

Digital Communication, Perceived Transparency, and Public Trust in a Government Infrastructure Project: Evidence from Karachi Mobility Project

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Abstract

Digital communication plays an integral role in public-sector governance throughout the globe. Its role in improving public trust could rely on citizens' perceptions of the transparency of institutional communication. The study evaluates the relationship between digital communication and public trust in the Karachi Mobility Project (KMP) and the idea of perceived transparency as a mediator. The study relies on a quantitative cross-sectional survey of 200 respondents who knew about KMP, and examines the relationships between digital communication, perceived transparency and public trust using correlation, regression and bootstrapped mediation analysis. Citizens' perceptions are also complemented by an objective content analysis of the official KMP digital communications, which analyses how much transparency-oriented information is visible in the communication

relating to a project. The results suggest that digital communication is positively related to perceived transparency and public trust and that perceived transparency makes a significant contribution to the relationship between communication and trust. Additionally, the content audit reveals inconsistencies in the amount of information that is provided on the project, problems, reactions of stakeholders, and grievance information in official communications. The present study also brings an important element to public administration research, putting perceived transparency, a key part of the public administration field, in the center of the discussion on how digital communication processes and their perceived transparency relate to public trust in the governance of infrastructure. The results indicate that public agencies would do well to not only see digital communication as a way to disseminate information or promote products, but as a form of government communication and public accountability, to report progress, recognize difficulties, and create a sense of public accountability.

Keywords: digital communication, public trust, perceived transparency, Karachi Mobility Project, digital governance, Bus Rapid Transit

1. Introduction

The practical circumstances of the interaction between public institutions and citizens have been changed by digital channels. While websites, social media, online portals and mobile tools can get information out fast and far, their governance worth is far more than the speed or reach. Communication is an integral component of the everyday life of the project for citizens impacted by a major infrastructure scheme – it influences the level of understanding of disruptions, whether concerns are addressed and whether the relevant institution is seen as being responsible. The Karachi Mobility Project (KMP) is one such context for this query where Yellow Line BRT corridor is part of the initiative. During construction, the project impacts commuters, residents, businesses, workers, and other stakeholders with its traffic changes and anticipated mobility impacts. As a result, updates, supported by the digital platforms, can improve the effective and efficient communication and reduce uncertainty by communicating work schedules, diversions, safeguards, progress of the project and grievance avenues. In contrast, an under-documented, or asymmetric, form of communication can exacerbate uncertainty, particularly when citizens are already skeptical of accountability and timeliness of public works.

This article explores the connection of digital communication and public trust in KMP. The findings, and the discussion, demonstrate that the pathway perceived transparency is an explanatory pathway that is central. It is not as if the mere fact of an online account entitled "trust" means that there is automatically a level of trust in that account. Instead, digital communication can instead build trust when it assists citizens to judge the project as being open, forthcoming, and credible. The study thus examines a direct relationship between digital communication and trust as well as an indirect relationship via perceived transparency.

2. Research Gap, Objectives, and Hypotheses

2.1. Research Gap

Digital governance and trust have increasingly been discussed in recent years but up to now not much empirical evidence from Pakistan has been found regarding the impact of digital communication on trust in a large and visible infrastructure project. The KMP context is particularly under researched. Current debates tend to focus on websites or social media as communication tools but fail to examine whether citizens have the perception of transparency or trust is being achieved by the use of those tools. To fill this void, this article explores perceived transparency as a mediating variable, rather than communication exposure as the primary variable.

2.2. Objectives

The study had five objectives:

- (1) To examine the relationship between digital communication and public trust in KMP;
- (2) To assess the effect of digital communication on perceived transparency;
- (3) To determine the effect of perceived transparency on public trust;
- (4) To test whether perceived transparency mediates the communication-trust relationship; and
- (5) To derive practical recommendations for public-sector communication.

2.3. Hypotheses

Four hypotheses were tested:

H1: digital communication positively predicts public trust;

H2: digital communication positively predicts perceived transparency;

H3: perceived transparency positively predicts public trust; and

H4: perceived transparency mediates the relationship between digital communication and public trust.

3. Literature Review and Theoretical Framing

3.1. Digital communication in public administration

Digital communication in public administration includes the use of institutional websites, social media platforms, e-mail, applications, dashboards, and online feedback mechanisms to provide information and interact with citizens. It has moved beyond a supplementary public-relations function toward an operational component of governance. Digital platforms can lessen information asymmetry, broaden access to official updates, and create opportunities for citizen interaction (Dwivedi et al., 2021; Mergel, 2016). Earlier research on e-government and public-sector social media similarly links accessible digital services and active online communication with confidence in government institutions (Porumbescu, 2016; Tolbert & Mossberger, 2006).

For infrastructure projects, the communication task is particularly demanding. A project can generate immediate inconvenience while its benefits are realized later. Citizens may need information about detours, construction schedules, environmental measures, compensation or grievance arrangements, and reasons for changes in delivery. Digital tools can make this information available in a timely and shareable form. Their value, however, is likely to depend on accuracy, completeness, responsiveness, and whether communication includes setbacks as well as accomplishments (Khan, et. al., 2021; McDermot, et. al., 202).

3.2. Perceived transparency and public trust

Transparency is related to the availability and understandability of facts and information on public decisions, processes and actions (Meijer, 2014). In the present study, the focus is on perceived transparency, which is the citizens' evaluation of the organization's transparency, characterized by being honest, on time, and not hiding important information. This distinction is important because objective data that is not readily available to citizens may not be evident to them if it can't easily be found, isn't complete, or isn't presented in a credible way.

Transparency can help to establish trust, as it diminishes uncertainty regarding institutional behavior. If citizens can observe the project being implemented, the dilemmas and challenges encountered, and the solutions to the challenges that are developed, they may be more inclined to credit the institution with competence and integrity. Perceived transparency has been highlighted as a key link between e-government experiences and trust (Welch et al., 2005) and as an important precondition for building trust in government (Grimmel, 2017). However, transparency is not all-encompassing and trust-enhancing. Disclosure can highlight shortcomings, compromises and lags and can thus undermine trust when citizens view the underlying performance or decision-making process negatively (Licht, 2011; Grimmel & Meijer, 2014). Perceived transparency is thus understood as both a citizen judgement and not a foregone conclusion of putting information online. Public trust is about citizens' confidence that the implementing agency is acting in the public interest, that it is using resources well, and that it can deliver the project results it promises.

3.3. Theoretical framing

The research is based on stakeholder theory, public trust theory and dialogic communication. Stakeholder theory focuses on the interests of groups that are impacted by decisions made by the organizations (Freeman, 1984). In KMP, the following groups are covered: commuters, residences, businesses, workers, women passengers, and institutions along corridor. Public Trust theory emphasises citizens' perceptions of competence, integrity, accountability and responsiveness. Two way Symmetrical theory of public communication sets the expectation that when public communication is effective it is communicated through listening and responding, not just the broadcast of the institution (Grunig & Hunt, 1984). Dialogic communication takes this idea into a digital context and calls for a two-way exchange of information with a focus on developing relationship (Kent & Taylor, 1998). These views lead to a model where digital communication is directly and indirectly linked to trust via perceived transparency.

4. Methods

4.1. Research design and participants

The current study adopted the quantitative cross sectional survey method. The target population included citizens who knew about KMP, commuters who used to be in the neighborhood of the Yellow Line corridor, citizens who lived in the vicinity of the corridor, citizens who had worked at the government agency, citizens who had worked in the private sector that has had any

connection with the project, citizens who had heard of the project, and citizens who had read about the project online. The respondents were selected by purposive sampling because they have at least basic knowledge of the project. The actual sample size was 200 respondents.

The sample was 71.0% male and 29.0% female. The majority of respondents were below 41 years of age (70.0%), 47.0% had master's degrees and the largest occupational category was commuters (39.0%). Overall, 84.0% of people stated that they were aware of KMP. These features suggest that these are an informed but not population representative sample, which is taken into account in the limitations section.

4.2. Measures

A structured questionnaire was used in which the responses vary between strongly disagree (1) and strongly agree (5). Digital communication was evaluated using eight items related to access to digital information, social media updates, responsiveness to communication, traffic and construction information, grievance information and usefulness of visual information. It had good internal consistency (Cronbach's $\alpha = .847$).

Seven items were used to measure the perceived transparency, which addressed the issue of honest and complete information, disclosing of delays and setbacks, the financial and safeguard information, credibility of official communication, and proactive disclosure. The level of reliability was acceptable ($\alpha = .831$).

4.3. Analytic strategy

The analysis proceeded in four stages. First, means and standard deviations were calculated for the three principal variables. Second, Pearson correlations tested the direction and strength of their bivariate relationships. Third, three multiple regression models were estimated while controlling for age and gender: Model A predicted public trust from digital communication; Model B predicted perceived transparency from digital communication; and Model C predicted public trust from both digital communication and perceived transparency. Finally, mediation was tested using 5,000 bootstrap iterations following Preacher and Hayes (2008). A confidence interval excluding zero was interpreted as evidence of a statistically significant indirect effect. Internal consistency was assessed with Cronbach's α . Item-level data were not available for additional construct-validation diagnostics, such as factor analysis, composite reliability, average variance extracted,

or discriminant-validity tests; this constraint is considered in the limitations and future-research sections.

5. Objective Digital Communication Content Audit

An objective content analysis of official digital communication of the Karachi Mobility Project (KMP) was done to complement the citizen survey. The audit reviewed all project communications which are public and verified whether they contained information that is deemed to be transparency oriented and covered the following elements: Project progress, Implementation updates, Disclosure of delays or challenges, Explanation of disruptions, Stakeholder responsiveness, Accessibility of information, Responsible institutional contacts, Grievance information, Supporting evidence, including photographs, dates, reports, or quantitative indicators. For each of the characteristics, a "yes" (1) or a "no" (0) was assigned, so that the various communication items could be evaluated in a consistent way as they relate to the study's conception of digital transparency.

The purpose of the audit was to offer methodological triangulation, not to supplant citizens' impression of transparency. This is significant because information can be public without being seen by citizens as being transparent, credible, and responsive. The audit thus offers objective information on the communication context in which KMP exists, and complements the analysis of citizens' perceptions of communication that was carried out in the survey.

6. Results

6.1. Descriptive results and correlations

Respondents assessed KMP digital communication, and the findings suggest a moderately positive result ($M = 3.45$, $SD = 0.72$). Moreover, in the case of the perceived transparency it found that it was somewhat lower ($M = 3.31$, $SD = 0.68$), and public trust had the lowest mean ($M = 3.18$, $SD = 0.71$). This pattern of the mean score and standard deviation suggests that visible communication was not automatically accompanied by equally strong confidence in the project.

All focal variables were identified as positively related to each other. Digital communication correlated with perceived transparency ($r = .512$, $p < .01$) and public trust ($r = .468$, $p < .01$), providing strong evidence of the positive relationships among the study variables. Perceived

transparency showed the strongest bivariate association with public trust ($r = .631$, $p < .01$), providing initial support for the proposed mediating role.

6.2. Regression and mediation results

Model A showed that digital communication was a positive predictor of public trust ($B = 0.421$, $SE = 0.041$, $t = 10.268$, $p < .001$), supporting H1. The model explained 31.8% of the variance in trust ($R^2 = .318$). In Model B, digital communication significantly predicted perceived transparency ($B = 0.487$, $SE = 0.038$, $t = 12.816$, $p < .001$), supporting H2; this model explained 37.4% of the variance in perceived transparency ($R^2 = .374$). Age and gender were not significant in either model.

When perceived transparency was entered alongside digital communication in Model C, it was a strong positive predictor of trust ($B = 0.491$, $SE = 0.048$, $t = 10.229$, $p < .001$), supporting H3. The coefficient for digital communication fell from 0.421 to 0.183 but remained statistically significant ($SE = 0.045$, $t = 4.067$, $p < .001$). Model C explained 48.2% of the variance in public trust (adjusted $R^2 = .470$).

The bootstrap test estimated an indirect effect of 0.239 through perceived transparency. Its 95% confidence interval, [0.179, 0.304], did not include zero. H4 was therefore supported. Because the direct effect remained significant after the mediator was included, the results indicate partial rather than full mediation.

Table 1: Regression and mediation results.

Model / predictor	B	SE	β	t	p	95% CI
Model A: Public trust						$R^2 = .318$; Adj. $R^2 = .308$; $F(3, 196) = 30.47$, $p < .001$
Digital communication	.421	.041	.427	10.268	< .001	[.340, .502]
Model B: Perceived transparency						$R^2 = .374$; Adj. $R^2 = .364$; $F(3, 196) = 39.05$, $p < .001$

Digital communication	.487	.038	.515	12.816	< .001	[.412, .562]
Model C: Public trust						R ² = .482; Adj. R ² = .470; F(4, 195) = 45.34, p < .001
Digital communication	.183	.045	.186	4.067	< .001	[.094, .272]
Perceived transparency	.491	.048	.470	10.229	< .001	[.396, .586]
Indirect effect (DC → PT → trust)	.239	—	—	—	—	Bootstrap 95% CI [.179, .304]

Note. Unstandardized coefficients (B) and standard errors (SE) are reported. Standardized coefficients (β) are calculated from the reported B values and observed standard deviations. Age and gender were included as controls; their coefficients are not shown because they were not statistically significant. Confidence intervals for direct effects are normal-theory 95% intervals; the indirect-effect interval is based on 5,000 bootstrap iterations. F statistics are derived from the reported R² values, sample size, and number of predictors.

6.3. Objective Digital Communication Content Audit

The content audit revealed that different types of information supporting transparency was present in KMP's official digital communications more or less prominently. Information on the status of the project and the related information was evident in the various communications reviewed; information on challenges, delays, stakeholder response and grievance outcomes was less consistently reported. The digital communication of the project was found to be substantive enough in terms of activities and progress, but not in terms of public accountability.

The findings support the survey results by offering a realistic perspective on the communications context in which citizens developed their perceptions. The content audit shows that transparency-related information may be present or absent and may be incomplete, while the survey reveals that perceived transparency is positively correlated with public trust in the government. The two sources reinforce the analysis that digital communication is most effective for public trust if it

makes information available to citizens that is both accessible and credible, and also sufficiently complete regarding the progress of the project and implementation challenges.

7. Discussion

The results indicate a significant correlation between digital communication and the public trust in the Karachi Mobility Project, and provide a clearer understanding of the pathway. It is not necessary to conclude that increased amount of online messages equals increased confidence. On the contrary, digital communication is linked to citizens' trust, in part due to the fact that the citizens who perceive project communication as more transparent also indicate more trust. Regular, accessible and credible information can help make public action more intelligible, and alleviate uncertainty regarding the actions of the implementing institution. Because of the cross-sectional design, however, these results cannot be used to establish causal direction.

Digital communication plays a significant direct role on trust, which is in line with the findings of some studies that indicate that e-government tools and public sector social media can contribute to trust in public institutions (Porumbescu, 2016; Tolbert & Mossberger, 2006). For the KMP setting, online updates of projects can give reassurance by allowing activity and progress to be visible. But there is an important caveat in the mediation result, and that is that the trust benefit is enhanced when the communication is seen as honest and full. This is in line with the idea that perceived transparency is more important than information availability (Welch et al., 2005).

The partial mediation result also suggests that there are means of mediation other than transparency. Digital communications can influence trust in the following ways: perceived responsiveness, visibility of physical progress, inclusion, and assurance that concerns can be addressed to decision makers. Here, these possibilities are not to be understood as a given but as indications of a larger story of trust building in the making of public projects. They also recommend that a communications approach focused on “posting about good news” might not be as effective as a strategy that includes statements about challenges, delays, and answering citizen questions.

8. Conclusion

This research has found positive relationship between digital communication and public trust in the Karachi Mobility Project, and the perceived transparency can account for a significant portion of this relationship. When citizens feel open, trustworthy, and adequately informed about the project, their experience is more trusting. However, it is not a sign that online presence can make up for poor project performance. That's actually a statement about the fact that digital communication is a practical part of responsible infrastructure governance, as long as it is honest and responsive. The most effective communication approach that can be used for KMP or similar projects is one that can be seen to be progressing, rather than just repeating positive messages, and communicating the problems, decisions and citizen-response routes.

9. Practical and policy implications

Communication must be considered as a governance process for KMP and similar public projects and projects, and not as a publicity stunt. An empirical pattern suggests that transparency-oriented communication can help to build citizens trust in projects when citizens must bear short-term disruption for long-term benefits.

- Share monthly progress reports electronically, including physical, schedule, financial (where appropriate), environmental and social protection, and grievance tracking.
- Take a two-way approach: address questions, debunk misinformation and communicate unavoidable disruptions/delays in simple terms on social media.
- Set up a public project dashboard to coordinate construction milestones, traffic diversions, upcoming activities and project status updates under one roof, and maintained regularly.
- Make grievance pathways clearly visible and easy to understand, including information about the process for raising a grievance, timeframes and general grievance resolution performance.
- Use Urdu and English communication to provide information which is accessible and usable by a larger number of Karachi residents in a visual format.

Policy-wise, the project budget should incorporate a communication staff member for training, governance of content, public feedback monitoring, and communicating bad news. Such investments need to be considered as a component of risk management and stakeholder engagement, rather than as a choice of promotional spending.

10. Limitations

There are several caveats to temper the conclusions. First, the cross-sectional design captures associations at a single point in time, and does not determine causal direction, since citizens who already have a positive attitude towards KMP may assess their communications more positively. Second, the independent variable and mediator were measured using the same self-report survey, which may have resulted in common-method bias. There was no Harman single-factor test, marker-variable approach or other procedural or statistical diagnostic provided in the study materials and should be provided in a replication of the study. Third, reliability was examined using the Cronbach's alpha, but there was no item-level data to examine exploratory or confirmatory factor analysis, composite reliability, average variance extracted and discriminant validity. This should be studied in a larger follow-up study to examine the distinctiveness of the three constructs. Fourthly, purposive sampling with 200 respondents limits the generalizability of the results to the Karachi population which is diverse. The sample was quite well educated and skewed male, and those with minimal internet access may have been underrepresented.

Fourthly, the analysis applies the concepts of digital communication, transparency and trust as broad concepts. It does not distinguish the role of the respective platforms, the respective types of messages, the individual project performances, political attitudes, media coverage, and direct experience of construction disruptions. Finally, the reported results are based on citizens' perceptions and not independently verified measures of disclosure quality and responsiveness of institutions.

11. Future Research

Longer-term studies are required to determine if communication impacts vary in a project over time, from planning to construction to operation. Longitudinal designs might be more useful for separating the effects of communication (which might promote trust) from the effects of trust (which might focus attention on communication). Interviews, focus groups and digital-content

analysis would also help to elucidate the meaning citizens give to certain messages, omissions and responses. Replications should include item-level data, a report of EFA or CFA, composite reliability, average variance extracted, discriminant-validity diagnostics, and common-method bias remedial procedures and the appropriate test. The proposed measurement and mediation model would be more rigorously tested by using structural equation modeling, if sample size allows.

A comparative study of BRT practices and cities in Pakistan (or South Asia) may reveal context-specific and transferable practices. Other mediators or moderators that could be included in future models are perceived responsiveness, citizen engagement, institutional credibility, service expectations, and project performance in practice. The mixed-methods design combined with probability sampling and objective auditing of website and social-media content would give a more complete picture of the transparency in practice.

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