

## IMPACT OF INFORMATION SYSTEMS (IS) INFUSION ON OPEN GOVERNMENT DATA (OGD) ADOPTION

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### Abstract:

**Purpose:** The study's objective is to underline the possible influence of the moderator, Information Systems (IS) Infusion, on Open Government Data (OGD) adoption and usage.

**Design/methodology/approach:** Using the Partial Least Squares-Structural Equation Modelling (PLS-SEM) methodological approach, the adapted Unified Theory of Acceptance and Use of Technology (UTAUT) model has been used for understanding the role of the moderating variable, viz. IS Infusion.

**Findings:** Findings show that the moderating impact of IS Infusion is positively significant with respect to the Performance Expectancy-Behavioral Intention relationship thereby bolstering the impact on users' perception of OGD vis-à-vis work/academics performance and negatively significant for Social Influence-Behavioral Intention, Information Quality-Behavioral Intention thereby clinching the fact that with the increased engagement and involvement of OGD in the everyday life of the user, the role of significant others and information quality gets least significant.

**Originality:** Extant OGD-focused research has underscored the impact of different variables as far as OGD adoption and usage is concerned; the present study seeks to add on to the extant literature by understanding the implications of IS Infusion on the adapted UTAUT model constructs and Behavioral Intention relationships.

**Keywords:** Open Government Data, OGD, Information Systems (IS) Infusion, Actual users, UTAUT, India

### Introduction

Open Government Data (OGD) initiatives are regarded as the upshot of digital government innovations such that the contours of transparency and citizen participation are broadened (Davies, 2007; Deng, Karunasena and Xu, 2018; Grimmelikhuijsen and Feeney, 2017; Janssen et al., 2017; Kassen, 2019; Lourenco, Piotrowski and Ingrams, 2017; Svard, 2018). OGD implies the datasets pertaining to the structural and functional dimensions of the administrative entities via dedicated portals (Janssen, 2011; Maione, Sorrentino and Kruja, 2022). Inter alia, the datasets relate to the diverse domains such as agriculture, economy, society, education, energy, and the like. Such datasets are provisioned in machine processable formats for being amenable to statistical interpretation and analysis (Ham, Koo and Lee, 2022; Hitz-Gamper, Neumann, and

Sturmer, 2019; Jarke, 2019; Yang et al., 2022). The overarching motive of OGD initiatives is to further engagement from a cross-section of stakeholders including the citizens, professionals, entrepreneurs, academic community, and the like to engage in value derivation and innovation pursuits (Charalabidis, Alexopoulos and Loukis, 2016; Kassen, 2021; Mohamad, Sylvester and Campbell-Meier, 2023). Given the implied benefits of such value derivation and innovation pursuits by the myriad stakeholders, it is anticipated that the societal growth and development shall be furthered (Chen, 2022; De Blasio and Selva, 2016; Hossain et al., 2018; Lodato, French and Clark, 2021; Weerakkody et al., 2017; Wen and Hwang, 2019; Wirtz, Weyerer and Rosch, 2018; Wirtz et al., 2022; Wu et al., 2022; Zhang et al., 2022).

With this backdrop, the academic interest in understanding the implications and significance of OGD initiatives has been on the rise over a period of time (Bankuoru Egala and Afful-Dadzie, 2017; Ham, Koo and Lee, 2019). Thus, there has been a plethora of research regarding the usage and adoption of OGD across spatial-temporal axes such that the Information Systems (IS) theories have been invoked alongside the possible implications of a range of variables such as intrinsic motivation, ease of internet usage, internet efficacy, perceived security, risk, demographic characteristics, public officials' training and development, leadership, etc. Moreover, there are studies veering around the user experience in terms of IS engagement-OGD engagement, being one such case- in the developed and developing countries. Thus, the present study seeks to further our understanding of OGD engagement by drawing inferences from the research model edified on the adapted Unified Theory of Acceptance and Use of Technology (UTAUT) alongside the moderating influence of IS Infusion at the individual level. As such, IS Infusion is defined in terms of the adaptability and ease of managing, engaging and tackling the IS platforms (Fadel, 2006; Ng and Kim, 2009). With regard to the information retrieval platforms wherein the interaction of information behavior and information systems design happens, IS Infusion may be conceived as its intrinsic component.

Conceding that OGD is a technology within a wider ambit of IS, it falls in place to understand the implications of this moderating variable as far as user engagement is concerned. Furthermore, an understanding of IS Infusion vis-a-vis OGD adoption is also important on account of the inherent nature and scope of OGD engagement wherein technological robustness holds pertinence. For drawing inferences, the statistical analysis is done via Partial Least Squares-Structural Equation Modelling (PLS-SEM) approach via the Warp 8.0 software. Being the first study to understand the moderating impact of IS Infusion across adapted UTAUT model constructs-Behavioral Intention (BI) relationships, the study's contribution to the extant OGD literature stands clinched besides being an add-on to the OGD-focused research in the developing country where the OGD initiatives have been attested as emerging-yet-asymmetric (Saxena, 2018). Despite the fact that the coverage of IS Infusion dimensions assume importance

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for the quality maintenance and furtherance of user engagement with OGD portals in a major way, the extant literature is silent on its role in OGD adoption-the present study seeks to plug this gap. OGD research alongside the need to contribute to the extant knowledge on IS Infusion and OGD has helped us arrive at the following research question (Sandberg and Alvesson, 2011; Starbuck, 2006): “*What is the moderating role of IS Infusion in OGD adoption and usage across the adapted UTAUT model and Behavioral Intention relationships?*”

The remainder of the paper is structured as follows: following a brief regarding the OGD-focused literature and IS Infusion, the research methodology is summarized and the tail-end of the paper is constituted by a discussion of the findings, research implications, future research directions for academicians, insights for practitioners and conclusive statements.

## **Literature review**

### ***OGD adoption and usage variables***

Given the main emphasis of OGD research on value derivation and innovation by a range of stakeholders, extant research has underscored the implications for OGD adoption and usage covering the influence of myriad variables. Invoking a range of variables such as individual skills, perceived sense of urgency, ease of OGD availability and accessibility and the integration of integration of OGD platforms via the social media platforms (Purwanto, Zuiderwijk and Janssen, 2020), perceived risk linked with the technological, financial, competitive climate, etc. that influence the value derivation and innovation pursuits of the stakeholders (Yang et al., 2022), computer self-efficacy and government support provided to the users in the case of Taiwan (Wang, 2020), degree of accessibility, discoverability and accuracy of OGD (Gebre and Morales, 2020), intrinsic motivation, competency, perceived ease of use and perceived usefulness (Wirtz, Weyerer and Rosch, 2018), OGD adoption and usage propensities have been scanned. Furthermore, the role of variables such as political satisfaction, government trust and internet usage intensity have been empirically investigated to ascertain OGD adoption and usage (de Souza, d’Angelo and Filho, 2022). Furthermore, invoking the Diffusion of Innovations (DOI) theory, variables such as user perception of functional value, compatibility, security concerns and stereotypes were also empirically investigated (Weerakkody et al., 2017). Contextually, the adapted UTAUT framework was used in Latvian, Czech Republic and Indian contexts (Lnenicka et al., 2022) as also the Bangladesh context (Islam et al., 2021) for drawing inferences regarding OGD adoption and usage propensities. Finally, there are studies on the OGD quality dimensions that determine the OGD engagement propensities of the concerned user groups (Alexopoulos & Saxena, 2023; Matheus, Ribeiro and Vaz, 2012; Parung et al., 2018).

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## ***IS Infusion***

IS Infusion has been defined in terms of the maximum extent to which usage levels are facilitated with the interplay of tasks, IS characteristics and innovative manner of applications (Sage and Zmud, 1994)-case in point the impact of user commitment on IS Infusion (Kim, Chan and Lee, 2012). IS Infusion research has considered the impact on individual usage propensities apart from role embeddedness as well as integrative mechanisms via other technologies. Dimensions linked with individual usage relate to the traits of the individuals that are linked with the user's engagement with the technology (Winston and Dologite, 1999). For an overview of the individual-centric IS Infusion research based on the Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) Theory, Technology, Organization and Environment (TOE) and Unified Theory of Acceptance and Use of Technology (UTAUT) models, the work of Hassandoust and his colleagues may be perused (Hassandoust, Techatassanasoontorn and Tan, 2016). IS Infusion in the case of individuals has been found to be a factor of user and usage profiling in terms of the user competence, usage impact, etc. (Ng and Kim, 2009). Furthermore, IS Infusion has been considered as a determinant of the technology, user and task (O'Connor, O'Rahalligh and O'Donoghue, 2012). It has been underlined that there is a need for understanding the role of psychological factors as far as IS Infusion among the users is concerned (de Guinea and Markus, 2009) and the present study is a step forward in this direction with the specific context of OGD research.

### ***Research question***

It is clear from the aforesaid that the implications of IS Infusion for OGD adoption and usage merit a revisit and this is especially expected to further our understanding of the OGD engagement propensities among the concerned stakeholder groups. Considering the aforesaid, the present study seeks to further the contours of OGD-focused research by addressing the research question:

*“What is the moderating role of IS Infusion in OGD adoption and usage across the adapted UTAUT model and Behavioral Intention relationships?”*

### **Research methodology**

#### ***Research model and hypotheses***

Figure 1 presents the research model for the present study. Specifically, the present study seeks to drive home the arguments via the adapted UTAUT model (Venkatesh et al., 2003; Lnenicka et al., 2022) wherein the moderating influence of IS Infusion (Figure 1) is captured in the research hypotheses derived for the purpose below.

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Performance Expectancy (PE) is defined in terms of the extent to which an individual believes that using OGD will help in realizing benefits related to her/his performance in the job/work (Talukder et al., 2019; Venkatesh et al., 2003; Zuiderwijk, Janssen and Dwivedi, 2015). Given the possible implications of OGD engagement for a user to affirmatively impact her job/work performance, it may be hypothesised that:

*H1: Performance Expectancy has a positive effect on Behavioral Intention to use and adopt OGD.*

Effort Expectancy (EE) is defined in terms of the extent to which an individual perceives the easiness linked with the implementation/use of OGD (Talukder et al., 2019; Venkatesh et al., 2003; Zuiderwijk, Janssen and Dwivedi, 2015). OGD adoption and usage propensities were found to be positively determined by the extent of hassle-free engagement with the technology (Saxena and Janssen, 2017; Zuiderwijk, Janssen and Dwivedi, 2015), and, it follows that:

*H2: Effort Expectancy has a positive effect on Behavioral Intention to use and adopt OGD.*

Social Influence (SI) has been defined in terms of the extent to which an individual realizes the importance of others' perceptions regarding her to use OGD (Lnenicka et al., 2022; Talukder et al., 2019; Venkatesh et al., 2003; Zuiderwijk, Janssen and Dwivedi, 2015). As in the case of other IS interfaces, it is likely that OGD engagement is a factor of the views and attitudinal disposition of the significant others (Lnenicka et al., 2022), and, it is hypothesised that:

*H3: Social Influence has a positive effect on Behavioral Intention to use and adopt OGD.*

Facilitating Conditions (FC) imply the extent to which an individual believes that an organizational and technical infrastructure is in place to support the use of OGD (Talukder et al., 2019; Venkatesh et al., 2003; Zuiderwijk, Janssen and Dwivedi, 2015). Extant OGD-focused research shows mixed results pertaining to the significant and insignificant relationships of FC on the behavioral intention to adopt and use OGD (Lnenicka et al., 2022; Saxena and Janssen, 2017; Zuiderwijk and Cligge, 2016). Given the fact that conducive environment in terms of the requisite IT climate is required for OGD engagement, it follows that:

*H4: Facilitating Conditions has a positive effect on Behavioral Intention to use and adopt OGD.*

Voluntariness of Use (VU) is defined in terms of the extent to which an individual engages with OGD of her/his own volition (Lnenicka et al., 2022). Whilst voluntary engagement with OGD has been clinched in some contexts, it was found inconsequential in others (Khurshid et al., 2022; Purwanto, Janssen and Zuiderwijk, 2021; Saxena and Janssen, 2017). It is hypothesized that:

*H5: Voluntariness of Use has a positive effect on Behavioral Intention to use and adopt OGD.*

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Among the quality dimensions pertinent for OGD engagement may be counted System Quality (SQ), Data Quality (DQ) and Information Quality (IQ). SQ is defined in terms of the extent to which the performance of the information system in terms of reliability, convenience, ease of use, functionality and other system metrics impacts an individual's willingness to adopt and use OGD (DeLone and McLean, 2003; Purwanto, Zuiderwijk and Janssen, 2020; Talukder et al., 2019). Information Quality (IQ) has been defined as the extent to which the characteristics of the output offered by the information system, such as accuracy, timeliness and completeness impact an individual's willingness to adopt and use OGD. Finally, Data Quality (DQ) refers to the extent to which OGD is free from errors apart from being complete, accurate, appropriately formatted as per acknowledged standards and is ready for reuse. Extant OGD-hinged research has shown mixed findings vis-a-vis the aforesaid quality dimensions (Khurshid et al., 2022; Lnenicka et al., 2022). It is hypothesized that:

*H6: System Quality has a positive effect on Behavioral Intention to use and adopt OGD.*

*H7: Information Quality has a positive effect on Behavioral Intention to use and adopt OGD.*

*H8: Data Quality has a positive effect on Behavioral Intention to use and adopt OGD.*

Trust (TR) is an important variable determining the reliability of the OGD from the perspectives of the user. Thus, it is defined as the extent to which OGD is considered to be trustworthy, credible and reliable by the users (Lnenicka et al., 2022).

*H9: Trust has a positive effect on Behavioral Intention to use and adopt OGD.*

Frequency of Usage (FREQ) is defined in terms of the extent to which OGD is being used, i.e. daily, weekly, monthly, yearly, or very rarely (Lnenicka et al., 2022). Similarly, Purposefulness (PURP) is defined in terms of the degree to which OGD is considered as purposeful by the users, viz., being very important, important, balanced/neutral, unimportant and very unimportant (Lnenicka et al., 2022). Both these variables have been attested having significant bearing on OGD adoption and usage (Alexopoulos and Saxena, 2023).

*H10: Frequency of Usage has a positive effect on Behavioral Intention to use and adopt OGD*

*H11: Purposefulness has a positive effect on Behavioral Intention to use and adopt OGD.*

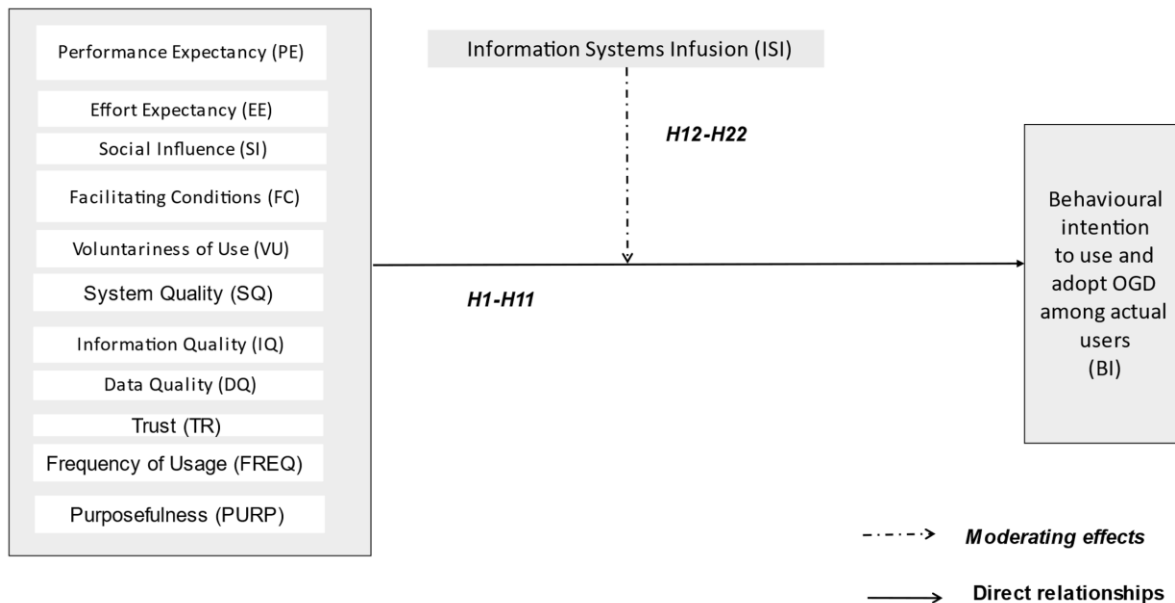
IS Infusion is defined as the extent to which the IS usage goes beyond routine such that technology is experimented with new frontiers of usage (Kim, Chan and Gupta, 2016). As cited in the literature scan, its relevance for technology adoption has been attested (Hassandoust, Techatassanasoontorn and Tan, 2016; Ng and Kim, 2009; O'Connor, O'Rahalligh and O'Donoghue, 2012) and an analogical understanding is anticipated in the OGD adoption too:

*H12-H22: IS Infusion has a moderating effect on the relationship between adapted UTAUT*

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model constructs and Behavioral Intention to use and adopt OGD. Thus, the positive relationship between the adapted UTAUT model constructs and Behavioral Intention to use and adopt OGD would be higher for users with high IS Infusion.



**Figure 1:** Research model with hypotheses

### Data collection

The respondents comprised of the students pursuing their undergraduate and postgraduate courses in a prime university in India who were ascertained to be the actual OGD users. Academic community-especially the faculty members and students- have been considered as important constituents of the OGD ecosystem who engage with OGD on a regular basis (Charalabidis, Alexopoulos and Loukis, 2016; Safarov, Meijer and Grimmelikhuijsen, 2017). Given one of the authors’ affiliation with the leading private university, students were contacted following a purposive and snowball sampling procedures. A Google Form with structured questionnaire was circulated via WhatsApp, email or SMS among the actual OGD users to get their responses. Three reminders were sent to the contacted respondents in 2 days’ span. Except for a few demographic questions, the rest of them were patterned across a Likert Scale (1- “Strongly Agree” to 5- “Strongly Disagree”). The entire process of data collection was done between December, 2022 and March, 2023. In all, 397 responses were garnered. The sample size is adequate in line with the standard PLS-SEM procedures given the number of variables involved and the datapoints in hand (Hair et al., 2022). For drawing inferences, statistical analyses was performed via Partial Least Squares-Structural Equation Modeling (PLS-SEM)

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(Wold, 1985) through Warp PLS 7.0 software (Kock, 2021).

## Results

### *Demographic profiles of the respondents*

Table 1 summarizes the demographic characteristics of the respondents. There is a roughly equal proportion of male (49.62%) and female (50.37%) respondents. As far as the academic qualifications are concerned, a sizeable number of respondents are in their Bachelor's courses (92.69%) and as far as the age brackets are concerned, most of them are in the 16-20 years' age bracket. Furthermore, the maximum number of respondents hail from the Engineering or Humanities and Social Sciences disciplines. Finally, there are different purposes for OGD adoption and usage.

|                              | Total | Percentage |
|------------------------------|-------|------------|
| <b><i>Gender</i></b>         |       |            |
| Males                        | 197   | 49.62      |
| Females                      | 200   | 50.37      |
| <b><i>Age</i></b>            |       |            |
| 16-20 years                  | 265   | 66.75      |
| 21-25 years                  | 122   | 30.73      |
| 26-30 years                  | 3     | 0.007      |
| Above 30 years               | 7     | 0.017      |
| <b><i>Level of study</i></b> |       |            |
| Bachelor's                   | 368   | 92.69      |
| Master's/PhD's/PostDoc's     | 29    | 0.073      |
| <b><i>Year of study</i></b>  |       |            |
| 1st year                     | 121   | 30.47      |
| 2nd year                     | 108   | 27.20      |
| 3rd year                     | 135   | 34.00      |

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|  | <b>Total</b> | <b>Percentage</b> |
|--|--------------|-------------------|
| 4th year   | 24           | 0.060             |
| 5th year   | 1            | 0.002             |
| Other  | 8            | 0.020             |
| <b><i>Academic background</i></b>                        |              |                   |
| Engineering  | 146          | 36.77             |
| Humanities and Social Sciences                           | 149          | 37.53             |
| Management/Commerce                                      | 35           | 8.81              |
| Hospitality/Hotel Management                             | 24           | 6.62              |
| Nursing/Medical  | 10           | 2.51              |
| Law  | 12           | 3.02              |
| Other  | 41           | 10.57             |
| <b><i>To what extent are OGD purposeful for you?</i></b> |              |                   |
| Very important   | 80           | 20.15             |
| Important  | 189          | 47.60             |
| Neutral  | 122          | 30.73             |
| Unimportant  | 3            | 0.007             |
| Very unimportant   | 3            | 0.007             |
| <b><i>How often do you use OGD?</i></b>                  |              |                   |
| Daily or multiple times a day                            | 46           | 11.58             |
| Weekly or a few times in a week                          | 134          | 33.75             |
| Monthly or a few times in a month                        | 99           | 24.93             |
| Yearly or a few times in a year                          | 43           | 10.83             |
| Do not know  | 75           | 18.89             |

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|  | Total | Percentage |
|--|-------|------------|
| <b><i>For what purposes do you use OGD? (Tick all those applicable)</i></b>                  |       |            |
| To perform statistical analysis  | 142   | 35.76      |
| For data linking (combining and integrating different datasets)                              | 111   | 27.95      |
| To write academic publications   | 39    | 9.82       |
| To perform policy research   | 25    | 6.29       |
| To perform investigations (non-scientific and non-policy)                                    | 35    | 8.81       |
| For information purposes (e.g., COVID-19, etc.)  | 169   | 42.56      |
| For political and policy-making decisions  | 140   | 35.26      |
| For curiosity and/or recreation  | 94    | 23.67      |
| For daily operation in work  | 85    | 21.41      |
| For news reporting   | 16    | 4.03       |
| Other  | 21    | 5.28       |
| No use   | 1     | 0.25       |
| <b><i>Which of the following types of OGD have you used? (Tick all those applicable)</i></b> |       |            |
| National/Regional/Local Government Open Data Portal  | 241   | 60.70      |
| European Data Portal   | 153   | 38.53      |
| OECD (Organization for Economic-Cooperation and Development)                                 | 24    | 6.04       |
| United Nations Open Portal (UNData)  | 42    | 10.57      |

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|                      | Total | Percentage |
|----------------------|-------|------------|
| World Bank           | 38    | 9.57       |
| Agriculture and Food | 46    | 11.58      |
| Culture              | 58    | 14.60      |
| Business and Economy | 162   | 40.80      |
| Crime and Justice    | 47    | 11.83      |
| Education            | 114   | 28.71      |
| Environment          | 102   | 25.69      |
| Government spending  | 93    | 23.42      |
| Health               | 152   | 38.28      |
| Mapping              | 49    | 12.34      |
| Society              | 94    | 23.67      |
| Regions and Cities   | 84    | 21.25      |
| Transport            | 79    | 19.89      |
| Other                | 68    | 17.12      |

**Table 1:** Demographic profiles of respondents and their responses to selected questions

### *Measurement model*

The estimation of the model showed an R-squared of 79.6%. Furthermore, reliability assessment was done on the basis of the values of Cronbach's alpha ( $\alpha$ ) and Composite Reliability (CR) to ascertain the internal consistency of the constructs' items (Table 2). Given that the Cronbach's alpha ( $\alpha$ ) values should lie between 0.60 and 0.90 and the CR values should be above 0.7 (Hair et al., 2021) for ensuring the constructs' reliability, Table 2 results are in conformity with these thresholds. Furthermore, the constructs' convergent validity was assessed with the Average Variance Extracted (AVE) values and the same was clinched in line with the threshold values of being above 0.5 (Hair et al., 2021). Finally, regarding the multicollinearity diagnostics, it may be inferred that given the VIFs (Variance Inflation Factors) being less than 5, therefore, multicollinearity is not an issue (Hair et al., 2021).

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|                              | Alpha (Cronbach's alpha) | rhoC (Composite reliability) | AVE (Average Variance Extracted) | Full collinearity VIFs |
|------------------------------|--------------------------|------------------------------|----------------------------------|------------------------|
| Performance Expectancy (PE)  | 0.858                    | 0.904                        | 0.702                            | 3.187                  |
| Effort Expectancy (EE)       | 0.854                    | 0.902                        | 0.696                            | 3.064                  |
| Social Influence (SI)        | 0.878                    | 0.925                        | 0.804                            | 2.442                  |
| Facilitating Conditions (FC) | 0.757                    | 0.861                        | 0.674                            | 3.322                  |
| Voluntariness of Use (VU)    | 0.831                    | 0.899                        | 0.747                            | 2.063                  |
| System Quality (SQ)          | 0.873                    | 0.908                        | 0.666                            | 3.648                  |
| Information Quality (IQ)     | 0.826                    | 0.896                        | 0.742                            | 3.512                  |
| Data Quality (DQ)            | 0.861                    | 0.906                        | 0.706                            | 4.265                  |
| Trust (TR)                   | 0.899                    | 0.937                        | 0.833                            | 3.277                  |
| Frequency of Usage (FREQ)    | 1.000                    | 1.000                        | 1.000                            | 1.330                  |
| Purposefulness (PURP)        | 1.000                    | 1.000                        | 1.000                            | 1.506                  |
| IS Infusion (Moderator) (UL) | 0.961                    | 0.924                        | 0.753                            | 2.177                  |
| Behavioral Intention (BI)    | 0.875                    | 0.923                        | 0.800                            | 3.768                  |

**Table 2:** Reliability and validity scores

### *Structural model*

Path coefficients, p-values and effect sizes for the hypothesized relationships (Figure 1) are summarized in Table 3. Use of a two-stage approach for interactions was done for parameter recovery and attainment of statistical power (Becker, Ringle & Sarstedt, 2018; Chin, Marcolin & Newsted, 2003; Henseler & Chin, 2010; Kenny and Judd, 2019).

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|                | Path coefficient | p-value | Effect size | Result        | Inference   |
|----------------|------------------|---------|-------------|---------------|---|
| H1: PE→BI      | 0.191            | <0.001  | 0.121       | Supported     | OGD adoption and usage facilitates performance at work/job/academics.   |
| H2: EE→BI      | 0.056            | 0.132   | 0.036       | Not supported | x   |
| H3: SI→BI      | 0.052            | 0.147   | 0.032       | Not supported | x   |
| H4: FC→BI      | 0.080            | 0.054   | 0.052       | Not supported | x   |
| H5: VU→BI      | 0.009            | 0.426   | 0.005       | Not supported | x   |
| H6: SQ→BI      | 0.133            | 0.004   | 0.095       | Supported     | Users seek the appropriate reliable and easy to use information systems for bolstering their OGD adoption and usage.  |
| H7: IQ→BI      | 0.049            | 0.164   | 0.032       | Not supported | x   |
| H8: DQ→BI      | 0.098            | 0.024   | 0.069       | Supported     | Users seek the requisite OGD quality for furthering their engagement with OGD.  |
| H9: TR→BI      | 0.461            | <0.001  | 0.354       | Supported     | Trustworthy and reliable OGD is sought after by the users which drives further their OGD adoption and usage propensities.   |
| H10: FREQ→BI   | 0.054            | 0.140   | 0.017       | Not supported | x   |
| H11: PURP→BI   | 0.025            | 0.308   | 0.008       | Not supported | x   |
| H12: ISF*PE→BI | 0.317            | <0.001  | 0.092       | Supported     | Users' considering OGD engagement as important for their academics/job is bolstered by the increased impact of ISF, i.e. the increased penetration of OGD in the everyday life of an individual user. |
| H13: ISF*EE→BI | -0.086           | 0.042   | 0.026       | Supported     | Users' propensity for seeking ease of use with OGD gets lessened as the ISF's increased impact is perceived, i.e. the increased penetration of OGD in the everyday life of an individual user.        |
| H14:           | -0.211           | <0.001  | 0.065       | Supported     | Users' considering the influence of significant others gets lessened as the role  |

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|                                   | Path coefficient | p-value      | Effect size | Result        | Inference   |
|-----------------------------------|------------------|--------------|-------------|---------------|---|
| $ISF*SI \rightarrow BI$           |                  |              |             |               | of IS Infusion vis-à-vis OGD increases.   |
| H15:<br>$ISF*FC \rightarrow BI$   | 0.057            | 0.126        | 0.019       | Not supported | x   |
| H16:<br>$ISF*VU \rightarrow BI$   | 0.011            | 0.410        | 0.004       | Not supported | x   |
| H17:<br>$ISF*SQ \rightarrow BI$   | -0.025           | 0.306        | 0.008       | Not supported | x   |
| H18:<br>$ISF*IQ \rightarrow BI$   | -0.132           | <b>0.004</b> | 0.028       | Supported     | Users' seeking information quality gets pertinent to them as the importance of IS Infusion gets increased.  |
| H19:<br>$ISF*DQ \rightarrow BI$   | -0.082           | 0.051        | 0.020       | Not supported | x   |
| H20:<br>$ISF*TR \rightarrow BI$   | -0.021           | 0.334        | 0.006       | Not supported | x   |
| H21:<br>$ISF*FREQ \rightarrow BI$ | -0.086           | <b>0.042</b> | 0.011       | Supported     | Users' frequently searching behavior for OGD gets less significant as the IS Infusion of OGD gets enhanced in their everyday lives beyond the normal usage. |
| H22:<br>$ISF*PURP \rightarrow BI$ | -0.010           | 0.420        | 0.002       | Not supported | x   |

**Table 3:** Summary of hypotheses

## Discussion

Among the direct findings may be attested the positively significant implications for PE-BI, SQ-BI, DQ-BI and TR-BI. Thus, findings from the present study are in sync with the previous research (Husin, Zakaria and Dahlan, 2019; Islam et al., 2021; Lnenicka et al., 2022; Talukder et al., 2019; Wirtz, Weyerer and Rosch, 2019; Zwiderwijk, Janssen and Dwivedi, 2015). For instance, the positively significant relationship for Performance Expectancy-Behavioral Intention is implicit in the users' perceiving OGD to be important for their academic/work performance. Users also seek optimum System Quality for furthering their propensity to adopt and use OGD.

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This is true because the consistency and accuracy of OGD is important for ensuring the furtherance of OGD re-use by the stakeholders concerned (Chorley, 2017; Shepherd et al., 2019). Furthermore, findings for DQ-BI are in line with previous research wherein the positively significant results have been attested (Khurshid et al., 2020; Lnenicka et al., 2022; Talukder et al., 2019). Finally, vis-a-vis Trust-Behavioral Intention relationship, it is clear that the users seek reliable and trustworthy OGD. Regarding the non-significant findings, it may be possible that users do not use OGD voluntarily or seek Data Quality or Information Quality on account of being at a nascent stage of their academic trajectory, i.e. pursuing their Bachelor's courses, where the rigorous OGD is not required.

Regarding the positively significant influence of OGD engagement for work performance furtherance amidst the presence of IS Infusion, this finding may be corroborated by the positively significant impact on job fit and technology competence on user commitment which, in turn, results in IS Infusion (Kim, Chan and Lee, 2012). Users are less prone towards seeking robust Information Quality for OGD, given the increased influence of IS Infusion and this concurs with previous research as well wherein IQ has been found to have negative impact on the behavioral intention to adopt and use a technology (Ahuja and Thatcher, 2005). Furthermore, in the case of Social Influence (SI), given the impact of social structure for determining the user empowerment across the technology, IS Infusion is enhanced (Kim and Gupta, 2014).

Regarding the non-supported hypotheses (ISF\*FC-BI; ISF\*VU-BI; ISF\*SQ-BI; ISF\*DQ-BI; ISF\*TR-BI; ISF\*PURP-BI), it is possible that these findings are a resultant of the robust ICT infrastructure coupled with the fact that the OGD engagement is not required for a sophisticated level leading to value derivation and innovation pursuits.

## Conclusion

The purport of this study was to underline the moderating influence of IS Infusion across the adapted UTAUT-Behavioral Intention relationships. Contextualized across a developing country, i.e. India, the study sought to estimate the empirical validation of the study by drawing perspectives from the university students, i.e. the undergraduate and postgraduate students of a leading private university. Findings from the empirical investigation unravel the affirmative influence of IS Infusion on the users' perception regarding the impact of OGD usage on their work/academics and weakened impact of IS Infusion on the users' perception of the societal influence and penchant for information quality for furthering OGD usage. The study contributes to the OGD literature apart from the technology adoption (Lv and Ma, 2019) with specific impetus upon the implications of technology adoption for the developing country. Furthermore, the study also underlines the implications of a digital government innovation for furthering a collaborative and participative design involving the relevant stakeholder entities of the OGD ecosystem-as in the present case. However, the study limitations may be counted as the inclusion of a single moderator in the ascertainment of the relationships' frames, and, the slightly skewed coverage of the students across the age groups and levels of degree courses. Furthermore, a triangulation of the study could be attempted wherein the perspectives of the IT experts from the

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government as also the experts in the OGD domain could be solicited to ascertain the likely influence of IS Infusion in terms of OGD engagement propensities.

### **Research implications**

The research shows that OGD ecosystem needs to take into consideration the role of IS Infusion for furtherance of the user engagement. Ipso facto, the quality of the OGD portals shall also be improvised to suit the requirements of the users thereby furthering the value derivation and innovation pursuits of the different stakeholder groups. Furthermore, the impact of engaging with such OGD portals is likely to result in further propelling the other user groups to understand the means of value derivation via the reuse of OGD. Furthermore, the study shows the importance of requisite IT infrastructure for ensuring a sustained OGD engagement among the users which would go a long way in building up the economic and social potential of the country as a whole.

### **Academic and practitioner insights**

The study leaves ample scope for further academic inquiry: first, further research is warranted for ascertaining the manner in which IS Infusion in terms of OGD adoption is valid as far as the demographic factors are concerned; second, a comparative perspective may be drawn vis-à-vis the RQ in the developed countries; third, a mixed methodology may be adopted wherein the interviews of the relevant stakeholders including the users and the policy-makers may bolster the findings from the present study; fourth, the behavioral dimensions, i.e. motivation, personality traits, self-efficacy, etc. may be factored into consideration-both from the OGD providers and OGD users-to understand the confluence of IS Infusion; and, finally, stakeholders' perspectives may be drawn vis-à-vis the role and implications for the public managers, senior management, etc. to draw a triangulation-based conclusion in line with the RQ.

The study has practitioner insights as well: OGD policy-makers need to underline the significance of quality improvisation of the OGD portals for further user engagement; and, second, OGD initiatives ought to be refurbished for bettering the chances of knowledge management and value derivation by the range of stakeholders concerned. Finally, given the engagement of stakeholders hailing from myriad societal pockets, the study implications for the societal perspectives and engagement with OGD are also implied. For instance, the implications of IS Infusion in OGD engagement are likely to differ across businessmen and academic community, etc.

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