and employed, working in a regular business environment as a result of specific governmental disability and employment policies.

Scenario: 35.Den Haag.Citizen Hans.1- – Data-driven Collaboration

1. Hans logs into SPOD-enabled platform
2. He uses the search functionality with filtering for his location option enabled, to find discussions on “Unemployed with disability”
3. The system returns the discussions (based on his profile) including: “Den Haag unemployed disabled job seekers” and “Den Haag business job offers for disabled”
4. Martin selects “Den Haag unemployed disabled job seekers thread and creates a post including his idea for collaboration to business and organizations.

5. Martin shares his story as disabled employee and elaborates on his experience with searching for a nice job. In particular he points out the adjustments that were done in order to make the job suitable for him.
6. A couple of disabled employees and business owners reply to Martin's posts spawning a lively discussion on disability and unemployment in Den Haag. The community provides Martin with many interesting ideas and collaboration opportunities.
7. Some public administrators join the discussion and provide links to relevant datasets and analysis on disabled employment legislation and disabled job market.
8. The participants explore the analysis and share their opinions and conclusions.
9. The popular discussions results in some of the disabled job seekers finding employment with involved businesses. Some of the citizens are offered job coaching courses by relevant public officers.

4.4.3 CITIZEN RIA

Citizen Ria has lost her job and after two years of unemployment, she now depends on the welfare system. She always worked as a receptionist at a small car company. Ria wants to get back to work, but she feels some distance to the labour market. Her municipality coach suggest visiting the Route-to-PA platform, where municipality, employers, job seekers and other citizens can interact and work together regarding employment issues. She can come in contact with other job seekers, but also read stories of former jobseekers. Besides that, she can find several courses that can help in the search process. There is also room on the platform for Ria to present herself, which means adding information about herself such as experience, competences and preferences for new work. Employers can see this and come in contact with Ria through the platform.

Ria's scenario tackles the problem of leveraging Open Data related discussions to solve particular professional or personal issues. In particular Ria represents a group of disabled citizens seeking for decent job offers in regular working environment.

Scenario: 36.Den Haag.Citizen Ria.1- – Data-driven Support Request

1. Ria logs into SPOD-enabled platform
2. She uses the search functionality with filtering for his location option enabled, to find discussions on "Unemployed support"
3. The system returns the discussions (based on his profile) including: "Den Haag job seekers" and "Den Haag business job offers"
4. Ria selects : "Den Haag job seekers" thread and explores the other job seekers stories. She also find relevant links to information and courses that can help her to find a job and obtain new skills.
5. She engages in discussion with people who experienced similar employment problems like herself. She shares her experience and doubts with the community. She receives relevant recommendations and advice on where to seek for help.
6. Ria explores the "Den Haag business job offers" discussion. She engages with some of the employers.
7. She shares her Route-To-PA profile (gives explicit access to her detailed profile including her skills, past experience and her preferences for new work) with some of the job hunters.
8. Ria receives a couple of invitations for a job interview via forums and direct messages on the platform based on her profile..

4.4.4 ENTERPENEUR ANNIE

Entrepreneur Annie is owner and director of a medium sized catering service in The Hague. She is always looking for good employees, for various positions. Annie is aware of the new Participation Act and is willing to provide opportunities for jobless and disabled individuals in her company, but she still wants to find the best match for her company. Annie hears of the Route-to-PA platform, where municipality, employers, job seekers and other citizens can interact and work together regarding employment issues. On the platform she can find information about the Participation Act. Annie would like access to this information but also to other useful data to be able to answer the following questions; how can I come in contact with jobseekers, what kind of instruments are available and what are success stories of other employers (best practices) from which I can learn? She wants to connect with other people and she would like to use technology to build local social networks to connect with her business peer network.

Annie's scenario tackles the problem of leveraging Open Data-backed discussions to solve particular professional problem. In particular Annie represents a group of business owners opened to employ jobless and disabled individuals.

Scenario: 37.Den Haag.Enterprenur Annie.1 – Data-driven Support Request

– Support Request

1. Annie logs into SPOD-enabled platform
2. She uses the search functionality with filtering for his location option enabled, to find discussions on "Participation Act" and "Job offers by private businesses for jobless and disabled"
3. The system returns the discussions (based on his profile) including: "Participation Act discussions" and "Den Haag business job offers for jobless and disabled"
4. Annie selects : "Participation Act discussions" thread and explores other businesses experiences in hiring jobless and disabled. She also find relevant links to information and materials that can help her to better understand the rules, benefits and obligations from the Participation Act.
5. She engages in discussion with people who are also seeking for good employees. She shares her experience and doubts with the community. She receives relevant recommendations and advises.
6. Annie explores the "Find best employee" function on the platform and specifies her requirements for an employee best matching her expectations.
7. The system returns a list of potential candidates. Annie explores the profiles and sends direct messages with an invitation for an interview to some that she selected.
8. She shares her Route-To-PA profile (gives explicit access to her detailed profile including her job posts and information about the company).
9. Annie receives a couple of requests for a job via forums and direct messages on the platform based on her offerings.
10. Annie again selects a couple of profiles and sends invitation for a job interview at her site.
11. Annie shares her experience with the process on the SPOD platform.

4.5 SCENARIOS FOR PARIS (ISSY LES MOLEUAX)

4.5.1 ENTREPRENEUR ANNE

Issy pilot designed a scenario which describes typical issues of a new entrepreneur who creates his/her company. This entrepreneur is called Annie. She is interested in starting a technology company focused on enhancing ecological solutions for mobility service delivery in Issy and Paris. Annie would like to use the Route-to-PA platform to connect with business partners and public administrators to find what kind of data would be useful, what kind of permissions she might need, what kind of commercial strategy she has to adopt and what types of financial orientation might be appropriate. She wants to connect with other people and she would like to use technology to build local social networks to connect with her business peer network and build a local customer base.

Anne's scenario tackles the problem of exploration of Open Data for business purposes. In particular Anne represents a group of entrepreneurs that seeks for information that can help her to start a new business. She also wants to connect with relevant people, exchange experience and build her local social network.

Scenario: 38. Issy-les-Moulineaux.Entrepreneur Anne.1 - Personalized Data Discovery

1. Anne logs into TET-enabled Open Data platform
2. The system detects Anne's location (Paris) and uses this information combined with her profile information such as her affiliation – entrepreneur, green IT technologist and lists datasets that should be of interest to her – “French Green and Sustainable IT policies”, “French new business tax allowances”, “French new business funding grants 2015”, “French medium and business legislation”
3. Anne selects: “French new business funding grants 2015”, “French new business tax allowances”, “French new business funding grants 2015”, “French medium and business legislation” datasets from the recommendation list.
4. The system presents her relevant figures and elaborations on the grants, funding opportunities available for French entrepreneurs along with related legislation.
5. Anne further explores the figures and provided narratives.
6. She saves a couple of items and elaborations in her private space and prints the combined report in one document in order to include it in her business plan.

Scenario: 39. Issy-les-Moulineaux.Entrepreneur Anne.2 - Data Request

1. Anne logs into TET-enabled Open Data platform
2. She uses the search functionality with filtering for her location option enabled, to find a datasets on “Ecological solutions for mobility services”
3. The system does not return any relevant datasets for her region.
4. Anne selects “search for related on-going discussions” option.
5. The system takes Anne to SPOD platform and presents her with list of discussion topics related to her data search query – “French Green IT solutions”, “Ecology policies in Paris”
6. Anne selects the discussion on “French Green IT solutions”.
7. She posts a new thread “Technology enhancing ecological solutions for mobility service delivery in Issy and Paris”
8. Anne gets a response from some of the representatives of the national agencies and businesses that they are in possession of related documents and provide her with the links to the datasets and analysis uploaded on TET platform.

9. Anne follows the links to TET and explores the graphs and provided narratives.
10. She saves a couple of graphs and elaborations in her private space and prints the combined report in one document in order includes it in her business plans.
11. She shares her conclusions and ideas about information provided on SPOD platform.

Scenario: 40. Issy-les-Moulineaux.Entrepreneur Anne.3 - Data Evidence Based Discussion Request

1. Anne logs into SPOD-enabled platform
2. She uses the search functionality with filtering for her location option enabled, to find discussions on “Ecology and Mobility Service Businesses”
3. The system returns the following discussions (based on her profile): “French technology for ecology businesses” and “French Mobility Services Businesses”
4. Marianne selects “French technology for ecology businesses” thread and creates a post including her ideas about starting a technology company focused on enhancing ecological solutions for mobility service delivery in Issy and Paris At the end of her posts she attaches the relevant figures and data summaries from her private space that she had saved before while browsing TET platform for relevant evidence.
5. A couple of French technology firms representatives and domain experts reply to Anne’s posts spawning a lively discussion technologies, ecology and mobility services in Paris that is shared automatically on Social Media.

5 ANALYSIS OF SCENARIOS

In this section we profile the scenarios provided in Section 4 of this document, taking into consideration the key dimensions considered important for the Route-To-PA platform using the integrated model described in Section 3. These profile enables us to clearly situate each scenario within a specific democratic context and specific transparency parameters. Equally important, it enables us associate the scenarios with one or more transparency qualities considered relevant.

We present our analysis in Table 4. The first column in the table contains unique scenario identifiers represented in a way that each ID refers explicitly to specific pilot and particular actor involved in the scenario.

This is followed by determining the democratic context for each scenario, elaborated in detail in Section 3.1.2.1 of this document. In particular we identify the democratic context for scenarios presented, based on the sequence of interactions between actors. We distinguish: 1) Monitorial Democracy - citizens observe and evaluate policies, while making explicit requests for information or service provision, 2) Deliberative Democracy - citizens collaborate and provide government with relevant feedback on policies; and 3) Participatory Democracy - citizens are included in the policy making process and actively participate in value co-creation. The democratic context analysis is followed by identification of types of actors involved in the scenario along with the specification of the type of information exchanged. In particular, in order to identify the type of information we look at the analytical facets of transparency defined in section 3.2 of this document. We distinguish the following types of information associated with organisational aspects: 1) Decision & Policy making activities, 2) Structure & roles, 3) Business & Administrative Processes, 4) Performance & Outcomes of Activities, 5) Services Provision, 6) Contents of rules, regulations & policies.

Further, we elaborate on specific use of Open Data in the scenario to solve particular problems. For instance we distinguish the use of Open Data for: general public good, or business collaboration. Next, we analyse the transparency requirements and success criteria for the use of Open Data. This part of the analysis has been again derived from section 3.2 Analytical Facets of Transparency from this document. In particular we look at the contextualism and elicit Transparency Measures from Transparency Interdependance Graph. We distinguish Transparency Measures related to 1) Accessibility, 2) Auditability, 3) Informativeness, 4) Usability and 5) Understandability.

Finally we identify the additional affordances of ROUTE-TO-PA platform such as (for instance): network effect, community co-creation, business co-creation or collaborative social issues solving. The analysis presented in this section will be leveraged to facilitate the platform development process especially at the requirements analysis level. In particular the next steps for the SPOD and TET-enabled platform development will involve mapping of the scenarios-analysis to specific platform requirements.

Table 4: Analysis of Scenarios using Analytical Framework

Scenario ID	Context	Actors Involved	Information Exchanged	Specific use of open data in scenario	Transparency requirements and Success criteria	Additional Affordances of RTPA Platform
1.Dublin.Resident Kay.1	Deliberative Democracy	Local Activist – Kay, Community Members, Public Administrator	Services Provision Decision & Policy making activities	Public good – road infrastructure development vs comfort of live in real estates	Accessibility – Availability, Publicity and Visibility Informativeness – Completeness and Clarity	Network Effect
2.Dublin.Resident Kay.2	Monitorial Democracy	Local Activist – Kay, Local Group Coordinators and other Community Members	Structures & roles Services Provision	Public Good – uniting non profit organisations services	Informativeness – Completeness and Comparability Usability - intuitiveness	Network effect, community co-creation
3.Dublin.Enterpreneur Annie.1	Monitorial Democracy	Entrepreneur Annie Public administrator	Service Provision	Data Important for business development	Accessibility – Availability Audiability – Validity and Accountability	New Information Creation
4.Dublin.Enterpreneur Annie.2	Monitorial Democracy	Entrepreneur Annie, Other Entrepreneurs – community members, Forum users	Service Provision Business & Administrative Processes	Data Important for business development	Accessibility – Availability Audiability – Validity and Accountability	Business co-creation
5.Dublin.Public Administrator Jane.1	Participatory Democracy	Public Administrator Jane, Other Public Administrators	Decision & Policy making activities Business & Administrative Processes	Data important for bottom-up community building and economic development	Usability – Adaptability, Performability, Operability Accessibility – Availability, Publicity, Visibility	Community building
6.Dublin.Public Administrator Jane.2	Participatory Democracy	Public Administrator Jane, Other Public Administrators, Citizen – Resident Kelly, Other citizens	Decision & Policy making activities Business & Administrative Processes	Data important for bottom-up community building and economic development	Usability – Adaptability, Performability, Operability Accessibility – Availability, Publicity, Visibility	Network effect, Community building
7.Dublin.Civic HackerJoe.1	Monitorial Democracy	A civic hacker – Joe Residents: Meg, Vera and Thomas	Content of rules, regulations & policies Structure & Roles	Public good – societal issues	Informativeness – Completeness, Clarity Accessibility – Availability, Publicity and Visibility	Network effect, Collaborative Social Issues solving
8.Dublin.Civic HackerJoe.2	Deliberative Democracy	A civic hacker – Joe, Public Administrators,	Performance & Outcomes of Activities	Improved Government financial Efficiency	Informativeness – Completeness, Clarity	Personalized Data Experience

		Mayor	Content of rules, regulations & policies Structure & Roles		Audiability – Controllability, Verifiability, Traceability	
9.Dublin.Civic HackerJoe.3	Participatory Democracy	A civic hacker – Joe, Citizens, Public Administrators,	Decision & Policy making activities Contents of rules, regulations & policies	Citizen to Government communication support	Audiability – Controllability, Verifiability, Traceability Usability – Performability, Adaptability	Personalized Data Experience
10.Prato.Public Administrator Irene.1	Participatory Democracy	Public Administrator – Irene, 5.1.1 Gregorio – civil engineer	Decision & Policy making activities	Citizen to Government communication engagement, citizen co-creation	Accessibility – Availability, Publicity, Visibility Audiability – Controllability, Verifiability, Traceability Usability – Performability, Adaptability	Personalised and Social Data Exploration Experience
11.Prato.Public Administrator Irene.2	Deliberative Democracy	Community Activists – Lorenzo, Angela, Angela	Services Provision Decision & Policy making activities	Citizen collaboration and co-creation	Accessibility – Availability, Publicity, Visibility Audiability – Verifiability, Traceability, Accountability Informativeness - Completeness, Clarity , Correctness	Network effect, Community co-creation
12.Prato.Public Administrator Irene.3	Participatory Democracy	Public Administrator – Irene Citizens (indirectly)	Services Provision Decision & Policy making activities	Government to Citizen partnership in co-creation	Accessibility – Availability, Publicity, Visibility Audiability – Verifiability, Traceability, Accountability Informativeness - Completeness, Clarity , Correctness	Network effect, Personalised Search,
Scenario: 13.Prato.Student Antonio.1	Monitorial Democracy	Student Antonio	Decision & Policy making activities Contents of rules regulations & policies	Inclusive Policy Making Government to Citizen partnership in co-creation	Audiability – Verifiability, Traceability, Accountability Understandability - Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search, Cross-domain analysis
14.Prato.Student Antonio.2	Monitorial Democracy	Student Antonio, Students D,E,F, Teacher Z	Decision & Policy making activities Contents of rules regulations & policies	Inclusive Policy Making Government to Citizen partnership in co-creation	Audiability – Verifiability, Traceability, Accountability Understandability - Contextuability	Personalised Search, Cross-domain analysis

					Informativeness - Completeness, Clarity , Correctness	
Scenario: 15.Prato.Student Antonio.3	Monitorial Democracy	Student Antonio, Students D,E,F, Teacher Z	Decision & Policy making activities Contents of rules regulations & policies	Inclusive Policy Making Government to Citizen partnership in co-creation	Audiability – Verifiability, Traceability, Accountability Understandability - Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search, Cross-domain analysis
16.Prato.Communit y Leader.1:	Monitorial Democracy	Community Leader – Anna, Residents Marianna and Erasmons	Service Provision Contents of rules regulations & policies	Services Improvement	Audiability – Verifiability, Traceability, Accountability Understandability - Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search, Collaborative Social Problem analysis
17.Prato.Communit y Leader.2	Monitorial Democracy	Community Leader – Anna, Andriano, Garzia	Service Provision Contents of rules regulations & policies	Services Improvement	Audiability – Verifiability, Traceability, Accountability Understandability - Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search, Collaborative Social Problem analysis
18.Prato.Journalist Guilio.1	Monitorial Democracy	Journalist - Guillio	Performance & Outcomes of Activities Contents of rules regulations & policies	Government Actions Monitoring - Spending Validation	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
19.Prato.Journalist Guilio.2	Deliberative Democracy	Journalist – Guiliano, Accountant – Maurizio, Open Data facilitator – Luciana	Performance & Outcomes of Activities Contents of rules regulations & policies	Government Actions Monitoring - Spending Validation	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
20.Groningen.Princ ipal Mraianne.1	Monitorial Democracy	Principal – Marianne Local Community Members	Performance & Outcomes of Activities Contents of rules regulations & policies	Government Actions Monitoring and collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration

21.Groningen.Principal Mraianne.2	Deliberative Democracy	Principal – Marianne Public Administrator	Performance & Outcomes of Activities Contents of rules regulations & policies	Government Actions Monitoring and collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
22.Groningen.Principal Mraianne.3	Participatory Democracy	Principal – Marianne Public Administrators Domain Experts	Performance & Outcomes of Activities Contents of rules regulations & policies	Government Actions Monitoring and collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
23.Groningen.Community Activist Sanne.1	Monitorial Democracy	Community Activist – Sanne, Local Community Members	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Government Actions Monitoring and collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
	Deliberative Democracy	Community Activist – Sanne, Public Administrator	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Government Actions Monitoring and collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
	Participatory Democracy	Community Activist – Sanne, Public Administrators Domain Experts	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Government Actions Monitoring and collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
26.Groningen.Entrepreneur Ben.1	Monitorial Democracy	Entrepreneur –Ben Local Business Community	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Business Community Collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration

27.Groningen.Enterp renur Ben.2	Deliberative Democracy	Entrepreneur –Ben Public Administrators	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Business Community Collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
28.Groningen.Enterp renur Ben.3	Participatory Democracy	Entrepreneur –Ben Public Administrators Business Owners	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Business Community Collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
29.Groningen.Enterp renur Henk.1	Monitorial Democracy	Entrepreneur –Henk Local Business Community	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Business Community Collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
30.Groningen.Enterp renur Henk.2	Deliberative Democracy	Entrepreneur –Henk Public Administrators	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Business Community Collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
31.Groningen.Enterp renur Henk.3	Participatory Democracy	Entrepreneur –Henk Public Administrators Business Owners	Performance & Outcomes of Activities Decision & Policy making activities Contents of rules regulations & policies	Business Community Collaboration	Audiability – Validity, Verifiability, Traceability, Accountability Understandability – Contextuability Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration
32.Den Haag.Public Administrator Martin.1	Monitorial Democracy	Public Administrator – Martin Local Community Members	Decision & Policy making activities Contents of rules regulations & policies	Social Problem Solving – Unemployment of Disabled	Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration Network Effect

					5.1.2 Understandability - Contextuability	
33.Den Haag.Public Administrator Martin.2	Deliberative Democracy	Public Administrator – Martin	Services Provision	Social Problem Solving – Unemployment of Disabled	Informativeness - Completeness, Clarity , Correctness 5.1.3 Understandability - Contextuability	Personalised Search and Data Exploration Network Effect
34.Den Haag.Public Administrator Martin.3	Participatory Democracy	Public Administrator- Martin Business owners	Decision & Policy making activities Contents of rules regulations & policies	Social Problem Solving – Unemployment of Disabled	Informativeness - Completeness, Clarity , Correctness 5.1.4 Understandability - Contextuability	Personalised Search and Data Exploration Network Effect
35.Den Haag.Citizen Hans.1	Deliberative Democracy	Citizen Hans, Public Administrators, Disabled Job Seekers, Businessman	Business & Administrative Processes	Social Problem Solving – Unemployment of Disabled	Informativeness - Completeness, Clarity , Correctness 5.1.5 Understandability - Contextuability	Personalised Search and Data Exploration Network Effect
36.Den Haag.Citizen Ria.1	Participatory Democracy	Citizen Ria, Unemployed, Businesses	Business & Administrative Processes	Social Problem Solving – Unemployment of Disabled	Informativeness - Completeness, Clarity , Correctness 5.1.6 Understandability - Contextuability	Personalised Search and Data Exploration Network Effect
37.Den Haag.Enterprenur Annie.1	Participatory Democracy	Entrepreneur Annie, Other Businesses, Unemployed	Business & Administrative Processes	Social Problem Solving – Unemployment of Disabled	Informativeness - Completeness, Clarity , Correctness 5.1.7 Understandability - Contextuability	Personalised Search and Data Exploration Network Effect
Scenario: 38.Issy.Enterprenur Anne.1	Monitorial Democracy	Entrepreneur Anne, Local Community members	Business & Administrative Processes	Social Problem Solving –Ecology , Technology and Mobility Services	Informativeness - Completeness, Clarity , Correctness	Personalised Search and Data Exploration Network Effect

					5.1.8 Understandability - Contextuability	
39.Issy.Enterprenur Anne.2	Deliberative Democracy	Entrepreneur Anne, Public Administrators Local Community Members	Business & Administrative Processes	Social Problem Solving –Ecology , Technology and Mobility Services	Informativeness - Completeness, Clarity , Correctness Understandability -Contextuability	Personalised Search and Data Exploration Network Effect
40.Issy.Enterprenur Anne.3	Participatory Democracy	Entrepreneur Anne, Businesses And Domain Experts	Business & Administrative Processes	Social Problem Solving –Ecology , Technology and Mobility Services	Informativeness - Completeness, Clarity , Correctness 5.1.9 Understandability - Contextuability	Personalised Search and Data Exploration Network Effect

6 CONCLUSION

Despite the multiplicity of theoretical approaches to transparency, there is a paucity of work that attempts to structure available theoretical models and frameworks. When considering computer-mediated transparency, very few theoretical models exist. We have tried to construct our analytical framework by systematically organizing the extant theory and model space for transparency and computer-mediated transparency using Pepper's World hypotheses of views as a structuring device. We have also proposed a strategy for aligning or integrating the four analytical views directly resulting from using Pepper's views. Guided by the initial stories supplied by pilot partners and information generated from workshops (information, interaction and understandability needs), 40 scenarios have been developed. These scenarios were analysed using developed the analytical framework to determine transparency profiles for each of these scenarios.

The workshops information across pilot sites were very useful in defining concrete scenarios that will underpin the development of concrete user stories, use cases and requirements. We intend to carry out further analysis of the scenarios to determine their success criteria based on the analytical framework (e.g. using the necessary conditions). Our experience in using the Pepper's World Views as structuring device further reinforces earlier claims on the efficacy of the framework for analysing socio-technical systems.

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Table 5: Information, Interaction and Understandability Needs of Stakeholders

Source	Capability Tracking Reference (User Challenges)	Stakeholder Category	Desired Capability (Solution to barrier)	Transparency Aspects Types	Platform Aspect Category	Feature Description
Dublin	Cost of accessing data is prohibitive. Finances to fund sustained collection and sharing of open data	Supplier	Data creation should be driven by user demands; Centralise & streamline formats, licence & metadata for all sources	Accessibility	TET/GUID E Features	Notifying users of relevant datasets; Allowing submission of data request; Providing dataset categories based on user categories;
Dublin	Open data is low priority for government to implement, due to uncertain ability to generate revenue; Difficult to make money from open data (furthering resistance of government)	Supplier	Data creation should be driven by user demands; Centralise & streamline formats, licence & metadata for all sources; Visualisation is important; promote publication of open data during campaign to encourage vote and communication	Accessibility	Guide Features	Provide motivation, incentives, dedicated resources for open data in Public Authorities
Dublin	Inadequate finances to fund the sustained collection and sharing of open data	All Stakeholders	No Solution Provided	Accessibility	Guide Features	Provide motivation, incentives, dedicated resources for open data in Public Authorities
Dublin	Lack of understanding of actual real cost of publishing open data within organisations. Open data does not mean 'free' and comes with significant cost	Supplier/Enabler	1 Open Data F/T Officer per Dept. & budget	Accessibility	Guide Features	Provide motivation, incentives, dedicated resources for open data in Public Authorities
Dublin	Failure by government departments to advertise that data is available to the public	Supplier	Organisational change management programme; 1 Open Data F/T Officer per Dept. & budget	Accessibility	All Features	Notification of new datasets (TET) published both on portal and social media channels (SPOD) and organizational process to ensure sustainable publication of open data (GUIDE)
Dublin	Resistance to releasing / publishing data in open format	Supplier	Encourage govt. to understand why implementing change is good; Encourage politicians on why use of open data can be relevant; Organisational change management programme; encourage govt. to open up for change	Accessibility	Guide Features	Promotion of Open Data to Political Leadership
Dublin	Failure to understand the organisational benefits of releasing open data	Supplier	Demonstrate the benefit of open data to stakeholders including political leadership	Accessibility	TET Features	Publish information about impacts of Open Data on platform, e.g. data.gov
Dublin	Fear of loss of data ownership once data is released in open format, Fear of causing panic or data being misread	Supplier	Centralise & streamline formats, licence & metadata for all sources	Auditability	TET Features	Provide detailed metadata on datasets covering context, intended use, provenance etc.

Dublin	Lack of in house knowledge and skills to publish data in open format	Supplier	1 Open Data F/T Officer per Dept. & budget	Accessibility	Guide Features	Provide dedicated human resources for Open Data program
Dublin	Fear of how transparency via open data might affect organisation	Supplier	Centralise & streamline formats, licence & metadata for all sources	Understandability	TET Features	Provide detailed metadata on datasets covering context, intended use, provenance etc.
Dublin	A perception that Open data is simply 'something that Governments do' and not private sector industry	Supplier	Motivate data release by private organizations	Accessibility	TET/GUIDE Features	Promotion and demonstration of benefits of open data release to private organizations (GUIDE). Also publish on portal examples of benefits derived from release of open data in private sector (TET)
Dublin	Lack of belief that Government Open data is reliable data	Consumer	Centralise & streamline formats, licence & metadata for all sources; Network CSO & Civil Organisation	Auditability/Informativeness	TET/Guide Features	Create policies and standards to follow for data format, publishing and update (TET). Promote better data collection and organisation skills at source (GUIDE)
Dublin	(Perception of) Inadequate organisational legal frameworks to permits data to be released in open format	Supplier	Centralise & streamline formats, licence & metadata for all sources; Network CSO & Civil Organisation	Understandability /Informativeness	Guide Features	Create policies and standards to follow for data format, publishing and update (TET). Promote better data collection and organisation skills at source (GUIDE)
Dublin	Inadequate institutional capacity to provide open data services, to develop standards & to provide expertise; Lack of open data from HSE such as health facilities in Ireland	Supplier/Enabler	1 Open Data F/T Officer per Dept. & budget	Accessibility	Guide Features	Promote development of skills in the short term for dedicated Open data staff in each public organisation. Invest in development of training facilities and personnel in educational institutions as long term skill development strategy (GUIDE). The dedicated staff will aid release of OD and OD services provision
Dublin	Unwillingness to change current data reporting practices	Supplier	Organisational change management programme	Accessibility	Guide Features	Demonstrate to PAs how organisational change will help adapt to the new role of Govt. in the society and how it will help the uptake of OD practices (GUIDE)
Dublin	Lack of development of wish list of potential open datasets that can be used to address societal challenges in Ireland. What data do we need from Government?	Supplier/Enabler	Data creation should be driven by user demands	Informativeness/ Usability	Guide Features	Carry out frequent surveys of public opinions on what data types are relevant to them. Improve on the collection, organisation of the datasets to meet standards and publish accordingly as open dataset. (GUIDE)
Dublin	Lack of interest in using open data for any purpose ('Sure why bother?')	All Stakeholders	Promote examples to educate & inspire; Support to Data Releasers: review board, advisors/experts, protective policies; High level leadership to encourage risk ESP where risk of negativity exists; Proactive management of negative use, relationship management with users & bi-directional; Encourage citizens to develop their collective voices; Promote incentives for release of high value data by agencies	All	All Features	Demonstrate to citizens how OD can be used to create value through use of use cases of OD. Encourage interest in OD discussions as a way to promote/encourage interest in govt. transparency (GUIDE). Encourage participation in OD and release of more high value datasets by data publishers through encouragement of management teams of Public offices (TET)

Dublin	Failure to understand the benefits that Open Data can offer	All Stakeholders	Promote examples to educate & inspire; Support to Data Releasers: review board, advisors/experts, protective policies; High level leadership to encourage risk ESP where risk of negativity exists; Proactive management of negative use, relationship management with users & bi-directional	All	All Features	Demonstrate to citizens how OD can be used to create value through use of use cases of OD. Encourage interest in OD discussions as a way to promote/encourage interest in govt. transparency (GUIDE). Encourage participation in OD and release of more high value datasets by data publishers through encouragement of management teams of Public offices (TET)
Dublin	Unwillingness to educate oneself as to the benefits of open data	Consumer	Promote examples to educate & inspire; High level leadership to encourage risk ESP where risk of negativity exists; Proactive management of negative use, relationship management with users & bi-directional	Understandability /Usability	All Features	Demonstrate to citizens how OD can be used to create value through use of use cases of OD. Encourage interest in OD discussions as a way to promote/encourage interest in govt. transparency (GUIDE). Create a more user-friendly platforms
Dublin	Unwillingness to equip oneself with the skills to utilise open data	Consumer	Promote examples to educate & inspire; High level leadership to encourage risk ESP where risk of negativity exists; Proactive management of negative use, relationship management with users & bi-directional.	Understandability /Usability	Guide Features	Demonstrate to citizens how OD can be used to create value through use of use cases of OD. Encourage interest in OD discussions as a way to promote/encourage interest in govt. transparency (GUIDE). Create a more user-friendly platforms
Dublin	Lack of promotion / marketing surrounding open data initiatives offering motivation to 'get involved'	All Stakeholders	Promote examples to educate & inspire; Support to Data Releasers: review board, advisors/experts, protective policies; High level leadership to encourage risk ESP where risk of negativity exists; Proactive management of negative use, relationship management with users & bi-directional	Understandability /Usability	Guide Features	Open Data publicity among the citizens through proper media (e.g. ICT-enabled media) demonstrating the benefits of OD using the use cases of OD and delivering information on possible business cases on OD (GUIDE)
Dublin	Lack of public drive to get government to change	Consumer	High level leadership to encourage risk ESP where risk of negativity exists; Proactive management of negative use, relationship management with users & bi-directional	Understandability /Usability	Guide Features	Creation of interest OD interest groups to put pressure on PAs to accept OD responsibilities (GUIDE)
Dublin	Hostility toward monitoring and benchmarking via open data	Supplier/Enabler	Proactive management of negative use, relationship management with users & bi-directional	Accessibility/Audibility	TET Features	Encourage PAs through symposia to properly understand the concept and practice of OD, to become more familiar with the benefits and then more proactive to the adoption of the OD (GUIDE), and thus support more data release (TET)
Dublin	Conflict between different govt. agencies regarding what should be transparent and accessible (relates to different code of ethics and incoherent value systems in different organisations)	Enabler	High level leadership to encourage risk ESP where risk of negativity exists; Proactive management of negative use, relationship management with users & bi-directional	NA	Guide Features	Standardisation of operational practices to support open data concept and practices (data formats, interoperability, synergy, data usability, avoidance to re-invention, etc.) across all public sector organisation
Dublin	Ignorance towards research/expert opinion	Mediator/Consumer	Promote examples to educate & inspire citizens	Informativeness/Usability	Guide Features	Govt. and industry experts to collaborate in the promotion of the concept of open data to citizens and PAs and in the development of skills for the consumption of OD
Dublin	Lack of cooperation between government and public.	Consumer/Enabler	Develop ways for citizens and govt. to get together; Set up collective action platforms for bottom-up solutions; Encourage citizens to develop their collective voices; High level leadership to encourage risk ESP where risk of negativity exists; Proactive	All	All Features	Encourage bottom-up discussions between citizens and PAs to improve mutual understanding and cooperation in adopting open data (GUIDE), to decide on which data is most value and interest to the public users, the need and type of citizens

			management, of negative use, relationship management with users & bi-directional.			services in demand and the co-creation of the services (TET/SPOD)
Dublin	Conflict between wanting to share data and the data being used as criticism	Supplier	Organise training camps for PAs to learn that secrecy damages trust but transparency promotes trust; Promote examples to educate & inspire citizens; Proactive management of negative use, relationship management with users & bi-directional; Do not only share outcomes but also reasoning and decision making	Understandability /Usability	TET Features	Standardisation of operational practices to support open data concept and practices (data formats, metadata, other descriptive supports for data to prevent possible misinterpretation of datasets, interoperability of platforms to support cross reference and extension (TET)
Dublin	Perceived lack of government credibility	Consumer	Promote examples to educate & inspire citizens; Proactive management of negative use, relationship management with users & bi-directional	Auditability/Understandability	TET Features	Standardisation of operational practices to support openness, transparency, open data release and practices (in proper data formats, interoperability, data usability) across all public sector organisation to improve citizens' trust on PAs.
Dublin	Hostility towards data release as it is seen as a source of power	Consumer	Promote examples to educate & inspire citizens; Proactive management of negative use, relationship management with users & bi-directional.	Understandability /Informativeness	SPOD Features	Educating the PAs through both online and offline media, on the proper use of govt. data and the positive benefits it offers. The need for Govt. to accept a level of risk in adopting OD concept (SPOD)
Dublin	Conflict and lack of progress due to contrary interests.	Mediator/Consumer	Encourage Journalist to focus on solutions instead of problems & mistakes & to use open data for their reports; Promote examples to educate & inspire citizens; Proactive management of negative use, relationship management with users & bi-directional	Understandability /Usability	SPOD Features	Encourage bottom-up discussions between citizens and PAs through information dissemination to improve mutual understanding and cooperation in adopting open data (GUIDE/SPOD)
Dublin	Available open datasets are not 'relevant' or 'speaking to' people's interest	Consumer	Encourage release of all data instead of summaries; Encourage release of open financial data; Support to Data Releasers: review board, advisors/experts, protective policies; Proactive management, of negative use, relationship management with users & bi-directional	All	All Features	Encourage bottom-up discussions between citizens and PAs or data publishers & providers through information dissemination to improve mutual understanding and cooperation in satisfying the data need of open data consumers (TET/GUIDE/SPOD)
Dublin	Open data vs Eincodes (Postcodes), lack of open look-up profile, missed opportunity for open data generation	Enabler	Promote examples to educate & inspire citizens; High level leadership to encourage risk ESP where risk of negativity exists	Informativeness/ Usability	SPOD/GUIDE Features	Carry out surveys and dialogue/debate sessions between PAs and citizens to discover citizens' priorities - their need and services of interest (SPOD), Provide education on the benefits of the options
Dublin	Metadata problems	Supplier/Mediator	Promote examples to educate & inspire citizens; Support to Data Releasers: review board, advisors/experts, protective policies	All	All Features	Set standards for the minimum level of metadata to be attained by data publishers (GUIDE)
Dublin	There is a lack of useful data	Consumer	Promote examples to educate & inspire citizens; Support to Data Releasers: review board, advisors/experts, protective policies	Accessibility	TET/GUIDE Features	Propose a dedicated OD staff for each public agency to ensure data collection meet standard. Government to provide a guideline or regulation for the release of high value data to the public as a matter of mandatory responsibility for public agencies (TET/GUIDE)

Dublin	Shortage of technical resources to collect data	All Stakeholders	Targeted assessment of comp/data skills followed by relevant education strategy	All	All Features	Encourage the use of computerised systems in the collection of data at offices as well as the reorganisation of work-flow to support better data gathering as a minimum requirement in modern offices (TET/GUIDE)
Dublin	Difficulty in finding data - potential data dump rather than good standards for cataloguing, describing, linking data	Consumer	More complete platform for better searchability of data; Better integration of open data portals; More open & collaborative process for data cleaning; Better coverage & maintenance of data quality.	Accessibility	TET Features	Set standards for the minimum level of metadata to be attained by data publishers (GUIDE), provide guidelines/policies to support adherence to the standard cataloguing style and format for consistency and data searchability purposes (TET)
Dublin	Reliability of data feeds and keeping them updated; old data is gone off	Consumer	Best practices guide book; Better coverage & maintenance of data quality; Targeted assessment of computer/data skills followed by relevant education strategy	Informativeness/ Usability	TET/GUIDE Features	Provide policies and Best practice guides to support adherence to quality data release through proper and standardized data gathering and maintenance practices and frequent periodic data update (TET/GUIDE)
Dublin	Poor service design and management.	Supplier/Mediator	Best practices guide book; More complete platform for better searchability of data; Better integration of open data portals; Targeted assessment of comp/data skills followed by relevant education strategy	All	All Features	Provide Best practices GUIDE supported by policies and policy enforcement through consultation sessions; education on OD concept and skill development (GUIDE) to meet the need for the use of OD and the design of OD business case
Dublin	Information spread out over multiple organisations, lack of one portal	Supplier	Best practices guide book; More complete platform for better searchability of data	Auditability/Usability	TET Features	Funding for the development of standard state-of-the-art platforms which can serve as data repository for datasets from many organisations (TET/GUIDE)
Dublin	Poor information management	Supplier/Mediator	Best practices guide book; More complete platform for better searchability of data; Better integration of open data portals; Targeted assessment of comp/data skills followed by relevant education strategy	All	All Features	Provide policies and Best practice guides to support adherence to quality data release through proper and standardized data gathering and maintenance practices and frequent periodic data update (TET/GUIDE)
Dublin	Inadequate technical expertise to produce data in a usable format	Supplier	Targeted assessment of comp/data skills followed by relevant education strategy	All	All Features	Provide Best practices GUIDE supported by policies and policy enforcement through consultation sessions; education on OD concept and skill development (GUIDE) to meet the need for the use of OD and the design of OD business case
Dublin	Lack of training to go about finding data that is relevant for the purpose required	Consumer	Best practices guide book; Public outreach & awareness; Targeted assessment of computer/data skills followed by relevant education strategy	NA	Guide Features	Govt. to provide funding for OD education and skills development (GUIDE)
Dublin	Fears of criticism (by govt. organisations) from the public and inadequate support and training to field and reply to these concerns	Supplier	Embrace criticism	NA	Guide Features	Organise OD symposia, discussion for a and other information dissemination session to educate practitioners - data providers and publishers to understand that by opening up data may not necessarily lead to criticism or that the benefit of OD may outweigh the problem of criticism
Dublin	Inability to interpret data might be seen as a permanent problem	Consumer	Public outreach & awareness; Targeted assessment of computer/data skills followed by relevant education strategy	Understandability /Usability	TET/SPOD Features	??
Dublin	Lack of educational material to acquire minimum skill-set.	Supplier/Consumer	Best practices guide book; Targeted assessment of computer/data skills followed by relevant education strategy	All	All Features	Govt. to provide funding for OD education and skills development (GUIDE)

Dublin	Citizens may need to be computer literate to gain access to data	Consumer	Public outreach & awareness; Targeted assessment of computer/data skills followed by relevant education strategy	Accessibility	TET Features	Govt. to provide funding for OD education and skills development (GUIDE)
Dublin	Lack of skills / education to utilise open data	Consumer	Best practices guide book; More complete platform for better searchability of data; Targeted assessment of computer/data skills followed by relevant education strategy	Understandability /Usability	TET Features	Govt. to provide funding for OD education and skills development (GUIDE)
Dublin	Lack of knowledge on freely available software that users can download e.g. Arc GIS vs Q GIS	Consumer	Best practices guide book; Public outreach & awareness; Targeted assessment of computer/data skills followed by relevant education strategy	Accessibility	TET Features	OD experts to support in the provision of general awareness about OD industry news and best practices (GUIDE)
Dublin	Lack of available accredited open data training courses	All Stakeholders	Best practices guide book; Targeted assessment of computer/data skills followed by relevant education strategy	All	All Features	Govt. and industry experts to collaborate in the promotion of the concept of open data to citizens and PAs and in the development of skills for the consumption of OD
Dublin	Guaranteeing/Cleaning personal data from data sources	Supplier	Best practices guide book; govt. should stop collecting our e-activities	NA	Guide Features	Policy & policy enforcement along with provision of best practice guide (GUIDE)
Dublin	Govt. behaviour - Culture of secrecy	Supplier	Organise events to demonstrate benefits of opening data about their services and operations; Create information on govt. activities and decisions and their context, organise training camps for PAs to learn that secrecy damages trust but transparency promotes trust	All	All Features	Invite PAs to industry (OD expert) organised seminars to demonstrate the benefits of OD and OD uses cases and for the PAs to learn that secrecy can actually damage citizens' trust (GUIDE). Create online forum for same purpose (SPOD)
Dublin	Govt. behaviour - Practices	Supplier	Develop good practices to ensure that published data are interpreted correctly by citizens and other consumers	Understandability /Informativeness	TET/GUID E Features	Invite PAs to industry (OD expert) organised seminars to demonstrate the benefits of OD, OD uses cases and for the PAs to learn that operational reorganisation is necessary for the new role of govt. (GUIDE). Create online forum for same purpose (SPOD)
Dublin	Govt. behaviour - responsibility	Supplier	"Figure out actual needs of the public" and discuss them, relate them to existing policies and individual behaviours	Usability	TET Features	Invite PAs to industry (OD expert) organised seminars to demonstrate the benefits of OD, OD uses cases and for the PAs to learn about the new role of govt. in modern society. (GUIDE) Create online forum for same purpose (SPOD)
Dublin	Govt. behaviour - interaction/feedback	Supplier	Develop a narrative website where people can present their experiences	All	All Features	Develop a wiki website for PAs and the public to present their views, choices and grievances (SPOD)
Dublin	Personal information accessed by public can lead to data protection infringement	Consumer	Govt. should stop collecting our e-activities; Top-Down: Data protocol & guidance, policy and programmes, data protection; Bottom-up: Trust, listening, understanding values	NA	NA	Provide policies and Best practice guide (GUIDE)
Dublin	National security issues as a result of the release of sensitive information	Supplier	Top-Down: Data protocol & guidance, policy and programmes, data protection; Bottom-up: Trust, listening, understanding values; Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases	Accessibility	TET Features	Provide policies and Best practice guide. Exclude from OD those datasets that affect national security (GUIDE)
Dublin	Culture of secrecy	Supplier	Top-Down: Data protocol & guidance, policy and programmes, data protection; Bottom-up: Trust, listening, understanding	Accessibility	TET Features	Invite PAs to industry (OD expert) organised seminars to demonstrate the benefits of OD and OD uses cases and for the

			values; Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases			PAs to learn that secrecy can actually damage citizens' trust (GUIDE). Create online forum for same purpose (SPOD)
Dublin	Highly selective groups allowed access to certain types of data	Supplier	Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases	Accessibility	TET Features	??
Dublin	Dilution of information available to the public	Supplier/Mediator	Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases; Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer	Understandability/Informativeness	TET/GUIDE Features	Provide Best practices GUIDE
Dublin	Data on screen may be displayed in a technical way or use unfamiliar technical language	Supplier/Mediator	Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer	Auditability/Understandability	TET Features	Provide and enforce policies to support standardised data formats and consistent language/nomenclature
Dublin	Citizens may not always have up to date browsers on their computers	Consumer	Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases; Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer	Accessibility/Usability	TET Features	??
Dublin	Minimal publicity about data available leading to lack of awareness of its existence	Consumer	Promotion within the public, collaboration between data scientists & services designer; Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases; Top-Down: Data protocol & guidance, policy and programmes, data protection	Accessibility	TET Features	OD publicity for the public awareness. Release the 'How to' guides on OD and the business case. (GUIDE)
Dublin	Data is in a dense form and requires design input to make it accessible	Consumer	Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases; Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer; Top-Down: Data protocol & guidance, policy and programmes, data protection	Accessibility/Usability	TET Features	Standardisation and policy enforcement for data formats and publishing (TET); OD practitioners to play the role of supporting industry news and best practices guides (GUIDE)
Dublin	Lack of information about the circumstances of data production	Consumer	Set up good information management practices across all public bodies – data co-ordinates; Find the issues people really care about; Develop and implement a set of policies and standards for publishing open data formats that are user friendly; Establish and enforce open data standards to be used by all stakeholders and help to eradicate unfamiliar technical language on published data	All	TET Features	Standardisation and policy enforcement for data formats, metadata, and data publishing (TET); OD practitioners to play the role of supporting industry news and best practices guides (GUIDE)

Dublin	Lack of user-friendly file-formats, Lack of user-friendly interface	Consumer	Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer	Understandability /Usability	TET Features	Platform provides and developers to provide user-friendly interfaces (TET); better funding for platform development, and collaboration between industry experts (GUIDE)
Dublin	Lack of engaging activities/information for those users who arrive on a page without a clear goal	Consumer	Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases, Easy to use formats & interfaces, guidance on how & what to use	Understandability /Informativeness	TET Features	Govt. & industry experts to provide Best practices ('how to') guides and business case stories on websites and social media forum or data platforms and seminars on OD (GUIDE/SPOD)
Dublin	Lack of examples available for smart use of open data	Consumer	Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases; Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer	Understandability /Informativeness	TET Features	Govt. & industry experts to provide OD business case and success stories (GUIDE/SPOD)
Dublin	Lack of access to necessary software / hardware to utilise Open data	Mediator/Consumer	Top-Down: Data protocol & guidance, policy and programmes, data protection; Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases	All	TET Features	Govt. & industry experts to provide OD awareness programmes and industry newsletters for interested OD users (GUIDE/SPOD)
Dublin	Level of openness and licences for use in commercial remit	Enabler	Top-Down: Data protocol & guidance, policy and programmes, data protection	Accessibility/Usability	TET Features	Govt. to release of more OD licenses for use by OD entrepreneurs (GUIDE)
Dublin	Quality of data, right formats to the right audience e.g. spreadsheets for 'tourists' and feeds/API for data 'miners'.	Supplier	Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer; Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases	Informativeness/Usability	TET Features	Govt. and industry experts and practitioners to provide standardisation of presentation of OD and formats for consistency purposes (GUIDE)
Dublin	Usability; need preview, mapping, visualisation, multiple data layering	Consumer	Practitioners: highlighting good practices, Story-telling approach, Technology & tools, 'how to, guides', business cases; Easy to use formats & interfaces, guidance on how & what to use, involve training, funding & resources, data organisation, promotion within the public, collaboration between data scientists & services designer	Understandability /Usability	TET/SPOD Features	Industry practitioners & govt. to provide OD use cases and business case; story telling about usability of OD. Advocate provision of user-friendly visualisation and mapping (TET/SPOD/GUIDE)
Dublin	Information needs	Consumer/Enabler	Key indicators for my neighbourhood (social, crime, environment, health, etc.) for informed decision making	All	All Features	Encourage govt., other data providers (GUIDE) to publish datasets relevant to users through standard formats and portals (TET). Govt. to provide incentives for data generation and publishing
Dublin	information needs	Consumer	Local info of all kinds – planning, sports, cultural, commercial, social, councillors	Informativeness/Usability	All Features	OD mediation group - enthusiast, researchers, users, promoters to encourage govt., other data providers (GUIDE) to publish datasets relevant to users through standard formats and portals

						(TET). Govt. to provide incentives for data generation and publishing
Dublin	information needs	Mediator/Consumer	Inventory of local business people – support local enterprise	Informativeness/Usability	TET/GUID E Features	??
Dublin	Understandability, Usability and decision-making needs	Consumer	In-file data descriptors	Understandability/Usability	TET/SPOD Features	Data generators and publishers to provide more metadata on datasets to improve the understandability of datasets. (TET)
Dublin	Understandability, Usability and decision-making needs	Consumer	Scheduling services – identify what is logged, actioned or closed	Auditability/Informativeness	TET/GUID E Features	Developers to provide tools on platforms for tracking activities of users and logging issues
Dublin	Understandability, Usability and decision-making needs	Consumer	Map based search & queries	Accessibility	TET Features	Platform managers and App developers to integrate TET tools that support map-based searches and queries
Dublin	Understandability, Usability and decision-making needs	Consumer	Personalisation – search with filter, especially with memory, notifications & updates	Accessibility	TET Features	Provide platforms with integrated personalisation search and filter tools
Dublin	Understandability, Usability and decision-making needs	Mediator/Consumer	Linked data for comparison	Understandability/Informativeness	TET Features	Platform managers and App developers to integrate TET tools that appropriate APIs to search linked data, evaluate them and make data comparison between two or more datasets that may belong to different locality
Dublin	Understandability, Usability and decision-making needs	Consumer	Public or anonymous profile options	NA	NA	Developers to enable registration options that enable users to choose which activity to make private or leave public on platforms
Dublin	Understandability, Usability and decision-making needs	Consumer	Interactions, 'rate my service', submit suggestions on map + get feedback	All	All Features	Provide platforms with integrated interactive analysis and visualisation, and map tools
Dublin	Understandability, Usability and decision-making needs	Enabler	Data mining tools & analysis tools for information extraction to support decision-making	Accessibility/Usability	TET/GUID E Features	Platform providers and developers to provide user-friendly tools and software to support data mining, analysis and for reporting (TET)
Dublin	Understandability, Usability and decision-making needs	Supplier	Statistics under-pinning policies	NA	NA	Provide policies to enforce the supply of metadata and provenance data for all published datasets (GUIDE/TET)
Dublin	Understandability, Usability and decision-making needs	Supplier/Enabler	Modelling tools, layered maps	Understandability/Usability	TET Features	Platforms to be integrated with tools that support data modelling and layered maps
Dublin	Understandability, Usability and decision-making needs	Mediator/Enabler	Polls and surveys	Informativeness/Usability	TET/SPOD Features	?
Dublin	Understandability, Usability and decision-making needs	Mediator/Consumer	Animations, pictures, browsing exploration experience	Understandability	TET/SPOD Features	Platform providers and developers to provide user-friendly tools and software to support better browsing experience, animation, picture upload and other visual files (TET)
Dublin	Understandability, Usability and decision-making needs	Consumer/Enabler	Question & answer, feedback mechanism monitored up-to-date	All	All Features	Integrate platforms with social media tools and data update alerts for users (SPOD)
Dublin	Understandability, Usability and decision-making needs	Supplier/Mediator	Metadata management	All	All Features	Govt. and data publishers to enforce consistency in approved formats of datasets, metadata and provenance records supplied with published datasets

Dublin	Understandability, Usability and decision-making needs	All Stakeholders	Modelling and stimulations	Understandability /Informativeness	All Features	Platform and App developers to integrate TET tools that support modelling, simulations, animations, interactive visualisation, predictive analytics to enable better understanding of the meaning of dataset by users
Dublin	Understandability, Usability and decision-making needs	All Stakeholders	Animations & interactive visualisation; Predictive analytics	Understandability /Informativeness	All Features	Platform and App developers to integrate TET tools that support modelling, simulations, animations, interactive visualisation, predictive analytics to enable better understanding of the meaning of dataset by users
Dublin	Understandability, Usability and decision-making needs	All Stakeholders	Data availability over several portable devices; Customised display – pull in from other platforms + layer data	Accessibility/Usability	TET Features	Developers to provide apps for use in multiple devices
Dublin	Understandability, Usability and decision-making needs	Mediator	APIs,	All	All Features	Platform providers and developers to develop many more useful APIs to support many services required by the various groups of open data platform users
Dublin	Understandability, Usability and decision-making needs	Mediator/Consumer	Data integration	Accessibility/Usability	TET Features	Platform providers and developers to supply specific APIs to enable data integration across platforms
Dublin	Understandability, Usability and decision-making needs	Supplier/Consumer	Question and answer mechanism	Understandability /Informativeness	TET/SPOD Features	App developers to consider design or integration of SPOD apps for multi-platform and multi-lingua use to enable continuous discussions and commenting on datasets by all concerned, share their concerns and make suggestions or recommendations
Dublin	Understandability, Usability and decision-making needs	Supplier/Consumer	Map + zoom Vs recovery	Understandability	TET Features	Platform managers and App developers to integrate TET tools that support map-based searches and queries, zoom and etc.
Dublin	Understandability, Usability and decision-making needs	Supplier/Consumer	Customisable Dashboards, personalisation	Understandability	TET/SPOD Features	Platform and App developers to integrate TET tools that support customisation and personalisation of user interests, modelling, simulations, animations, interactive visualisation, predictive analytics on dashboards to enable better understanding of the meaning of dataset by users
Dublin	Understandability, Usability and decision-making needs	Mediator/Consumer	Interactive graphical representations as transparency enhancing tools, promote easy reading, understandability, making sense of data.	All	All Features	Platform and App developers to integrate TET tools that support customisation and personalisation of user interests, modelling, simulations, animations, interactive visualisation, predictive analytics on dashboards to enable better understanding of the meaning of dataset by users
Dublin	Social and Collaborative Needs	Mediator/Consumer	Closed loop, share results of interactions & collaborations	All	All Features	Integrate platforms with social media tools and data update alerts for users, sharing and feedback of user generated contents (SPOD)
Dublin	Social and Collaborative Needs	Mediator/Consumer	Embed data for viral travel of data + its conversations	All	All Features	Integrate platforms with social media tools and data update alerts for users, sharing and feedback of user generated contents (SPOD)

Dublin	Social and Collaborative Needs	All Stakeholders	Diversity of engagement – creativity, inclusion, new knowledge & value	All	All Features	Integrate social media tools on platforms to support interactive engagement of data users and PAs, discussion among users to spur collective creativity of useful knowledge and values
Dublin	Social and Collaborative Needs	All Stakeholders	Original data location – show paths to where it is shared	Accessibility	TET Features	Data suppliers to supply metadata and provenance records along with the data as a matter of standard policy
Dublin	Social and Collaborative Needs	All Stakeholders	Reward system, gamification, acknowledgement	NA	SPOD/GUIDE Features	Govt. to provide rewards system for OD practitioners as means of promotion (GUIDE)
Dublin	Social and Collaborative Needs	All Stakeholders	Expert facilitation	All	All Features	Govt. and other OD supply institutions to provide dedicated OD experts to facilitate open data adoption in the society. Also to support skills development were possible.
Dublin	Social and Collaborative Needs	All Stakeholders	Dataset rating & ranking, Calendar, wall style fast feedback, live chat, comments on dataset, blogs, collaborative editing, curating, adding metadata for dataset	All	All Features	Platforms should be designed to incorporate these tools that help improve the experience of using the platforms
Dublin	Social and Collaborative Needs	Supplier	Verification/traceability of account	Auditability	TET Features	Traceability to be provided on datasets published on portals by providing the data provenance records and the full meta data of the datasets.
Dublin	Social and Collaborative Needs	Consumer	Anonymity	NA	NA	Developers to enable registration options that enable users to choose which activity to make private or leave public on platforms
Dublin	Social and Collaborative Needs	Consumer	Live webcast with feedback, newsfeed for decision,	Understandability /Usability	All Features	Web 2.0 features to be supported on standard portals and platforms, e.g. interactive & networking tools for users to communicate and comment, provide feedback, rate services/datasets, and criticise. (SPOD)
Dublin	Social and Collaborative Needs	Consumer	Contact tools for finding PA, forums, public participation, network, social media interaction, twitter, Facebook	Understandability /Usability	All Features	Web 2.0 features to be supported on standard portals and platforms, e.g. interactive & networking tools for users to communicate and comment, provide feedback, rate services/datasets, and criticise. (SPOD)
Dublin	Social and Collaborative Needs	Consumer	face-to-face interaction to discuss local issues with PAs	Understandability /Informativeness	TET/SPOD Features	??
Dublin	Social and Collaborative Needs	Consumer	Online interaction via social media to efficiently report local problems, & report on local events & initiative; PA twitter & Facebook pages to keep up with local services & necessary improvements	Understandability /Informativeness	TET/SPOD Features	Web 2.0 features to be supported on standard portals and platforms, e.g. interactive & networking tools for users to communicate and comment, provide feedback, rate services/datasets, and criticise. (SPOD)
Dublin	Social and Collaborative Needs	Consumer	Needs to be in multiple modes - Twitter, Facebook, Desktop so I can access everyone easily	Understandability /Informativeness	TET/SPOD Features	Platform providers and developers to provide tools and apps to support multiple mode interfaces over multi-media platforms
Dublin	Social and Collaborative Needs	Consumer	A set of standard forms plus feedback response form & Discus so that I can make a request and also people can get feedback from PA	Understandability /Informativeness	TET/SPOD Features	Make provisions for responses and feedbacks forms on portals and platforms

Dublin	Social and Collaborative Needs	Consumer	To be able to moderate my portal so that I can prevent abusive behaviour	NA	SPOD Features	Provide means of portal moderation on design to prevent use of abusive languages
Dublin	Social and Collaborative Needs	Consumer	An image repository to tag with data (picture is worth 1000 words) so that e.g. pollution is best described by images than words	Informativeness	SPOD Features	Image gallery should be integrated on portals to store images and photos as these are visual elements that people often glance through for quick insight.
Dublin	Social and Collaborative Needs	Consumer	Local library and community centre interaction, face-to-face interaction with (photos) of PAs along with FB, twitter & webpages, social media interaction online interaction focus on local issues (road, traffic, housing, planning environment, arts and health so that I can be informed to love my neighbourhood	Understandability /Informativeness	TET/SPOD Features	In addition to physical meetings for interaction between citizens and PAs, social media interaction tools should be provided for extended online interaction between citizens and public offices for further discussions on matters affecting citizens
Dublin	Social and Collaborative Needs	Consumer	Tools to support our local community users group when we voice concerns so that we can connect to local representatives & connect to PAs	Understandability /Informativeness	TET/SPOD Features	Facebook, twitter, and similar social media tools should be integrated on platforms. (SPOD)
Dublin	Social and Collaborative Needs	Consumer	Tools to map all the facilities in my neighbourhood to find out if other neighbourhoods can complement our assets	Understandability /Informativeness	TET/SPOD Features	Data formats and Data integration tools should be considered as important factors in the design of platforms to support cross-platform data integration capability
Dublin	Social and Collaborative Needs	Consumer/Enabler	View all services on a map on the portal to connect with businesses through email so as to connect directly with professionals services available locally; to know what is going parallel with our neighbourhood so as to make connections	Accessibility	TET/SPOD Features	Provide links to organisation and services providers from within the platforms infrastructure
Dublin	Social and Collaborative Needs	Consumer	Platform that support interactive and communication tools so that I can upload pictures of subject of discussions, graphics, & at the same time support comments and sharing	Understandability /Informativeness	TET/SPOD Features	Provide SPOD features on platforms
Dublin	Social and Collaborative Needs	Supplier/Mediator	Means of feedback on the discussions going on the platforms so the administrator can 'harvest' citizens' comments & feedbacks as open source data for policy and programme design	Accessibility/Understandability	TET/SPOD Features	Provide means of managing user-generated contents on platforms by PAs as crowd source data
Dublin	Social and Collaborative Needs	Supplier/Consumer	A platform for networking equipped with web 2.0 tools so that citizens and PAs can interact in real time	Understandability /Informativeness	TET/SPOD Features	Integrate web 2.0 and SPOD features in platform designs
Dublin	Social and Collaborative Needs	Consumer	To find ways to reach out to socially isolated older citizens - set up a companionship scheme	Informativeness	SPOD Features	
Dublin	Social and Collaborative Needs	Consumer	A system where both PAs and local citizens can see shared conversations - to engage and learn	Informativeness	SPOD Features	Integrate web 2.0 and SPOD features in platform designs
Dublin	Social and Collaborative Needs	Supplier/Mediator	Request screening procedure to avoid overloading requests	NA	Guide Features	Provide portal moderation features
Dublin	Social and Collaborative Needs	Supplier/Mediator	Request to follow a set format e.g. for flood - send a photo to more efficiently evaluate and prioritise needs	Understandability /Usability	All Features	PAs to prescribe formats for data upload by citizens as backup information for requesting govt. action. The format to better support or evaluate and prioritise need requirement

Dublin	Information needs	Consumer	information on my local representatives PAs so that I can report back to local govt. on evolving needs of the community, e.g. access to internet for the elderly community, local volunteering	Informativeness	SPOD Features	Platform design to consider integration of tools for requesting attention for the need of the community
Dublin	Information needs	Consumer	Information on my local services so that I can identify gaps in services provision and highlight areas of improvement; information about opening times for parks and libraries to encourage community engagement, organise community events/initiatives	Accessibility/Usability	TET/SPOD Features	Provide means and facilities for corporate registration of their names and services on platforms and portals
Dublin	Information needs	Consumer	Means of organising, promoting plus managing a project or community group activity so that I can easily follow the protocols of handling money, & resources and objectives	All	All Features	??
Dublin	Information needs	Consumer	Existing schedules for PA workers or schedules for jobs to be done so that I understand constraints to get access and then know when thing are to be done	Auditability/Informativeness	SPOD Features	Platform managers & App developers to provide a space/field on platforms for viewing on-going community projects schedules, and PAs to provide data on current contracts and projects
Dublin	Information needs	Consumer	local news, planning applications, events in neighbourhood e.g. road works, environmental projects, information on grants, a local Facebook administered by local authority - twitter & community & business community for opening + closing times of shops, pharmacies etc. Information on other community residents committees/security & policing issues, street sweeping, fixing potholes road works - so I can be an engaged citizens, for participation and civic consultation/volunteer my services or knowledge to benefit my neighbours, so that I can have a sense of ownership of my community so I don't always have to depend on statutory agencies	All	All Features	Integrate web 2.0 and SPOD features in platform designs
Dublin	Information needs	Consumer	Social indicators - health stats, employment stats, crime levels & type, school quality, number & availability; events happening in the area - entertainment, sporting, charity; planning & infrastructure - buildings, transport, water/energy, road quality, traffic congestion; news feeds - economic info, companies, rates & taxes. All these so that I can know what activities, social group to focus on rather than guessing, build a group of informed citizens.	All	All Features	community newsletter plus usual features of Web 2.0 tools to support the listed services and activities
Dublin	Information needs	Consumer	information on contracts, activities + past projects of some innovation organisation in my area to learn from past mistakes & leverage learnings & build social networks with relevant local organisations	All	All Features	Publish datasets collected from government contract, govt. activities and past projects

Dublin	Information needs	Consumer	To see an up-to-date list of volunteers in my community with skillset & reputation info so that I can rapidly pull together projects in my community and access skills & involve vulnerable communities	Accessibility/Usability	TET/SPOD Features	??
Dublin	Information needs	Mediator/Enabler	Early info on anti-social behaviour, social tension and littering so that I can prepare early intervention	Accessibility/Usability	TET/SPOD Features	Publish relevant datasets in the area of anti-social behaviours on the portals (TET)
Dublin	Information needs	Consumer	Information and resources for using social media and digital marketing to promote a skill-sharing exchange, promote sharing of local news	Accessibility/Usability	TET/SPOD Features	Govt. to provide funding for OD education and skills development (GUIDE)
Dublin	Information needs	Consumer	Names of people in PA whom I can phone to inquire about amenities e.g. roads, social housing, etc.	Accessibility/Usability	TET/SPOD Features	Provide interactive features on platforms to support interaction between citizens and PAs
Dublin	Information needs	Consumer	Spending plans in advance so I can understand spending and lobby for changes	Accessibility/Usability	TET/SPOD Features	Govt. to publish budget data with metadata and provenance records on platforms
Dublin	Information needs	Consumer	information relating to developmental programmes so that I can share with others in the community for awareness and support	Accessibility/Usability	TET/SPOD Features	Govt. to publish contract data with metadata and provenance records on platforms
Dublin	Information needs	Consumer	I want to know about street cleaning schedules so that I can report littering and get clean-up done	Accessibility/Usability	TET/SPOD Features	Govt. to publish street maintenance data published on Open data platforms
Dublin	Information needs	Consumer	Connection with my councillor or someone to find out information on all the vacant spaces in my neighbourhood, information about other people who live in my neighbourhood so that I can connect with those who have similar issues/ideas	Accessibility/Usability	TET/SPOD Features	Govt. to provide data on vacant jobs in the community and App developers to create SPOD supported-forums for people of similar interests to network together
Dublin	Information needs	Consumer	information about free events and community venues/resources so that I can meet people in person	Accessibility/Usability	TET/SPOD Features	PAs to publish data on availability of and free resources in the community
Dublin	Information needs	Consumer	I want to be connected and globally so that I can have a fruitful, vibrant community & learn & contribute to other people's context; A one stop space to enable me get information locally, nationally & globally	Accessibility/Usability	TET/SPOD Features	Developers to integrate SPOD tools on platforms to facilitate global networking and learning platform
Dublin	Information needs	Consumer	Feedback from local authority on how my concerns have been actioned out so I can feel that I've been listened to	Accessibility/Usability	TET/SPOD Features	PAs to publish data on actions and activities they are implementing in the community on open data platforms especially those that are requested for by citizens.
Dublin	Information needs	Consumer	Information about grants and community support to start a local community movement; alerts when new plan or programme of interest is established to have input and bring about change in my community.	Accessibility/Usability	TET/SPOD Features	PAs to publish data on available grants and their categories as well as new government plans and programmes.
Dublin	Information needs	Consumer	How to collaborate in defining and influencing the events taking place in community so we can contribute our suggestions and comments about the what we want	Accessibility/Usability	TET/SPOD Features	Developers to provide SPOD tools on platforms for citizens networking, commenting and suggestions on issues that concern their life in the community

Dublin	Information needs	Consumer	Information on local services - all listed and visualised on one map to better understand the availability of services in my area; information on social & cultural activities, restaurants, shops, etc. to better understand what is happening in my area	Accessibility/Usability	TET/SPOD Features	Developers to provide applications to create indicators, visualise, compare data items and create reports on availability of local services, and display on map. Govt. and other entities to supply such datasets as job vacancies, cultural activities and facts, shops and restaurants
Dublin	Information needs	Consumer	A means of communication that is efficient, cost-effective & wide-spread to reach all members so I can reach everyone in the community and get their feedback in a fast and cost effective & efficient manner	Accessibility/Usability	TET/SPOD Features	Developers to integrate SPOD tools on platforms to facilitate community & global networking as a learning platform
Dublin	Information needs	Consumer	Information about what is planned in my area so that I can support or object or galvanise popular support or opposition	Accessibility/Usability	TET/SPOD Features	Platform managers & App developers to provide a space/field on platforms for viewing on-going community projects schedules, and PAs to provide data on current contracts and projects
Dublin	Information needs	Supplier/Enabler	Voice of the citizens so I can hear their comments, grievances and criticisms of PA's activities	Accessibility/Usability	TET/SPOD Features	Developers to integrate SPOD tools on platforms to facilitate community & global networking as a learning platform
Dublin	Information needs	Consumer	Real time info on when football pitches are close to prevent getting there before knowing pitch is closed	Accessibility	SPOD Features	Developers to integrate SPOD tools on platforms to facilitate community & global networking as a learning platform
Dublin	Data Understandability & usability & Decision-making needs	Supplier/Consumer	A tool to discuss an issue & add data elements to complement discussion - maps, a simplified visualisation - for data driven decision-making	Usability	TET/SPOD Features	Developers to integrate SPOD tools on platforms to facilitate community & global networking as a learning platform
Dublin	Data Understandability & usability & Decision-making needs	Consumer	ICT-enabled infrastructure to create a network of people in my community through the ICT infrastructure to enhance collaboration and discussion on the platform	Accessibility/Usability	TET/SPOD Features	Developers to integrate SPOD tools on platforms to facilitate community & global networking as a learning platform
Dublin	Data Understandability & usability & Decision-making needs	Consumer	To introduce PA tools on the platform of network of community people so as to make feedback and comments on the issues in the community available to the administrators for inclusion in policy-making	Accessibility/Usability	TET/SPOD Features	Developers to provide tools for crowd-sourcing of user-generated contents for policy-making by PAs
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Information system of data distribution that upholds protection of personal information so we can be free to voice our grievances, given opinions, criticize PA activities without problems	Accessibility/Usability	TET/SPOD Features	Govt. to provide policies that uphold data protection and personal security laws on platform usage
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Visualised maps, layer, merge, filter; information in small parcel so as to find information of interest to me and to explain it to others	Understandability/Usability	TET/SPOD Features	Platform and App developers to integrate TET tools that support customisation and personalisation of user interests, modelling, simulations, animations, interactive visualisation, predictive analytics on dashboards to enable better understanding of the meaning of dataset by users
Dublin	Data Understandability & usability & Decision-making needs	Mediator/Consumer	Searchability/filter, personalisation & customisation tools	Accessibility	SPOD/GUIDE Features	Data providers to supply plenty of metadata, descriptors, data quality are relevant features to be provided in addition to filtering, personalisation of search, cataloguing tools to be provided by developers

Dublin	Data Understandability & usability & Decision-making needs	Supplier	Maps & data forms to gather public opinions on local area plan so as to promote public consultation for better plan	All	All Features	Developers to integrate survey and SPOD tools on platform for gathering data on issues going on in the community
Dublin	Data Understandability & usability & Decision-making needs	Mediator/Consumer	Tools that permit interlinking with other platforms to have access to other portals of similar interest for use with the data in my portal	All	All Features	Developers and platform designers to integrate tools that support interoperability of portals or platforms
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Pull in social media profile or remain anonymous	NA	SPOD Features	Provide options for registration on ODPs
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Guide, advice & Examples provided so as to understand and use data in an efficient manner	Understandability /Usability	TET/GUID E Features	Govt. and OD experts to improve promotion strategy, storytelling on open data use cases, successes. General concept aware and, education and training funding programmes funded by govt.
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Data format that is aligned with open data standard in order to have the data that follow the 5-star open data format to allow OD linking (Linked Data)	All	TET/GUID E Features	Govt. in collaboration with industry experts to provide standards and policies to be followed by all in the practice of OD
Dublin	Data Understandability & usability & Decision-making needs	Consumer	To be able to ask questions so that I can find the answers to suit my particular question	Understandability /Informativeness	SPOD/GUID E Features	Data providers should provide dedicated officers to respond to data queries
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Map tool to be able to upload information about local service via a map icon e.g. shower in this pool needs repair	Usability	SPOD/GUID E Features	Developers to provide tools for reporting community issues to PAs in real time with embedded map of the community to pinpoint affected areas or spot
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Tool to make my searches private not public so I can have a sense of safety	NA	SPOD/GUID E Features	Developers to provide tools for personalisation searches and options for making activities on platforms private activities or public
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Tool to compare with other neighbourhoods/ cities, be able to flag issues, pin suggestions - to see how my community is doing compared with others and be able to have input	Informativeness	SPOD/GUID E Features	Developers to provide applications to create indicators, visualise, compare data items and create reports on availability of local services, display on map. Govt. and other entities to supply such datasets as job vacancies, cultural activities and facts, shops and restaurants
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Picture and symbols to engage with and improve usability	Understandability /Informativeness	SPOD/GUID E Features	Developers to provide tools on platforms to support multi-media files
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Express my preferences - vote, comment, like/dislike, engage - interaction with data	Informativeness/ Usability	All Features	Developers to integrate SPOD tools on platforms to facilitate community & global networking as a learning platform
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Be able to see how one decision affects another to be able to make informed decisions on proposals	Informativeness/ Usability	TET Features	Integrate analysis and visualisation tools including dashboards
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Great visualisation - 3D model, street view, bird eye to interact with public space	Informativeness	TET/SPOD Features	Integrate analysis and visualisation tools including dashboards

Dublin	Data Understandability & usability & Decision-making needs	Supplier	Reporting tools, data mining tools for PAs to be able to mine comments, recommendations on data on the platform for processing into decision-making inputs from citizens	Accessibility/Usability	All Features	Creating data reporting tools on platforms for users to develop reports about the data they interested in using.
Dublin	Data Understandability & usability & Decision-making needs	Consumer	To visualise where local council & central government budget is spent on a map so that I can understand how my tax is improving my local area.	Auditability	All Features	Integrate analysis and visualisation tools including dashboards
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Explore different scenarios + model consequences - play SimCity with my city	Understandability /Informativeness	NA	Integrate analysis and visualisation tools including dashboards
Dublin	Data Understandability & usability & Decision-making needs	NA	Tools for data analysis & visualisation & transparency enhancing tools, interactive graphics so as to enable further processing of the data into easily understandable information summaries supporting transparency, visualised data for quick reading	All	All Features	Integrate apps and tools with functionalities that support data analysis (analytics) & visualisation making data more transparent and user friendly and enforce policies for the supply of standardised datasets with recommended data formats and metadata
Dublin	Social and Collaborative Needs	Supplier/Consumer	Face-to-face meeting to express my ideas in details	Understandability /Informativeness	NA	??
Dublin	Social and Collaborative Needs	Consumer	Online hub so that I can easily at any time express my ideas; video demo to understand what can do as a starting point	Informativeness	SPOD Features	Integrate SPOD features on platforms to support user communication and discussion on data and other issues
Dublin	Social and Collaborative Needs	Consumer	More/better data formats so I can use the data for my needs.	Accessibility/Usability	TET Features	Data suppliers to supply metadata and provenance records along with the data as a matter of standard policy
Dublin	Social and Collaborative Needs	Supplier/Consumer	For my inputs to be shared so that I can get the added value to the data from the interaction	Accessibility/Informativeness	SPOD Features	Networking tools for users discussions and content generation on platforms
Dublin	Social and Collaborative Needs	Consumer	As a young citizen, I want to interact on social media so that I can stick to my known tools	Informativeness	SPOD Features	Provide personalisation tools
Dublin	Social and Collaborative Needs	Consumer	Transcripts of videos	Accessibility/Informativeness	TET/SPOD Features	Data collectors and publishers to provide transcripts of video interviews or other information types along with the videos on the portals
Dublin	Social and Collaborative Needs	Consumer	As a young citizen, I want anonymity or limited liability (snap chat) so that I can feel safe when expressing my opinions	NA	SPOD Features	Govt. to provide policies for citizens protection, Right to Information Acts (RIA), or Freedom of Information Acts (FOIA)
Dublin	Social and Collaborative Needs	Supplier	Verified accounts so that I know whom I am talking to and how to reach that person	NA	SPOD Features	
Dublin	Social and Collaborative Needs	All Stakeholders	Fast feedback solutions - chat, forum, walls so that I can get answers quickly	Informativeness	SPOD Features	Provide communication facilities/tools on platforms and portals
Dublin	Social and Collaborative Needs	Supplier	As a special (disabled) citizen, I want multi-channel platform support so I can participate	All	All Features	Platform providers and apps developers to provide tools adapted for the support of special users of platforms to be able to access data and other features of the platforms
Dublin	Social and Collaborative Needs	All Stakeholders	Explicit communication so I know whom I am talking to; expert facilitation for better quality discussions; rich with feedback from politicians so I can see the impact	Understandability /Informativeness	SPOD Features	Govt. to provide for recruiting platform/OD experts to offer help to data consumers and ordinary citizens in their attempts to engage platforms or when looking for help

Dublin	Social and Collaborative Needs	Consumer	Real-time feedback so I can ask questions when I meet a problem	Understandability /Informativeness	SPOD Features	Govt. to provide for recruiting platform/OD experts to offer help to data consumers and ordinary citizens in their attempts to engage platforms or when looking for help
Dublin	Social and Collaborative Needs	Consumer	As a young citizen, I want real-time visualisation so I can see the results of my engagement	Understandability /Informativeness	SPOD Features	Platform providers and apps developers to provide interactive data visualisation tools for users of platforms to be able to view how various scenarios play out on datasets
Dublin	Social and Collaborative Needs	Supplier	Continuous discussion to ensure feedback both ways; group specific communication to facilitate communication	Understandability /Informativeness	SPOD Features	Provide communication facilities/tools on platforms and portals and for user content generation and gathering as crowd-sourced data for feedback purposes
Dublin	Social and Collaborative Needs	Supplier/Consumer	Personal discussions offline with updates online afterwards to trace progress	Understandability /Informativeness	SPOD Features	??
Dublin	Social and Collaborative Needs	Enabler	Group-specific reward system to maintain interest	NA	SPOD Features	Govt. to introduce reward mechanisms into the use of platform resources especially for those involving the discussion of relating to making sense out of government datasets, citizens-PAs decision-making sessions and co-creation of services
Dublin	Social and Collaborative Needs	Mediator	A community platform to crowd-source data, to crowd-maintain, curate data, tagging so as to discover new datasets?	NA	SPOD Features	Developers to integrate SPOD tools to support networking functionalities and crowd-sourcing of user-generated contents
Dublin	Social and Collaborative Needs	All Stakeholders	Forum & blog & calendar to get feedback + talk directly to users, to get or give updates + schedules about data and projects	Understandability /Informativeness	SPOD Features	Developers to integrate SPOD tools to support networking functionalities and crowd-sourcing of user-generated contents
Dublin	Social and Collaborative Needs	Consumer	Want to share interesting datasets on Facebook or Twitter, be able to comment on datasets - share datasets with my friends and give a specific feedback on the datasets	Accessibility/Informativeness	SPOD Features	Developers to integrate SPOD tools to support networking functionalities and crowd-sourcing of user-generated contents
Dublin	Social and Collaborative Needs	Supplier	Ability to share datasets on social media to raise awareness and get feedback	Usability	TET/SPOD Features	Developers to integrate SPOD tools to support networking functionalities and crowd-sourcing of user-generated contents
Dublin	Social and Collaborative Needs	Mediator/Enabler	Moderate comments - be able to remove offensive comments	Auditability/Usability	SPOD Features	Platform providers and Apps Developers to design the platform systems so that discussions on the platform can be moderated
Dublin	Social and Collaborative Needs	Consumer	Be able to submit data, tag data, visualise data and be able to organise data so as to enhance the data, make it easier to find by users, to better understand & consume data and to meet other citizens in relation to local community issues	All	All Features	Govt. and data publishers to enforce consistency in approved formats of datasets, metadata and provenance records supplied with published datasets
Dublin	Information needs	Consumer	Discussion forums to facilitate conversation between citizens and PAs	Informativeness	SPOD Features	Integrate SPOD features on platforms to support user communication and discussion on data and other issues between citizens and PAs
Dublin	Information needs	Consumer	Provide opinions & feedback so that my needs are considered in decision-making process	Informativeness	SPOD Features	Integrate SPOD features on platforms to support user communication and discussion on data and other issues between citizens and PAs
Dublin	Information needs	Consumer	Be able to view information/data that is specific to where I live	Informativeness	SPOD Features	Provide data cataloguing the enable searching and filtering of result with personalisation for local contents on platforms

Dublin	Information needs	Consumer	Datasets on ambulance call out times & emergency services so that I can decide whether or not to push for better emergency services in my area	Accessibility/Usability	SPOD Features	PAs to provide data on health issues on the local community on platforms
Dublin	Information needs	Consumer	Datasets on free facilities that I can use so that I can socialise with my friends for free	Accessibility	SPOD Features	Integrate SPOD for the support of various interest groups as different for a on platform
Dublin	Information needs	Consumer	Datasets on demographics so that I can better understand the type of citizens I need to interact with	Accessibility	SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Supplier	Economic data to evaluate business potentials in a particular area	Accessibility/Understandability	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Consumer	Data on planning and planning decisions and disabled people facilities so that I may know why planning decisions are made, ensure that my needs as a disabled citizens/user are being considered for better quality of life	Accessibility/Understandability	SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Consumer	As a young citizen, I want data on education, courses & employment so that I may know when to start my future education and where there are jobs	Accessibility/Understandability	SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Supplier/Enabler	Information on (or a list of) existing groups and their common communication platforms so that I can't start engagement & discussions about their needs	Accessibility/Understandability	SPOD Features	Integrate SPOD for the support of various interest groups as different forums on platforms
Dublin	Information needs	All Stakeholders	Information on the specific mode of communication of existing groups so that I communicate with groups that might not want to be engaged in formal conversation	Accessibility/Usability	SPOD Features	Integrate SPOD for the support of various interest groups as different forums on platforms
Dublin	Information needs	Consumer	efficient quick feedback (feedback information) so that I can see the information provided has been implemented	Accessibility/Usability	SPOD Features	Provide interactive features on platforms to support interaction between citizens and PAs
Dublin	Information needs	Consumer	Understandable information on issues/projects under negotiation to increase my participation; easily accessible information with regular updates in order to stay interested	Accessibility/Understandability	SPOD Features	Platform managers & App developers to provide a space/field on platforms for viewing on-going community projects schedules, and PAs to provide data on current contracts and projects
Dublin	Information needs	Supplier	Data about community developments on a platform so that I can contact and engage with PAs on the data	Accessibility/Understandability	SPOD Features	Platform managers & App developers to provide a space/field on platforms for viewing on-going community projects schedules, and PAs to provide data on current contracts and projects
Dublin	Information needs	Consumer	A list of the activities or plans for Dublin so that I can be involved and provide feedback	Accessibility/Usability	SPOD Features	Platform managers & App developers to provide a space/field on platforms for viewing on-going community projects schedules, and PAs to provide data on current contracts and projects

Dublin	Information needs	Consumer	As a disabled citizen, I want maps for disabled parking locations so that I can find them and park easily whenever I am doing shopping, list of special transport companies (for disabled people) with contacts so that I can plan my trips independently	Accessibility/Usability	SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Consumer	consistent and reliable business information so I can use it for business purposes	Accessibility/Usability	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Consumer	As a young citizens I want data related to my life so I can interact with the society and learn; I want feedback to my interaction with PA so as to feel valued, listened to and able to change things	Accessibility	SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Supplier	Information about citizens' needs so that valuable services can be provided	All	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Consumer	As member of the minority group, I want relevant information to able to evaluate decisions in order to ensure fairness and honesty in political & social processes and decisions and also have my voice heard	All	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Mediator	As a research I want relevant data e.g. about energy consumption so that I can do research about them e.g. compare with the standard consumption rates	All	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Mediator	As a developer, I need relevant data e.g. parking data so I can build apps for helping people looking parking spaces	All	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Consumer	I want information on schools, music classes so that I can choose for my kids the schools and extra activities they should attend	All	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Mediator/Consumer	Statistics for local areas and complete data model to make informed decisions	All	TET/SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Information needs	Consumer	Videos of discussion of issues affecting me so I can hear all the views expressed and not just the decisions	Accessibility/Understanding	SPOD Features	??
Dublin	Information needs	Supplier/Enabler	Journey time data, pedestrian accidents and crime data so as to identify key trends in traffic and provide amenities improvement and better allocate budgets for lighting schemes and policing resources	All	All Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Data Understandability & usability & Decision-making needs	Mediator/Consumer	Models of various outcomes based on my choices in order to make an informed decision and to better how my community system works	Understandability/Usability	TET/GUIDE Features	Integrate apps and tools with functionalities that support data analysis (analytics) & visualisation making data more transparent and user friendly and enforce policies for the

						supply of standardised datasets with recommended data formats and metadata
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Tools to be able to examine the rationale and data supporting a policy so that I challenge the data, add other data & rule, add other policy/plan options with data, open to comments and dialogues	All	TET/GUID E Features	Integrate apps and tools with functionalities that support data analysis (analytics) & visualisation making data more transparent and user friendly and enforce policies for the supply of standardised datasets with recommended data formats and metadata
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Case studies & contact with the case studies to learn how I can use the data for better impact, connect with the case study owner for support and advice, to inspire	Accessibility/Understandability	SPOD Features	Data providers to supply plenty of metadata, descriptors, data quality are relevant features to be provided in addition to filtering, personalisation of search, cataloguing tools to be provided by developers
Dublin	Data Understandability & usability & Decision-making needs	Consumer	(for citizens and Developers) APIs for smart phones, visualisation so that I can see the data in a nice interface and picture is better than word description, to easily consume data	Accessibility/Understandability	SPOD Features	Integrate apps and tools with functionalities that support data analysis (analytics) & visualisation making data more transparent and user friendly and enforce policies for the supply of standardised datasets with recommended data formats and metadata and simple interface
Dublin	Data Understandability & usability & Decision-making needs	Mediator/Consumer	Metadata to understand data and make it searchable	Accessibility/Understandability	TET Features	Data providers to supply plenty of metadata, descriptors, data quality are relevant features to be provided in addition to filtering, personalisation of search, cataloguing tools to be provided by developers
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Videos, demos and YouTube videos as a starting point	Accessibility/Understandability	SPOD Features	Developers to provide tools on platforms to support multimedia files
Dublin	Data Understandability & usability & Decision-making needs	All Stakeholders	Maps for all GIS-related data, zoomable maps for finance, fund, distribution data to see how funding looks like; provenance data attached to dataset, charts for trends on financial data, infographics for multidimensional datasets (complex), timeline view for historical data and animation all important so I can understand how dataset was created and what is the granularity	Accessibility/Informativeness	SPOD Features	Platform managers and App developers to integrate TET tools that support map-based searches and queries
Dublin	Data Understandability & usability & Decision-making needs	Enabler	Executive dashboard to see datasets stats such as categories and numbers, downloads	Understandability	SPOD Features	Integrate apps and tools with functionalities that support data analysis (analytics) & visualisation making data more transparent and user friendly and enforce policies for the supply of standardised datasets with recommended data formats and metadata and simple interface
Dublin	Data Understandability & usability & Decision-making needs	Consumer	search data and metadata to be able to find interesting data; Interface that support question answering so I can interact with data; favourite tools to save my settings	Accessibility/Informativeness	SPOD Features	Data providers to supply plenty of metadata, descriptors, data quality are relevant features to be provided in addition to filtering, personalisation of search, cataloguing tools to be provided by developers

Dublin	Data Understandability & usability & Decision-making needs	Mediator	As an developer, I need data merging and wrangling tools to build apps	Accessibility	TET Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Data Understandability & usability & Decision-making needs	Supplier	Tools to post surveys so I can get opinions on specific topics	All	TET/SPOD Features	Developers to integrate survey and SPOD tools on platform for gathering data on issues going on in the community
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Knowledge on what the open data portal is for so I can use it; data maps so I can query spatial data, find data relevant to my areas to make decisions; predictive analytics & trends visualisations so I can make plans, see future possibilities; notifications when datasets are updated so that I can update my output	All	TET/SPOD Features	Govt. and other OD experts to collaborate in the promotion of OD, provision of infrastructure to support the practice of OD, use of platforms integrated with various functionalities
Dublin	Data Understandability & usability & Decision-making needs	Consumer	dashboards, maps and other visuals to understand data better; question and answers to put data into context and understand why it's important; modifiable maps, customisable dashboards to create customised solutions; stories exemplifying decision-making practices to see examples of how data is used, visualised word cloud for most used to understand topical preferences and real-time visualisation for what-if scenarios to try out specific variations	All	TET/SPOD Features	Integrate apps and tools with functionalities that support data analysis (analytics) & visualisation making data more transparent and user friendly and enforce policies for the supply of standardised datasets with recommended data formats and metadata and simple interface
Dublin	Social and Collaborative Needs	Mediator/Consumer	Understand existing market and underlying demographics so I can profile best location	Accessibility/Understandability	SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Social and Collaborative Needs	Consumer	More café/food services in my area so that I can have access to nearest outlet instead of having to go far away looking for café/food centre	NA	SPOD Features	Govt. or govt. agencies to publish all relevant datasets e.g. demographic, economic, health, cultural, crime, education, etc., datasets on platforms
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Tools to see how data has been used to inform decision-making so that I know how decisions are made	Accessibility	SPOD Features	Integrate tools on platforms to enable feedback to citizens by PAs (SPOD)
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Tools to filter national and regional datasets so that I can examine my local areas performances and identify key differences in spending and provision of services	Accessibility	SPOD Features	Search and filter tools with criteria such region, local, etc.
Dublin	Data Understandability & usability & Decision-making needs	Supplier	Layered maps to make decision based on all the available data on the local area; and modelling tools that I can use with citizens so we can collaborate	Accessibility	SPOD Features	Data providers to provide data in layered format and categories to support better searching and presentation
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Feedback platform to engage local PAs; Apps for local community to efficiently access real-time information on local community services	Accessibility	SPOD Features	Integrate tools on platforms to enable feedback to citizens by PAs (SPOD)
Dublin	Data Understandability & usability & Decision-making needs	Consumer	Google map on existing premises for services to identify niche market and issues; surveys & polls on street to connect with potential customers; social media account to build customer network	Accessibility	SPOD Features	Provide tools for visualisation e.g. google map, survey tools etc. along with social media tools support discussions with facts from figure

Dublin	Social and Collaborative Needs	Consumer	Contribute views/ideas to PA in order to receive feedback; share ideas & views among other citizens in order to collaborate	Informativeness	SPOD Features	Integrate SPOD features on platforms to support user communication and discussion on data and other issues between citizens and PAs
Dublin	Social and Collaborative Needs	Consumer	Organise meetups in order to discuss issues	Informativeness	SPOD Features	??
Dublin	Social and Collaborative Needs	Consumer	Share datasets with others in order to get opinion; and feedbacks with PA to promote transparency	Accessibility	SPOD Features	Integrate SPOD features on platforms to support user communication and discussion on data and other issues between citizens and PAs
Dublin	Social and Collaborative Needs	Consumer	Citizen-citizen interaction through blogs & forums to get help from other similar minded people; calendar of events to get people informed involved	Informativeness	SPOD Features	Integrate SPOD features on platforms to support user communication and discussion on data and other issues between citizens and other stakeholders
Dublin	Social and Collaborative Needs	All Stakeholders	Live webcast of meetings where important decisions are made on community issues, where I can leave comments so that I can be engaged	Accessibility/Informativeness	SPOD Features	Platform managers and apps developers to create webcast as a space for citizens to addresses themselves and the PAs
Prato	Uncommon data coding, Lack of standard approaches in data organisation and storage, Lack of a general model for data representation: the same data set is represented differently in different systems	Mediator/Enabler	use open standards for data publishing, adopt publishing standards in a uniform way	Usability	TET Features	Govts. To provide policies standardisation through consultation with industry experts and to enforce uniformity in standards
Prato	Lack of intuitiveness and user friendliness of users interfaces, poor platform efficiency	Consumer	develop multiplatform and multi-device applications, use simple interfaces for data access	Usability	TET/SPOD Features	Platform providers and app developers to provide well designed platforms and open data application that support multiplatform uses and across multiple devices and interfaces
Prato	Accessibility and usability problems	Consumer	develop multiplatform and multi-device applications; adopt publishing standards in a uniform way	Accessibility/Usability	TET/SPOD Features	Govts. To set standards for data formats and metadata supplies. Platform providers and app developers to provide well designed platforms and open data application that support multiplatform uses and across multiple devices and interfaces
Prato	System heterogeneity, Lack of data comparison: there are no specific tools on OD platforms to easily compare datasets, inadequate visualization tools	Consumer	use open standards for data publishing	Usability	TET Features	Enforce open and uniform pre-agreed standards for data presentation and publishing to eradicate heterogeneity in data publishing
Prato	Bottleneck on Network infrastructures	Consumer	use simple interfaces for data access, use open standards for data publishing, adopt publishing standards in a uniform way	All	All Features	Platform designers and app developers to consider interoperability and compatibility in infrastructure designs and making simple user-friendly interfaces a priority
Prato	Lack of multilingual approach that reduces open data use by immigrants	Consumer	develop multiplatform and multi-device applications	All	All Features	App developers to consider design of apps for multi-lingua use

Prato	Limited successful techniques for application building: access to data available only through a graphic interface making building applications impossible or limited	Mediator/Enabler	To create interdisciplinary groups to increase data usability	Usability	TET Features	??
Prato	Shortage of documentation	Consumer	To include an explanatory form for each dataset, To manage the versioning of published data , To define effective metadata systems	Understandability	Guide Features	Govt. to provide a policy (as a part of industry regulation mechanism) that requires data suppliers and publishers to supply the metadata, descriptions and provenance records as well as versioning and frequency of updates in standardised manner for every datasets published on platforms
Prato	Lack of data maintenance, Lack of data completeness and correctness	Consumer	To publish dynamic and updated data, To manage the versioning of published data, To publish dynamic and updated data	Understandability /Usability	TET/SPOD Features	Govt. to provide a policy (as a part of industry regulation mechanism) that requires data suppliers and publishers to supply the metadata, descriptions and provenance records as well as versioning, traceability and frequency of updates in standardised manner for every datasets published on platforms
Prato	Lack of dataset identification and traceability	Consumer	To define effective metadata systems, To create standard groups for traceability, To include an explanatory form for each dataset, To manage the versioning of published data	All	All Features	Govt. to provide a policy (as a part of industry regulation mechanism) that requires data suppliers and publishers to supply the metadata, descriptions and provenance records as well as versioning, traceability and frequency of updates in standardised manner for every datasets published on platforms
Prato	Lack of data aggregation by relevance to user need on publishing	Consumer	To create standard groups for traceability, To manage the versioning of published data	Auditability/Understandability	All Features	Public orgs to maintain dedicated OD officers to manage data collection and organisation with proper versioning and update policy
Prato	Little attention to user generated data	Consumer	To define effective metadata systems [for the user-generated content] , To create standard groups for traceability [for the user-generated content]	Auditability/Understandability	SPOD Features	provide communication and interactive tools on platforms and mechanism for capturing user-generated contents
Prato	Information needs	Consumer	To search Open data using tags as keywords so I can find/look for data even if I don't know specific keywords that describe them	Accessibility/Understandability	TET Features	Platform providers and App developers to consider design of platform infrastructure and apps to support various forms of data searching possibilities using keywords, filters and personalisation of searches and saving of searching criteria
Prato	Information needs	Consumer	To get information about Open Dataset traceability so I can understand where the Dataset is coming from	Auditability/Informativeness	TET/SPOD Features	Public orgs to maintain dedicated OD officers to manage data collection and organisation with proper versioning and update policy
Prato	Information needs	Consumer	To demand new datasets from the public administrator via public request so that I can access interesting data and be able to see how long it takes to obtain the new data set	Accessibility	SPOD Features	App developers to consider design of apps to support data request by users from data suppliers
Prato	Information needs	All Stakeholders	Suggest new Open Data formats so that we can better understand and interpret data	Informativeness	SPOD Features	???? Stick to approved standardised data formats for consistency

Prato	Information needs	Consumer	To have normalized balance data concerning schools so that I might understand which school invests more in technical equipment	Accessibility	SPOD Features	Standardise presentation of datasets so that a particular data type may be presented in a particular format across all platforms for uniformity
Prato	Information needs	All Stakeholders	Browse municipality balance data so that I we can launch a flame on social networks by sharing a target dataset; easily access single balance items so that we can better understand expenditures; be able to visualize all deliberations or decision documents concerning every balance data item so that we can better understand who approved any expenditure and why	All	All Features	Govt. and data publishers to enforce consistency in approved formats of datasets, metadata and provenance records supplied with published datasets
Prato	Information needs	Consumer	As a software developer, I want to access Open Data in machine readable format so I can develop SW applications	Accessibility/Usability	TET Features	Govt. and data publishers to enforce consistency in approved formats of datasets, metadata and provenance records supplied with published datasets
Prato	Information needs	Mediator/Consumer	To be able to access Open Datasets as granular as possible so I can use data for wider purposes	All	TET Features	Platform providers and apps developers to provide as many and varied APIs as possible for all data services possible.
Prato	Information needs	Consumer	Every Dataset to be associated with multimedia explanatory contents so that I can increased understandability of data and help discussion; to have all Open Datasets organized and aggregated by themes so that I can see data aggregated by sector of interest	Informativeness	SPOD Features	Data collectors and publishers to provide explanatory notes and provenance records for all datasets published on Open Data portals
Prato	Information needs	Consumer	To access open data related to procurement contracts signed by the local authority so I can evaluate business opportunities or identify market distortions	Accessibility	TET Features	Govt. to publish as open data all data related to procurement contracts
Prato	Social and Collaborative Needs	Consumer	To share graphics and visual reports obtained via SPOD/TET on Social Network so that I can enrich the discussion on Open dataset; to have a moderator over the discussion so that we can avoid trolls; to use wiki functionality associated to each discussion so that we can easily produce a summary of each discussion	All	All Features	PAs to initiate discussions on reports on social media networks to enable citizens contribute to the discussions with moderators to moderate the discussions
Prato	Social and Collaborative Needs	Consumer	Annotate Open Dataset on SPOD so that I can leave track of my comment on the published Open Data	Auditability	TET/SPOD Features	Developers to provide tools that enable data annotation on platform possible for better sharing and discussions on dataset during networking
Prato	Social and Collaborative Needs	Enabler	To be able to moderate the discussion around Open Data with the possibility to comment the reason for possible deleting of a post so that there can be control for constructive posts	Auditability	TET/SPOD Features	Platform providers and Apps Developers to design the platform systems so that discussions on the platform can be moderated
Prato	Social and Collaborative Needs	Consumer	Each Dataset be assigned to a “facilitator” [supplier] so that I can have a stable reference for explanations; to have a chat with the facilitator associated with each dataset so I can engage in dialog for information and data requests	Auditability/Understandability	TET/SPOD Features	Govt. and data collectors to provide a dedicated Open Data contact person for explanations regarding the dataset published

Prato	Social and Collaborative Needs	Supplier	To start a discussion on SPOD with stakeholders so I can collect suggestions and priorities about possible policies; to rank suggestions from participants to the discussion so I can focus more on effective policies [popular suggestion]	Accessibility/Usability	TET/SPOD Features	Platform designers and app developers to provide social media and networking facilities on portals so that stakeholder can provide suggestions as well as view others' suggestions
Prato	Social and Collaborative Needs	Consumer	To be able to visualize dataset inside the discussion forum so that I can quickly indicate or give data reference during discussion and comments; to have SPOD auto suggest interesting Datasets based on semantic analysis of post text so that I can have a richer and more interesting discussions	All	All Features	Software developers to provide data visualisation applications for quick referencing during interactive discussion on Dataset on platforms
Prato	Social and Collaborative Needs	Mediator/Consumer	To annotate a GIS layer associated with a Dataset so that I can facilitate analysis of Geographic datasets; attach/annotate data sets with multi-media contents so that I can provide feedback and comments on implemented policies; to be able to easily share graphs and reports obtained by TET on social network to make [data] accessible and discuss about data [and] also outside the platform; attach/annotate a discussion with multi-media contents in order to enrich the discussion	All	All Features	Software developers to provide data annotation facilities for GIS layered data, to share graphs for quick referencing during interactive discussion on Dataset on platforms
Prato	Understandability, Usability and decision-making needs	Mediator/Consumer	To be able to aggregate granular OD via TET based on real time needs so I can build indicators, reports, comparisons on topics of interest; to be alerted on every update on Dataset Publishing so that avoid continuous [unnecessary effort on] data set monitoring	Usability	TET/SPOD Features	Developer to provide applications to create indicators, visualise, compare data items and create reports
Prato	Understandability, Usability and decision-making needs	Consumer	To be able to compare similar Open Data set coming from different Authorities through a normalization of compared data in order to give a correct meaning to the compared data; obtain automatic visualization of raw data when clicking on a related graph/reports so that I can always have info on source data; to be able to demonstrate that a Data set or a report in my possession has been produced by the platform [which] certifies that the report come from the specific authority at a given date/time	All	All Features	Developers to provide applications to create indicators, visualise, compare data items and create reports
Prato	Understandability, Usability and decision-making needs	Supplier	To certify a published dataset or report certification that nobody has modified my published data	Auditability/Informativeness	All Features	??
Prato	Understandability, Usability and decision-making needs	All Stakeholders	To be able to aggregate geographic data belonging to different datasets on a new map so I can better compare/aggregate different data source on a specific geographical area	Usability	TET Features	Platform providers and apps Developers to integrate tools for grouping and filtering datasets on portals
Prato	Understandability, Usability and decision-making needs	Consumer	To access SPOD and TET from mobile devices so that I can use the Open Data more easily; to use voice queries to search data sets so that I can use the Open Data more easily	Accessibility	SPOD Features	Apps developers to design apps for use in accessing open data portals on mobile devices on the go

Gronin gen	Govt. - Ownership and Privacy: Privacy, Conflict between privacy and openness, Commercially sensitive, Conflicting roles and interests	Supplier	<p>Culture change within the Govt. is necessary in order to be able to deal with the conflicting roles between government, politicians, management and citizens.</p> <ul style="list-style-type: none"> • Permission needs to be given at a high level of the organization • Anonymize personal data • Be clear which data are open and which are not • Provide one point of contact for open data • Give citizens or organizations a say in what should be made public (give permission) • Make agreements with partners about the availability of data. <p>Provide executives with backing (judicial and/or political)</p>	informativeness	SPOD Features	Govt. to find solutions to how to deal with the differences of interest existing between the various stakeholder groups through consultation workshops (GUIDE features)
Gronin gen	Resources and Management. Data spread over different organizations and departments, Lack of cooperation with third parties, It will cost too much money	Supplier	<p>It is important that there are mechanisms within the organization that can help civil servants.</p> <ul style="list-style-type: none"> • Make a data inventory and explore what the use of the data can be. • Work with pictograms and visual instruments that everyone can "understand" • Make a readable simple clarification and provide the original data, so that users can choose • Data strategy: develop a vision and policy on data • Connect with the new world, wherein technology is pretty important • Both need to get going, Govt. as well as citizens. Respectively: promote and be open 	informativeness	SPOD Features	Govt. to create and fund programmes that helps organisation create position for OD dedicated staff and help them develop data strategy to adopt the practice of OD altogether
Gronin gen	Extra Work: It is not our job It will lead to unnecessary discussions, It will take a lot of effort to convince people to use data, It will take an effort to bring the platform under attention	Supplier	<p>Govt. should incorporate open data into their regular work process.</p> <ul style="list-style-type: none"> • Consider information as production factor. <p>Openness of information is the added value of public administration</p> <ul style="list-style-type: none"> • If you do it right, you profit the most from correct information yourself • User feedback is just quality improvement of the data • Viral campaign to generate publicity, challenge hackers to use data • Organize a group of ambassadors around a data platform (co-creative process) • Training "the additional value of open data" 	informativeness	SPOD Features	Govt. to fund the recruitment of dedicated open data officer in public organisations to help design and maintain open data operations, lecturing of public organisation executives and orientation in the organisations. Also govts. need to sponsor open data interest groups to react publicly and promotion programmes within public institutions and the public at large
Gronin gen	Fear of losing control, avoiding risks, fear of disclosing strategic or financial data, fear of data misuse, fear of loss of govt. reputation,	Supplier	<p>Accepting reality: make transparency a policy priority, Explain what open data is, Start providing information without risks, Communicate more with citizens, More trust: civil servant should cooperate with citizens, understanding, Have more trust in citizens, Willingness to take risks, overcome fear of cold</p>	All	All Features	PAs and the executives of public organisations through consultation with open data experts must learn to except the role of the govt. and how to avoid the shortcomings of open data practices

	refusal to accept the changing role of govt.		water, show good examples, Make a nice project with the use of open data, Stimulate collaboration with users, Let public servants who fit within the new relations take the lead, Do not be afraid of innovation			
Gronin gen	Data accessibility: We can't find it, we don't have it, We don't know where it is, Lack of visibility, Data is published but can't be found, not in user-friendly format, Users lack skills to process data and translate it into information	Consumer	It is important that the data is findable e.g. with Google ads, Communication strategy/campaign, Publish data through consumer-minded publications with a link to the website, Rubricate on website, Define a clear source and date, manuals that make the use of data easier, Access through central location, provide back office contact person, Classify on website, conduct Online workshops, publish 'how to' guides to show the possibilities	Accessibility	TET Features	Data collectors and publishers to provide metadata, explanatory notes and provenance records for all datasets published on Open Data portals in the recommended formats to facilitate discoverability and searchability
Gronin gen	Technical issues: Incomplete datasets, Wrong information, not a usable format, too technical, Preference for complete datasets, Insufficient metadata, how is the data collected? How reliable? Which definitions were used?	Consumer	Campaign is important with a slogan: 'Open data uses', In the campaign, involve intermediaries, • Provide open data with a usability label, • Indicate what the quality of the data is, even if the quality is not that good, • Spread best practices, • Open data is usable for intermediaries, make sure that there is a connection between the societal question and the intermediaries	Accessibility/Informativeness	TET/SPOD Features	Data collectors and publishers to provide metadata, explanatory notes and provenance records for all datasets published on Open Data portals in the recommended formats to facilitate discoverability and searchability
Gronin gen	Use and Value: citizens are not interested in datasets, the quality is unknown, there is no value to it, Unclear how to use the open data, Unclear how relevant the data is, Lack of usability, Reliability of the analysis, Quality of the data, Interpretation of data	Consumer	There should be one central contact for open data to answer citizens' questions. Public information campaign is essential, • Provide clarifications of the data & metadata • Involve users in the development of the platform • Think about the quality assessment of the analysis/interpretation of the data (quality mark) as way to assess the reliability of data • Use communication instruments such as info graphics, "Translating" together with communication experts, The development of an info graphic on behalf of users, Think from the perspective of the users the usefulness of data, Make several access portals to data.	Accessibility/Informativeness	TET/SPOD Features	Govt. to create a policy for the use dedicated open data officer in organisations to answer queries relating to open data; and to provide salaries for open data officers in public organisation and Platform and app developers to consult with data consumers in the design of open data platforms and portals
Gronin gen	Knowledge and Interest: No idea what anyone should do with it, Lack of experience, Lack of trust by govt., citizens lack skills to use open data, deeply entrenched mind-set of citizens that Govt. will take care of them.	Consumer	There should be information about types of data the Govt. possesses, their uses. Provide Best practice guide should. • Gain trust by being transparent and organize a helpdesk • Ask citizens which information they find useful • Ask more questions • Better inform citizens • Put good examples in the limelight (competent citizens) • Teach citizens how they can use data in the right way, Rate citizens at their true positive value, Communicate/explain with citizens, Be clear about the purpose of OD	Understandability /Usability	TET/SPOD Features	Govt. to provide information about the types of datasets it holds the metadata on them and the best practice guides on how to use them. Use cases should be provided on datasets for users to view

Gronin gen	Information needs	Consumer	projection of the amount of students for the coming 10 years, for insight into the possibilities of keeping my elementary school	Accessibility	TET Features	Local govt. to provide demographic data on school students at various levels in various communities and also information on budget for education at various levels
Gronin gen	Information needs	Consumer	Population data to know what the government and city are doing about population decline in education, so as to know how and if I can use that	Accessibility	TET Features	Local govt. to provide demographic data on school students at various levels in various communities and also information on budget for education at various levels
Gronin gen	Information needs	Consumer	Available budget for education and related services are, so that I can know how much I can spend	Accessibility	TET Features	Local govt. to provide demographic data on school students at various levels in various communities and also information on budget for education at various levels
Gronin gen	Information needs	Consumer	education policy, so that I can influence the future quality and position of my school	Accessibility	TET Features	Govt. to provide data on education policy and quality
Gronin gen	Information needs	Consumer	Population and student projection to examine what the future of the school might look like, to investigate if a merger with other schools would be an option	Accessibility	TET Features	Local govt. to provide demographic data on school students at various levels in various communities and also information on budget for education at various levels
Gronin gen	Information needs	Consumer	Migration statistics/trends to be able to estimate to amount of students	Accessibility	TET Features	Dept. of statistic to publish demographic data on migration of citizens
Gronin gen	Information needs	Supplier	Budget information, plan and overview of expenditures of project so that I can continue to be involved, (political) accountability regarding subsidies	Accessibility/Usability	TET Features	Budget dept. to publish budget data in an open data standard formats on platforms
Gronin gen	Information needs	Supplier	Statistical data regarding the village Ulrum [project] to be able to determine what the project effects are.	Accessibility/Usability	TET Features	??
Gronin gen	Social, interactive & collaborative needs	consumer	Reference to sources, personal contact regarding quality improvement, identify players in the field, personal contact to share experiences, cooperate and focus on quality	Informativeness	SPOD Features	provide SPOD tools on platforms
Gronin gen	Social, interactive & collaborative needs	consumer	CBS/NAM/city, province, social services so I can extend the platform; Commerce, province, Department of Economic Affairs, CMO/STAMM business to decide if comfortable to live in; Stories of others, network, neighbourhood to decide if good to live in	Informativeness	SPOD Features	Local govt. to provide data on local affairs, community level data on public amenities, services and business