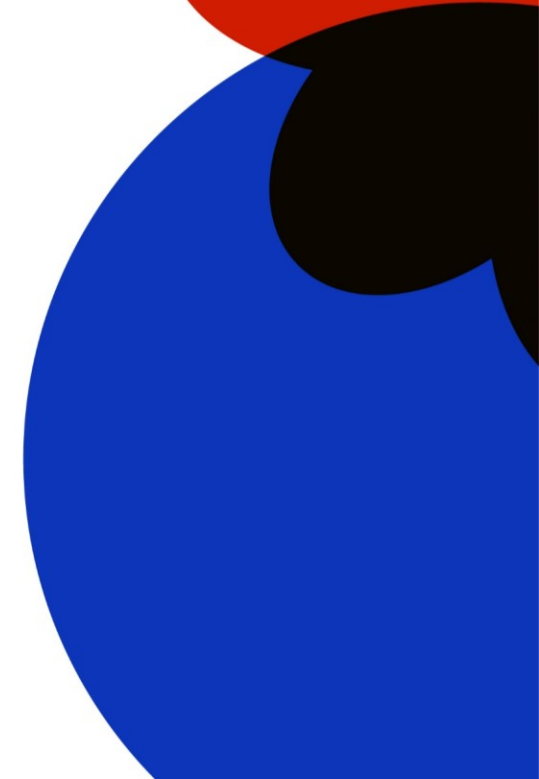
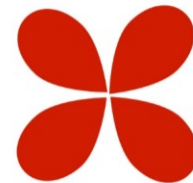
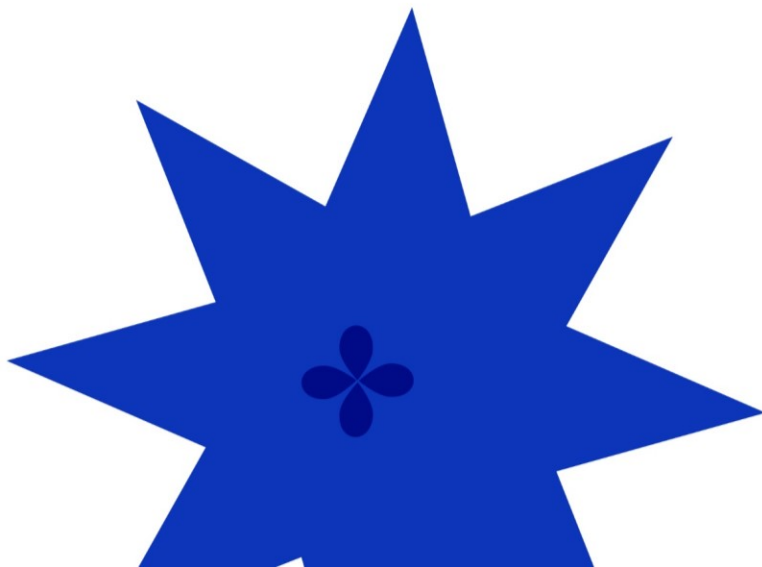
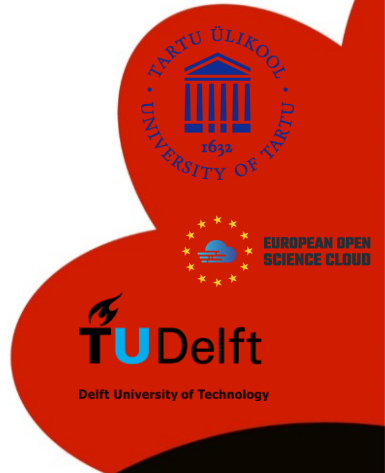


Barriers to Openly Sharing Government Data: Towards an Open Data-adapted Innovation Resistance Theory

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Aim



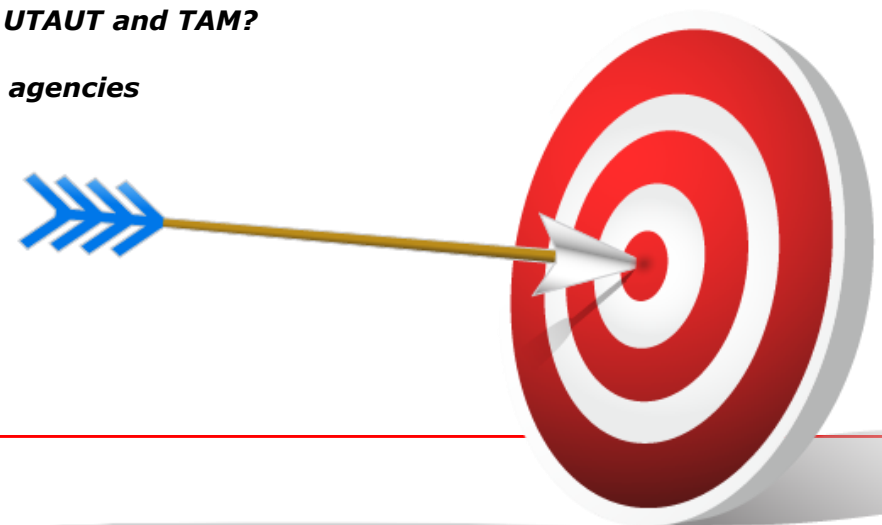
to develop an OGD-adapted IRT model to empirically identify predictors affecting public agencies' resistance to openly sharing government data

This paper – an ongoing research, while in general our Research Questions (RQ) are:

(RQ1) What are functional and behavioural factors that facilitate or hamper opening government data by public organizations?

(RQ2) Does Innovation Resistance Theory provide a new and more complete insight into the barriers of the determinants affecting the resistance of public agencies to openly share government data compared to more traditional UTAUT and TAM?

Additionally: does the COVID-19 pandemic have an [obvious/significant] effect on the public agencies in terms of their readiness or resistance to openly share government data?



Rationale / motivation (1/2)



- ✓ In the past two decades, research on OGD has started to thrive - **many studies on the drivers and inhibitors for the adoption of OGD have been conducted**, both from the data providers' and data users' perspectives.
 - ✓ **From the data user perspective**, the acceptance of OGD by different user types has been investigated using various theoretical models, e.g.:
 - ✓ **Technology Acceptance Model (TAM)** to examine the determinants of OGD use,
 - ✓ **Unified Theory of Acceptance and Use of Technology (UTAUT)** to study the behavioural intention to accept and use OGD in different countries,
 - ✓ **gamification theory** has been applied to examine how playful interfaces can help tailor OGD portals for lay citizens
 - ✓ Several other studies focused on the **perspective of the OGD provider**, i.e., the public organizations, in their resistance to openly sharing government data, e.g., **Technology–Organization–Environment (TOE)** to investigate factors influencing the adoption of OGD among government agencies
 - ✓ Although various studies have applied theoretical models to investigate open data, **most are focused on the reuse of these data by companies and citizens**
-

Rationale / motivation (2/2)



- ✓ **There is a paucity of research applying theoretical models to study the provision of OGD, and more specifically, the resistance of public organizations to make government data publicly available**
- ✓ **Moreover, most studies on OGD barriers were carried out before the COVID-19 pandemic:**
 - **previous research on OGD in relation to COVID-19 suggests that the pandemic affected the mind-set of citizens, researchers, and governments on the role of OGD and the benefits of these data for these stakeholders**
 - **the behavioural patterns of both OGD users and, more importantly, OGD providers may have changed their attitude towards OGD, perhaps moving towards a more open paradigm**
 - **at the same time, several new issues were identified because of a more scrupulous analysis of data being opened by public agencies and their value**



New insights might be gained through an OGD barrier study conducted after the COVID-19 pandemic

Innovation Resistance Theory (IRT) (1/2)



- ✓ Resistance to change is «*any conduct that serves to maintain status quo in the face of pressure to alter the status quo*»

Zaltman and Wallendorf, 1979

- ✓ IRT is a **special version of 'resistance to change'** widely discussed in (social) psychology in behavioural science → **resistance is a normal response of consumers when faced with innovation** suffering from changes that affect the typical process of obtaining information, purchase, use or dispose of new products (proposed by Ram (1987, 1989).

- ✓ The main claim - resistance depends on three sets of factors:

(1) **perceived innovation resistance**, which may be:

(a) consumer dependent,

(b) consumer independent (e.g. trialability, divisibility, communicability, reversibility),

(2) **consumer characteristics**:

(a) psychological variables,

(b) demographics variables,

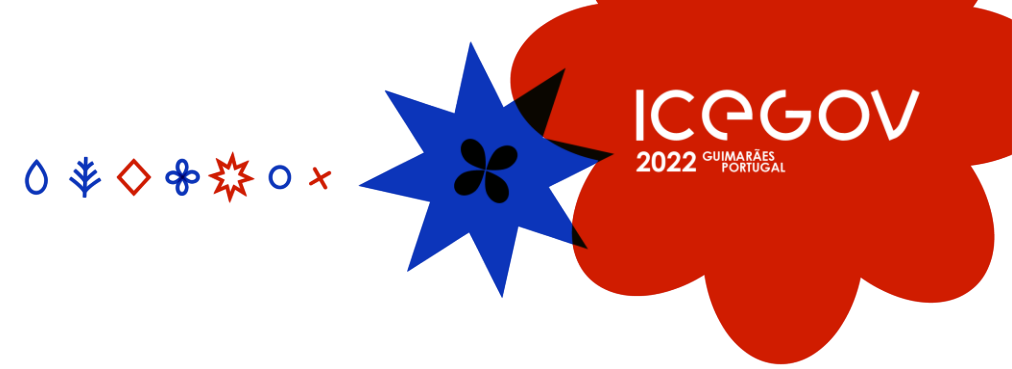
(3) **propagation mechanism** divided into:

(a) type, e.g., marketer controlled vs. non-marketer controlled, personal vs. impersonal,

(b) characteristics described by clarity, credibility, source similarity and informativeness.

Result - one of three – **adoption**, **rejection**, or **modification of innovation** (if it is amendable to changes)

Innovation Resistance Theory (IRT) (2/2)



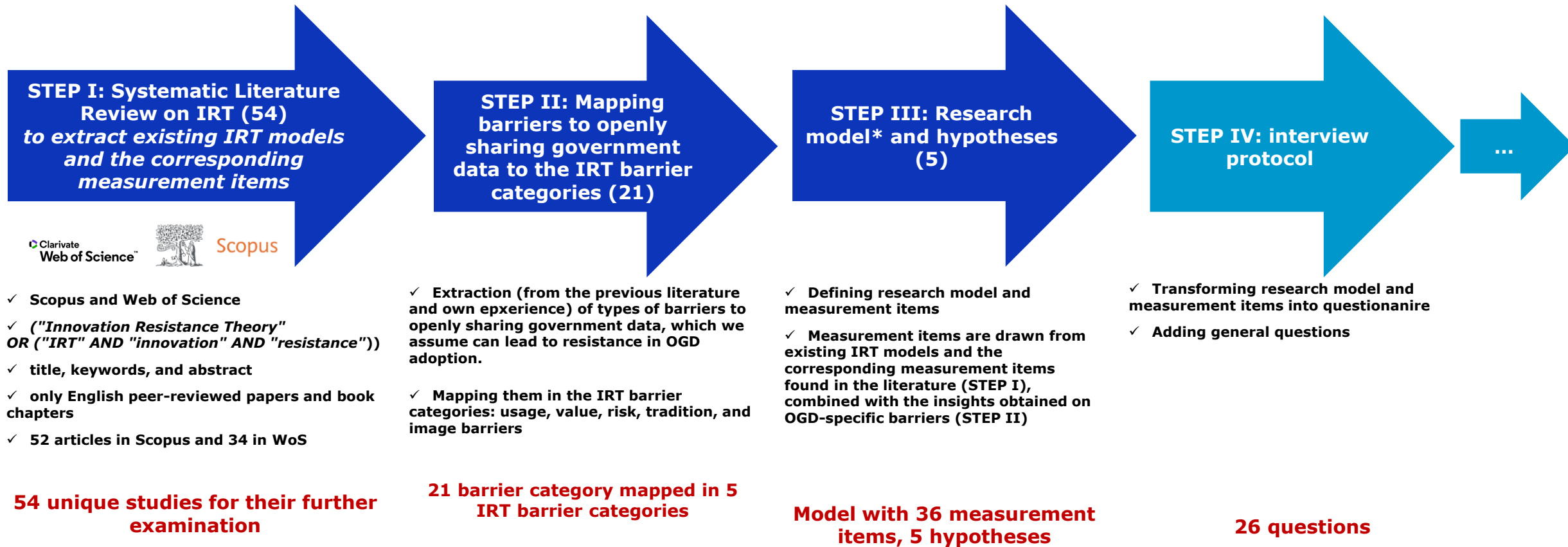
The decision on the adoption is achieved by considering both **functional** and **psychological barriers** (Ram and Sheth, 1989)

Resistance factors	Resistance sub-factors	Definition and source
Functional Barriers	Usage Barrier	<i>The degree to which an innovation is perceived as requiring changes in consumers' routines</i>
	Value Barrier	<i>The degree to which an innovations' value-to-price ratio is perceived in relation to other product substitutes</i>
	Risk Barrier	<i>The degree of uncertainty in regard to financial, functional, and social consequences of using an innovation</i>
Psychological Barriers	Tradition Barrier	<i>The degree to which an innovation forces consumer to accept cultural changes</i>
	Image Barrier	<i>The degree to which an innovation is perceived as having an unfavorable image</i>

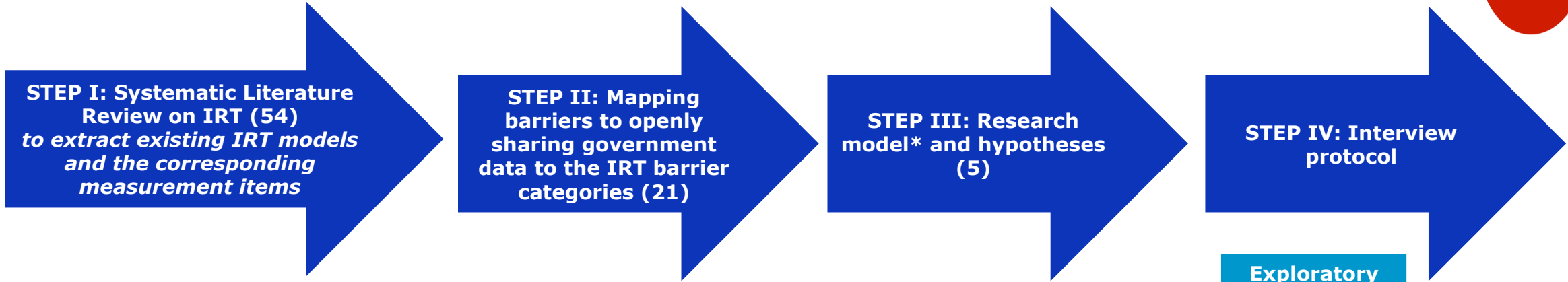
Assumption#1: OGD can be considered as an «innovation» at some extent. It is also an essential source for sustainability-oriented and data-driven innovation by citizens, companies, researchers, and public organisations.

Assumption#2: in the light of the above, and given the specificity of the OGD nature, we assume that not only end-users, but also data publishers can be considered as customers to some extent.

Research design



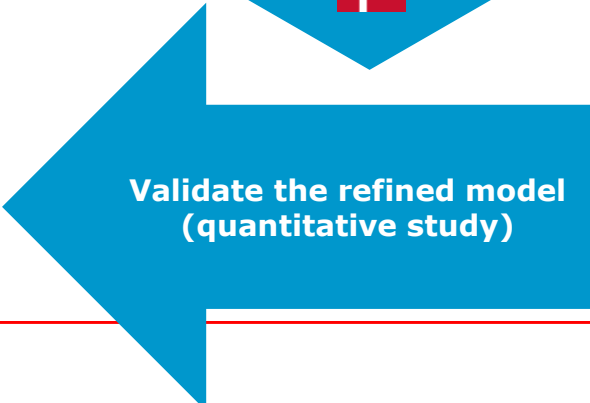
Research design



Exploratory interviews to refine the model (qualitative study)



Predictors affecting public agencies' resistance to openly sharing government data



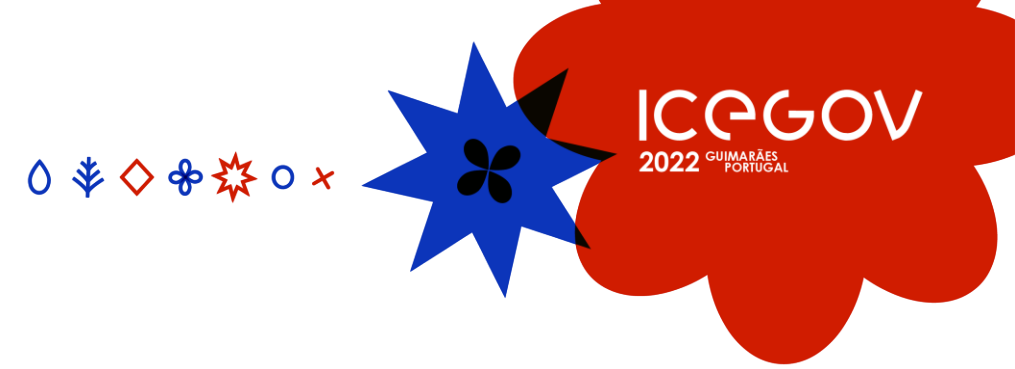
*****Considering the context of this model and the current rise in popularity of the B2G data sharing, in light of which the EC is preparing the Data Act to set the rules and conditions, thereby changing the current voluntary model to a more mandatory data sharing, we believe that the proposed model can become a reference model to analyse predictors affecting resistance to share data in this subdomain.**

Several insights from literature review



- ✓ A vast majority of scholars used the IRT as the basis **for the empirical evaluation of consumer resistance to innovations**
 - ✓ Digital financial services such as mobile payments, mobile banking, and e-commerce, including mobile social commerce, mobile website shopping, online shopping, are the two main research contexts for IRT-applications
 - ✓ There is also a growing focus on food innovations such as organic food, IoT, and the collaborative consumption or sharing economy, and there is **a call for the exploration of innovation resistance in emerging trends, which can be associated with some degree of risk or uncertainty, and innovations that are associated with social and environmental benefits**
 - ✓ Although IRT is rather domain-agnostic, it **allows and even requires adaptations to the concerned topic and its specificities**
 - ✓ In some cases, IRT is also used in combination with other theories such as TAM, UTAUT framework, and Distrust Theory
 - ✓ Most studies adopt a **quantitative approach**
-

Barriers to openly sharing government data that can lead to resistance



Resistance sub-factors	Barriers to openly sharing government data, leading to resistance
Usage barriers	<ul style="list-style-type: none"> OGD often suffer from quality issues Openly sharing government data is a complicated process OGD portals suffer from low ease of use Insufficient user-friendliness of the data
Value barriers	<ul style="list-style-type: none"> OGD do not always provide value to users Datasets may be incomplete There may be concerns about the quality of open data Openly sharing data requires resources, including time and costs Impossible to sell the data when it is openly available Data providers are usually the ones who invest the most effort and time in publishing data, while businesses and citizens as data users profit the most
Risk barriers	<ul style="list-style-type: none"> Organizations' fear that openly shared government data will be misused Organizations' fear of users drawing false conclusions Organizations fear that (privacy) sensitive data will be shared openly Organizations fear making mistakes when preparing data for publication Organizations fear being liable for data quality

Functional Barriers

Resistance sub-factors	Barriers to openly sharing government data, leading to resistance
Tradition barriers	<ul style="list-style-type: none"> The risk-averse culture of governmental organizations avoids openly sharing the data Organizations are reluctant to change their processes Incompatible routines and processes of organizations Civil servants may lack the skills required for openly sharing government data
Image barriers	<ul style="list-style-type: none"> Organizations' fear that their reputation will be damaged due to the publication of low-quality data Organizations' fear that they will be associated with incorrect conclusions drawn from OGD analysis

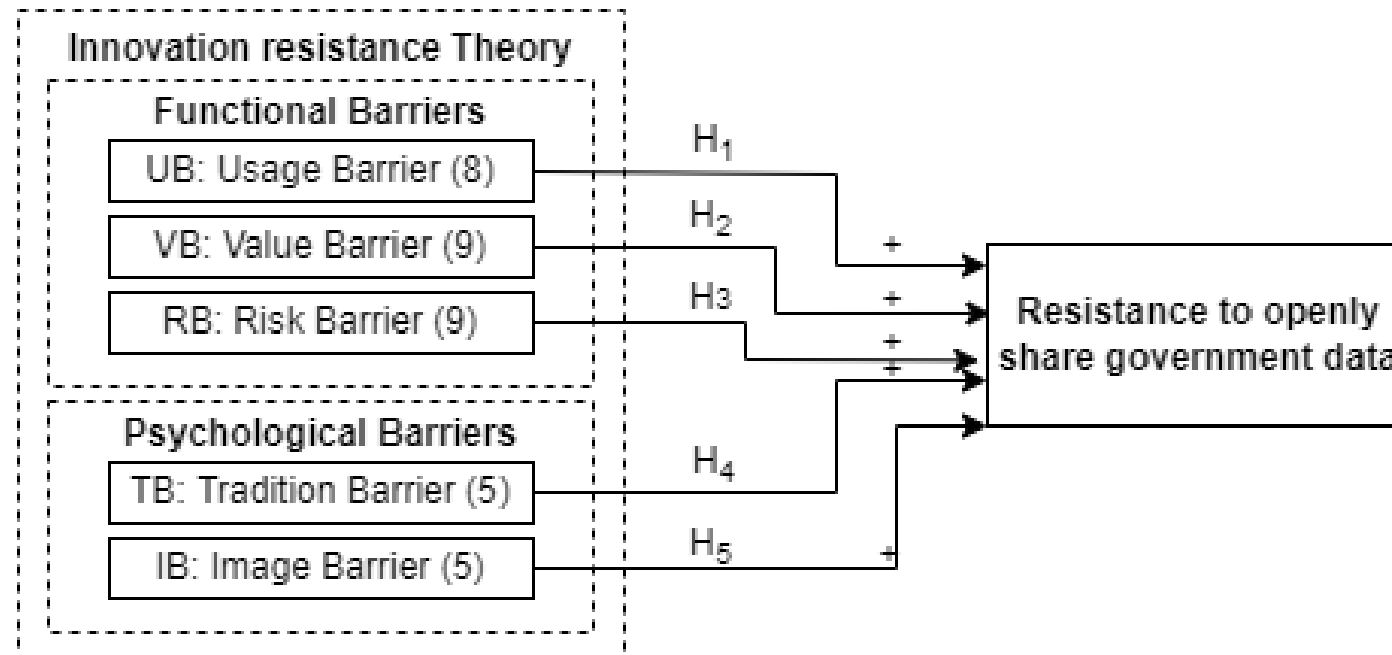
Psychological Barriers

OGD-adapted Innovation Resistance Theory model

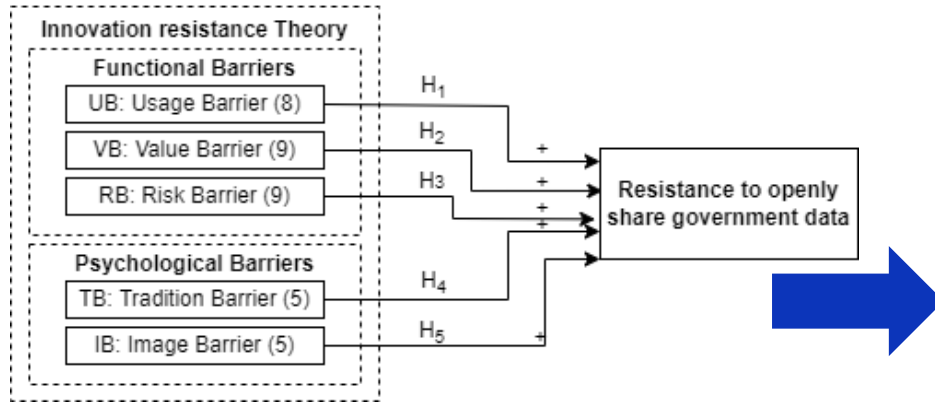
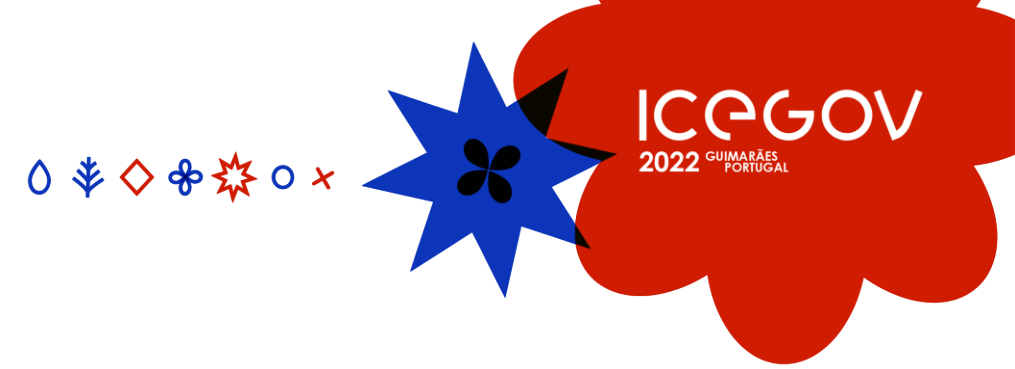


IRT suggests to define five hypotheses, one for each barrier type, and to test and validate those using quantitative research → each of five hypotheses is developed as:

"[Construct ∈ {Usage barrier; Value Barrier; Risk barrier; Tradition Barrier; Image Barrier}] has a positive effect on public agencies' resistance toward openly sharing government data"



OGD-adapted Innovation Resistance Theory model and its elements (1/3)



✓ 5 categories → 5 hypotheses

✓ 36 measurement items by drawing from existing IRT models and the corresponding measurement items found in the literature, combined with the insights obtained on OGD-specific barriers

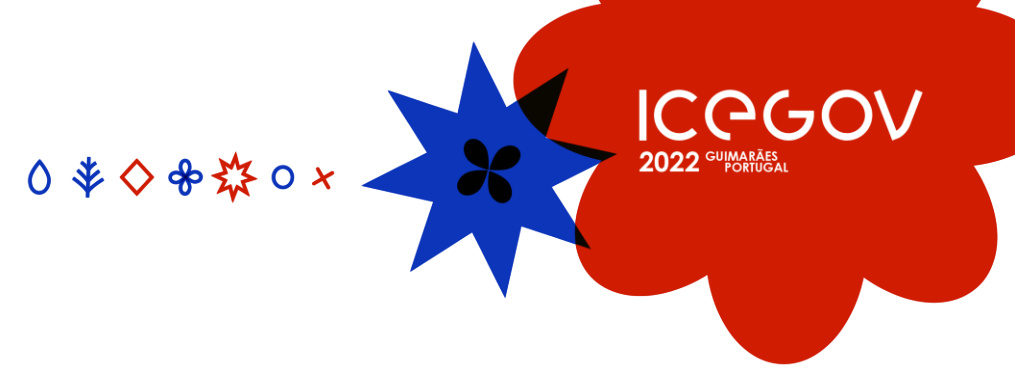
Barrier	Measurement item
Usage Barrier (UB)	UB1: It is difficult to attain the appropriate quality level for open government data to be shared openly
	UB2: It is difficult to prepare data for publication so that they comply with OGD principles
	UB3: It is difficult to prepare data for publication so that they become appropriate for reuse
	UB4: Data are difficult to publish on the OGD portal due to the complexity of the process
	UB5: Data are difficult to publish on the OGD portal due to the unclear process
	UB6: Data are difficult to publish on the OGD portal due to their limited functionality
	UB7: Open government data portals often do not allow for semi-automation of the publishing process
	UB8: It is difficult to maintain openly shared government data
Value Barrier (VB)	VB1: My organization believes that openly sharing government data is often not valuable for the public
	VB2: Many open government datasets are not appropriate for reuse
	VB3: Many open government datasets suffer from data quality issues (completeness, accuracy, uniqueness, consistency etc.)
	VB4: The public gains of openly sharing government data are often lower than the costs
	VB5: My organizations' gains of openly sharing government data are often lower than the costs
	VB6: Data preparation is too resource-consuming for my organization
	VB7: Open government data do not provide any value to my organization
	VB8: Open data that my organization can openly share will not provide value to users
	VB9: The amount of resources to be spent to prepare, publish and maintain open government data outweigh the benefit my organization gains from it
Risk Barrier (RB)	RB1: My organization fears the misuse of openly shared government data
	RB2: My organization fears the misinterpretation of openly shared government data
	RB3: My organization fears that openly shared government data will not be reused
	RB4: My organization fears violating data protection legislation when openly sharing government data
	RB5: My organization fears that sensitive data will be exposed as a result of opening its data
	RB6: My organization fears making mistakes when preparing data for publication
	RB7: My organization fears that users will find existing errors in the data
	RB8: My organization fears that openly sharing its data will reduce its gains (otherwise the organization could sell the data)
	RB9: My organization fears that openly sharing its data will allow its competitors to benefit from this data
Tradition Barrier (TB)	TB1: Freedom of information requests are sufficient for the public to obtain government data
	TB2: My organization is reluctant to implement the culture change required for openly sharing government data
	TB3: Employees in my organization lack the skills required for openly sharing government data
	TB4: Employees in my organization lack the skills required for maintaining openly shared government data
	TB5: My organization is reluctant to radically change the organizational processes that would enable openly sharing government data
Image Barrier (IB)	IB1: My organization has a negative image of open government data
	IB2: My organization believes that open government data is not valuable for users
	IB3: My organization fears that openly sharing government data will damage the reputation of my organization
	IB4: My organization fears that the accidental publication of low-quality data will damage the reputation of my organization
	IB5: My organization fears that associating them to incorrect conclusions drawn from OGD analysis by OGD users will damage the reputation of my organization

OGD-adapted Innovation Resistance Theory model and its elements: Functional barriers



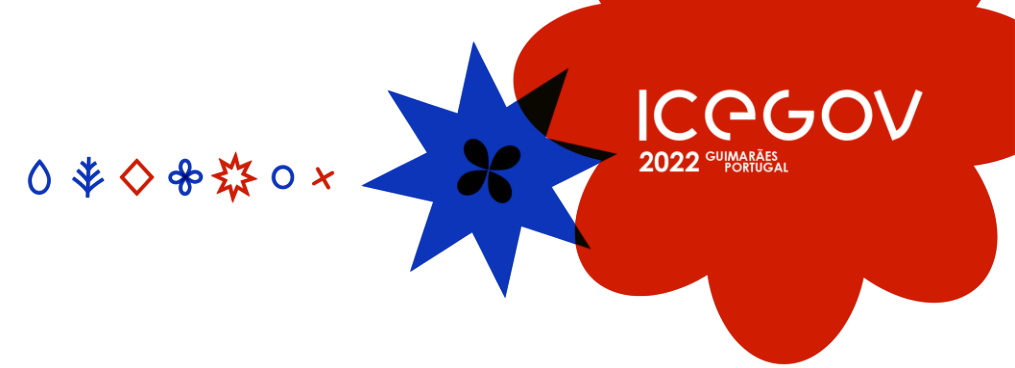
Barrier	Measurement item
Usage Barrier (UB)	<p>UB1: It is difficult to attain the appropriate quality level for open government data to be shared openly</p> <p>UB2: It is difficult to prepare data for publication so that they comply with OGD principles</p> <p>UB3: It is difficult to prepare data for publication so that they become appropriate for reuse</p> <p>UB4: Data are difficult to publish on the OGD portal due to the complexity of the process</p> <p>UB5: Data are difficult to publish on the OGD portal due to the unclear process</p> <p>UB6: Data are difficult to publish on the OGD portal due to their limited functionality</p> <p>UB7: Open government data portals often do not allow for semi-automation of the publishing process</p> <p>UB8: It is difficult to maintain openly shared government data</p>
Value Barrier (VB)	<p>VB1: My organization believes that openly sharing government data is often not valuable for the public</p> <p>VB2: Many open government datasets are not appropriate for reuse</p> <p>VB3: Many open government datasets suffer from data quality issues (completeness, accuracy, uniqueness, consistency etc.)</p> <p>VB4: The public gains of openly sharing government data are often lower than the costs</p> <p>VB5: My organizations' gains of openly sharing government data are often lower than the costs</p> <p>VB6: Data preparation is too resource-consuming for my organization</p> <p>VB7: Open government data do not provide any value to my organization</p> <p>VB8: Open data that my organization can openly share will not provide value to users</p> <p>VB9: The amount of resources to be spent to prepare, publish and maintain open government data outweigh the benefit my organization gains from it</p>
Risk Barrier (RB)	<p>RB1: My organization fears the misuse of openly shared government data</p> <p>RB2: My organization fears the misinterpretation of openly shared government data</p> <p>RB3: My organization fears that openly shared government data will not be reused</p> <p>RB4: My organization fears violating data protection legislation when openly sharing government data</p> <p>RB5: My organization fears that sensitive data will be exposed as a result of opening its data</p> <p>RB6: My organization fears making mistakes when preparing data for publication</p> <p>RB7: My organization fears that users will find existing errors in the data</p> <p>RB8: My organization fears that openly sharing its data will reduce its gains (otherwise the organization could sell the data)</p> <p>RB9: My organization fears that openly sharing its data will allow its competitors to benefit from this data</p>

OGD-adapted Innovation Resistance Theory model and its elements: Pshychological barriers



Barrier	Measurement item
Tradition Barrier (TB)	<p>TB1: Freedom of information requests are sufficient for the public to obtain government data</p> <p>TB2: My organization is reluctant to implement the culture change required for openly sharing government data</p> <p>TB3: Employees in my organization lack the skills required for openly sharing government data</p> <p>TB4: Employees in my organization lack the skills required for maintaining openly shared government data</p> <p>TB5: My organization is reluctant to radically change the organizational processes that would enable openly sharing government data</p>
Image Barrier (IB)	<p>IB1: My organization has a negative image of open government data</p> <p>IB2: My organization believes that open government data is not valuable for users</p> <p>IB3: My organization fears that openly sharing government data will damage the reputation of my organization</p> <p>IB4: My organization fears that the accidental publication of low-quality data will damage the reputation of my organization</p> <p>IB5: My organization fears that associating them to incorrect conclusions drawn from OGD analysis by OGD users will damage the reputation of my organization</p>

Interview protocol (part for UB only)



Barrier	Measurement item	Barrier-related questions
Usage Barrier (UB)	<p>UB1: It is difficult to attain the appropriate quality level for open government data to be shared openly</p> <p>UB2: It is difficult to prepare data for publication so that they comply with OGD principles</p> <p>UB3: It is difficult to prepare data for publication so that they become appropriate for reuse</p> <p>UB4: Data are difficult to publish on the OGD portal due to the complexity of the process</p> <p>UB5: Data are difficult to publish on the OGD portal due to the unclear process</p> <p>UB6: Data are difficult to publish on the OGD portal due to their limited functionality</p> <p>UB7: Open government data portals often do not allow for semi-automation of the publishing process</p> <p>UB8: It is difficult to maintain openly shared government data</p>	<p>Q12. To what extent do the following situations form a barrier to openly sharing your organization’s data:</p> <ul style="list-style-type: none"> -an inappropriate quality level of your organization’s data? (UB1) -a complicated process to prepare data for sharing? (UB2) -a complicated process to make your organization’s data reusable by others? (UB3) -a complicated process to publish your organization’s data on an open data portal? (UB4) <p>Do you think data are difficult to publish on the OGD portal</p> <ul style="list-style-type: none"> -due to the unclear process? (UB5) -limited functionality of open data portals? (UB6) -no possibility to semi-automate my organization’s process to openly share its data? (UB7) <p>Do you think it is difficult to maintain openly shared government data? (UB8)</p> <p>Q13. Are there any other usage barriers that form a barrier for your organization to openly share its data?</p>
Value Barrier (VB)	...	
Risk Barrier (RB)		
Tradition Barrier (TB)		
Image Barrier (IB)		

Conclusions



- ✓ **This study aims to develop an OGD-adapted IRT model to empirically identify predictors affecting public agencies' resistance to openly sharing government data.**
- ✓ **Based on the literature review concerning both IRT research and barriers associated with open data sharing by public agencies, we develop an initial version of the model.**
- ✓ **Compliant with the IRT literature, our conceptual model consists of five main constructs, including user barriers, value barriers, risk barriers, tradition barriers, and image barriers.**
- ✓ **Based on these barriers we defined five hypotheses to study the resistance of public authorities to openly share government data.**
- ✓ **For each of these constructs, we defined a list of measurement items specific to the context of OGD. This study is conceptual, and we did not validate the created model yet.**

******Considering the context of this model and the current rise in popularity of the Business-to-Government (B2G) data sharing, in light of which the European Commission is taking regulatory action and is preparing the Data Act to set the rules and conditions, thereby changing the current voluntary model to a more mandatory data sharing, we believe that the proposed model can become a reference model to analyse predictors affecting resistance to share data in this subdomain.***

Future work



- ✓ **To refine the model by conducting exploratory interviews in countries with different maturity levels of OGD initiatives AND get an insight in possible control variables that need to be included, such as organization size, the existence of OGD legislation and policies, and the available funding:**

	Latvia
	Estonia (???)
	Netherlands
	Denmark
	Italy (???)
	Belgium (???)

??? //in case you want to get invovled, you are more than welcome to join us!

- ✓ **To validate the refined model in a quantitative study of public agencies' resistance to OGD provision**
- ✓ **To identify predictors affecting public agencies' resistance to openly sharing government data.**

**TO BE
CONTINUED...** →



Questions?

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