



Citizen-Focused Service Delivery Design and its Impact on Perceived Service Quality Satisfaction: Developing a CF-SDD Model for Local Government Organizations

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Abstract

The purpose of this paper is to examine how the Service Delivery Design (SDD) of public/local government organizations is associated with, and predicts service delivery outcomes, with a focus on citizen-perceived service quality satisfaction, and to propose a citizen-focused service delivery design model for the local government of Cyprus. This model is based on specific SDD dimensions of: Service Delivery Orientation, Leadership/Management, Infrastructure, Human-Capital Performance Competence and Accountability. The methodology used in this study is a quantitative research design, conducted through an online survey among citizens, served by Local Government Organizations, under the authority of the Republic of Cyprus. For data analysis, the study applied the PLS-SEM statistical method to estimate and confirm the proposed CF-SDD Model. The research findings supported the construction and proposal of a Citizen-focused Service Delivery Design Model for Local Government, indicating the existence of direct, positive, predictive relationships between the specified Service Delivery Design dimensions and the service delivery outcome of citizen-perceived service quality satisfaction (CP-SQS). The originality and value of the study lie in the development of a CF-SDD Model for Local government focusing on service delivery outcome of citizen-perceived service quality satisfaction, thus being based on service receivers' (citizens') perceptions. This makes this study unique, as most studies concerning Cyprus's public service delivery have historically been based on the service providers' (public sector professionals) views. As such, it provides valuable insights for improving public service delivery.

Keywords: accountability; citizen-perspective; infrastructure; management; workforce

1. Introduction

To address citizens' growing expectations, public organisations, especially local governments, need to enhance administrative efficiency both in service production and delivery (Katharaki & Tsakas, 2010; Van Buuren et al., 2020) through citizen-focused service-delivery models, emphasising transparency, performance management, accountability, participation, organizational restructuring, and quality management (Marumahoko, 2020).

Service design strengthens public service management by focusing on service outcomes, citizen interactions, and attitudes, thereby effectively addressing the complexity of public administration (Van Buuren et al., 2020). However, public service design has received insufficient attention and has seen limited application, being primarily inward-focused, emphasizing internal processes and structures (Yu & Sangiorgi, 2018). The limited interdisciplinary research on service design restrains a holistic understanding of its effects on service delivery outcomes. In particular, within public service research, effects of service design remain underexplored, highlighting a significant research gap (Andreassen et al., 2016; Qi et al., 2018; Joly et al., 2019; Strokosch & Osborne, 2023).

This study examines local government service delivery design and how it is associated with citizen experience. It develops and empirically tests a Citizen-Focused Service Delivery Design model, showing positive, predictive relationships with perceived service quality satisfaction, addressing key gaps in public service design research. The CF-SDD model conceptualization—including its underlying design logic, constructs, and interrelationships—is grounded in and strongly supported by established theory and literature. The paper outlines the model design logic, literature, methodology, results, and key theoretical, managerial and novel contributions.

1.1 The Design Logic of the CF-SDD Model

A design effort must clearly define both the problem and the target outcome (Hermus et al., 2019). Developing a service-delivery design requires careful consideration of its purpose, key actors, and multidisciplinary factors that critically shape its outcome. Accordingly, this study adopts a service design aimed at enhancing the citizen-perceived service quality satisfaction by examining factors that strongly predict the target outcome (Zomerdijk & Voss, 2010; Syed et al., 2018; Teixeira et al., 2019). These key factors are associated with principal actors of the service-delivery function; the service provider mechanism (organization), the human-capital, playing a central role in service delivery interactions and outcomes, and the citizens, as the recipients of service delivery outcomes (Figure 1).

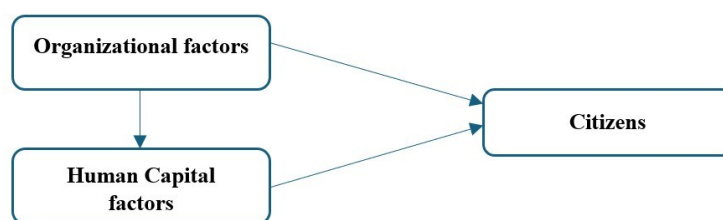


Figure 1. Major actors of public service-delivery function
Source: (D. Zourmpanou, 20 25)

The organization-related service-delivery dimensions examined are: Service-delivery orientation, leadership/management and infrastructure (Sureshchandar, 2002; Chen et al., 2004; Syed et al., 2018). The human capital aspects examined are service-delivery performance competence and accountability, as key dimensions influencing citizens' perceptions of public service quality satisfaction (Oakley, 2012; Galeazzo et al., 2016). Citizens' role in service design is examined in relation to "citizen-perceived service quality satisfaction" (Butkus, 2023). Service-delivery design manages complex relationships among these actors; therefore, understanding these influencing factors supports the frontline service delivery advancement.

Figure 2 illustrates the proposed CF-SDD Model constructs and relationships, strongly supported by the theoretical background.

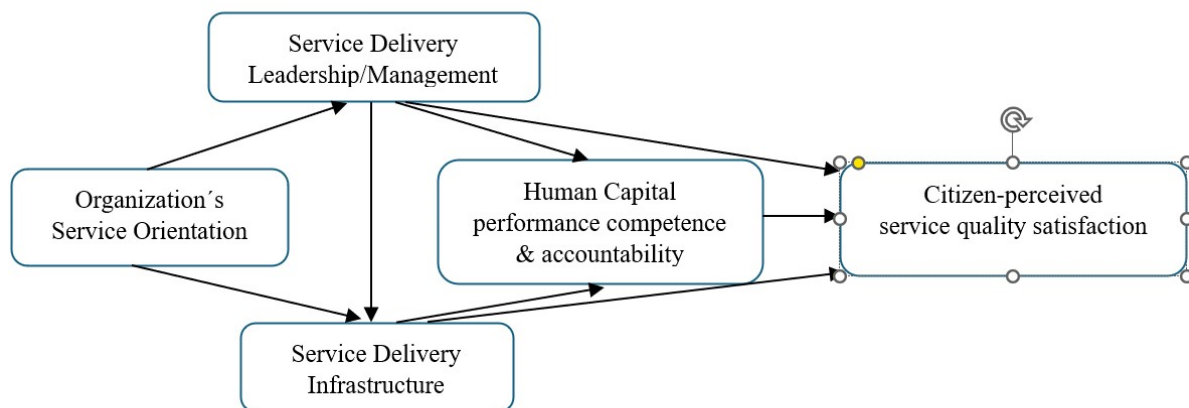


Figure 2. The CF-SDD theoretical Model
Source: (D. Zourmpanou, 2025)

2. Literature

2.1 Organizational SD Orientation

Customer service orientation is widely recognized in the literature and within NPM as a critical factor influencing an organization's service delivery outcomes and overall customer experience (Hammerschmid et al., 2018). A customer-focused service orientation strengthens service quality, customer satisfaction and overall public service performance, by establishing the framework and shaping the service delivery systems, infrastructure, attitudes, behaviours and culture (Chen, et al., 2004; Aquilani et al., 2017; AlZawati et al., 2020). Re-orienting public organizations from administrative-driven to customer-driven approaches remains a major challenge, requiring structural changes, measurement systems, and focus on citizens' evolving needs, and treating them as customers (Woodcock, et al., 2008; Hammerschmid, et al., 2018).

2.2 Organizational SD Leadership and Management

Public service delivery leadership/management critically influences citizen satisfaction by fostering service quality, continuous improvement, and high performance (Kanji, 2008; AlZawati et al., 2020). Public servant leadership entails a strong orientation toward social responsibility, reflected in managerial commitment and practices that shape employees' performance standards and customer-oriented behaviours, thereby fostering effective employee–citizen interactions and enhancing the citizen-perceived service quality satisfaction

(Lee et al., 2006; Luu, 2018). This requires clear goals, transformational leadership, and management controls aligned with public servants' motivation and performance (Kim & Shin, 2017; Ritz et al., 2021; Van der Kolk et al., 2019). Effective public-service designs require a coherent strategy emphasizing a shared vision, flexible implementation plan, and strong, innovative leadership that effectively coordinates processes, balancing public servants' and citizens' perspectives (Andreassen et al., 2016; Strokosch & Osborne, 2023).

2.3 Organizational SD Infrastructure

Service-delivery infrastructure refers to core elements including SD structures, job-roles, processes, systems, and regulatory frameworks which are critical factors significantly influencing continuous improvement, service quality, organizational performance and service delivery outcomes in public service (Kanji, 2008; Aguilani et al., 2017; AlZawati et al., 2020). Effective SD infrastructure integrates all these elements with HR strategies, forming a cohesive system that shapes employee perceptions, motivation, behaviours and capabilities, supporting high-performance levels (Luu, 2018). Particularly, SD structures and associated job-roles shape service orientation, employee motivation, behaviour and performance, while highly centralized structures often constrain autonomy and contribution (Oldham & Hackman, 1981; Jin & McDonald, 2016). Accordingly, restructuring and job-redesigning towards meaningfulness, responsibility and accountability are key policies which transform local government service-delivery into customer-focused, and strengthen motivation, and service outcomes (Bouckaert & Kuhlmann, 2016; James & Gilke, 2020).

2.4 Human-Capital Performance Competence and Accountability (HC-PCA)

Employee professional competence, motivation, commitment, performance evaluation, and accountability are widely recognized in the literature as key success factors for achieving public service quality, continuous improvement and high-performance levels (Aquilani et al., 2017; AlZawati, et al., 2020). Accordingly, these factors are used in this study to measure HC-PCA dimension. Professional competence—encompassing knowledge, expertise, abilities, and technological skills—is essential for managing complex services (Parasuraman et al., 1985). Employee commitment, reflecting motivation and willingness to advance organizational goals, strongly influences behaviours, performance and customer satisfaction (Meyer et al., 2004; Berry et al., 1988; Asif & Rathore, 2021). Performance evaluation and accountability—core dimensions of public accountability—comprise top-down mechanisms, ensuring service quality and citizen satisfaction, (Susskind et al., 2003), and bottom-up leadership practices, fostering internalized accountability (Galeazzo et al., 2016; Van der Kolk, 2019; Ritz et al., 2021).

2.5 Citizen-Perceived Service Quality Satisfaction

Literature suggests that public service design should enhance citizen-perceived service quality satisfaction. For instance, New Public Management prioritizes citizen satisfaction through a holistic design that emphasizes the systematic planning and monitoring of satisfaction to build trust in public institutions, (Galeazzo et al., 2016; Joly et al., 2019; Van Buuren et al., 2020). Satisfaction is an emotion-based response reflecting citizens' positive or negative feelings shaped through cumulative service encounters and evaluations of service-quality attributes including reliability, responsiveness, and willingness to serve (Parasuraman et al. 1988; Sureshchandar et al., 2002; Butkus et al., 2023). Service quality is commonly accepted as an antecedent of overall satisfaction, reflecting citizens' perceptions of service excellence; thereby satisfaction constitutes a key indicator of perceived service quality, (Berry et al., 1988; Cronin & Taylor, 1992; Zeithaml et al., 1996; Mo, and Beh, 2025).

Consequently, despite conceptual distinctions, service quality and satisfaction are strongly interrelated constructs sharing similar underlying mechanisms grounded in citizens' comparisons between expected and perceived service performance (Parasuraman et al., 1985, 1988). As these concepts exhibit perceptual overlap, they are often perceived as interchangeable constructs representing similar evaluative concepts (Iacobucci et al., 1995; Qin, 2025). Furthermore, recent studies emphasize as well the importance of citizen-centric service design and confirm the strong relationship between perceived service quality and citizen satisfaction in public service contexts (e.g., OECD, 2024; Qin, 2025; Mo, and Beh, 2025), highlighting the role of service attributes in shaping overall evaluations.

This study conceptualizes, accordingly, the citizen-perceived service quality and satisfaction as a unified construct—**Citizen-Perceived Service Quality Satisfaction (CP-SQS)**—capturing satisfaction derived from service quality attributes. CP-SQS does not represent an aggregation of two distinct constructs (service quality and satisfaction); it rather represents a single evaluative construct reflecting citizens' satisfaction, as derived by their perceptions of specific service quality dimensions. This conceptualization is directly grounded in the study's measurement design, as the research items were introduced with a question, explicitly framing the responses as satisfaction-based evaluations conditioned on perceived service quality attributes (e.g. *"to what extent do the following factors affect your overall satisfaction with service quality?"*). Consequently, CP-SQS construct, captures a unified cognitive–affective evaluation rather than two separable dimensions.

Empirically, this specification is supported by additional analysis. An exploratory assessment of an alternative two-construct specification revealed a single dominant factor, with all items loading strongly on one component (0.853–0.888), indicating a lack of meaningful empirical separation between service quality and satisfaction dimensions. This provides evidence supporting the use of a unified CP-SQS construct, while modeling the constructs separately would introduce redundancy without improving explanatory validity. Moreover, this is consistent with the formative specification of the construct, where indicators jointly capture a unified evaluative domain, and in alignment with the study's theoretical and methodological framework.

3. Methodology

The study employed a cross-sectional quantitative method using an online-survey to validate a theory-driven model for service delivery design of Public/Local Government Organizations. For model validation, the study used the PLS-SEM approach.

Target Population and Sampling Frame: The target population comprised citizens of the Republic of Cyprus receiving local government services. Data collection was administered by a research company through its professional online research panel, widely used for nationwide public opinion surveys. Invitations were electronically distributed to approximately 4,500 eligible panel members, resulting in 557 usable responses (response rate: 12.4%).

The respondents' gender distribution (male: 48.5%; female: 51.2%; other: 0.3%) closely aligned with 2021 Cyprus census data, (male: 48.7%; female: 51.3%) while the district distribution partially aligned with 2021 census, although not perfectly proportional to census benchmarks (Table 1). These comparisons indicate reasonable demographic comparability; however, voluntary online panel participation may introduce self-selection and non-response bias, limiting full generalizability. The use of online panel may also introduce potential coverage bias from underrepresentation of individuals with limited internet access or digital literacy. The sample broadly reflects key demographic characteristics; however, no post-

stratification weighting was applied. Given the study's focus on structural relationships rather than population estimates, the use of unweighted data was considered appropriate. Nevertheless, future research could apply weighting to further enhance representativeness. Moreover, subgroup analyses across key demographics (e.g., gender, education) indicated stable structural relationships, further supporting the robustness of the findings.

Research instrument, pilot testing, and measures: The questionnaire comprised 20 items measuring key service delivery factors and validated indicators of citizen-perceived service quality and satisfaction, grounded in relevant theory and literature. Items were adapted through contextual rewording from SERVQUAL criteria and their public-sector adaptations (Parasuraman et al., 1988; Goudarzi & Guenoun, 2010), and supplemented with constructs from public-service quality and performance management, continuous improvement, and public service design literature, (Chen et al., 2004; Kanji, 2008; Andreassen et al., 2016; Aquilani et al., 2017; Syed et al., 2018; Teixeira et al., 2019; Van Buuren et al., 2020; Strokosch & Osborne, 2023). This integrative approach ensured theoretical robustness and contextual relevance. The questionnaire was pilot-tested (n=30), resulting in minor wording refinements. All items were measured using a five-point Likert scale.

Ethics: Participation was voluntary and anonymous, obtaining informed consent prior to participation. No personal identifiers were collected, ensuring data protection. All procedures complied with the host university's ethical guidelines.

Data analysis: Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS4 to estimate and validate the proposed CF-SDD model (Chin, 1998; Tenenhaus et al., 2005; Sarstedt et al., 2021; Hair et al., 2022). The sample size (n = 557) exceeds recommended thresholds, ensuring adequate statistical power (Hair et al., 2021).

Common Method Bias (CMB) and Endogeneity Assessment: Potential CMB was assessed using both procedural and statistical remedies. Ex-ante controls included anonymity and confidentiality assurances, unambiguous item wording, and theory-driven construct specification. As an ex-post diagnostic, a CFA-based Harman's single-factor test conducted in SmartPLS4 indicated that a single factor explains 49.0% of total variance (below the 50% threshold), suggesting that CMB is unlikely to materially affect the results. Given the formative PLS-SEM specification, CMB assessment was complemented with collinearity-based tests, including full-collinearity VIF assessment (Kock, 2015), supporting construct distinctiveness, and the robustness of estimated relationships. Marker variable and unmeasured latent method construct (ULMC) approaches were not applied due to methodological constraints. Specifically, the survey design did not include a theoretically unrelated marker variable, while the formative specification constrains the application of ULMC, which relies on reflective measurement assumptions and shared variance across indicators.

Endogeneity cannot be entirely excluded in cross-sectional, self-reported data; however, the study's theory-driven model specification and collinearity-based diagnostics suggest that it is unlikely to substantially bias the results. Nevertheless, the findings should be interpreted as indicative of predictive relationships rather than causal effects.

Table 1: Respondent Demographic Characteristics

Variable	Category	n	%
Gender	Male	270	48.5
	Female	285	51.2
	Other	2	0.3
Age group (years)	18–24	19	3.4
	25–35	74	13.3
	36–45	139	25.0
	46–55	127	22.8
	56–65	158	28.4
	> 65	40	7.2
Education level	Elementary	5	0.9
	High school	112	20.1
	University	275	49.4
	Postgraduate (Master's/PhD)	165	29.6
Residence district	Nicosia	212	38.1
	Limassol	176	31.6
	Larnaca	85	15.3
	Paphos	55	9.9
	Famagusta	29	5.2

3.1 PLS-SEM Application

PLS-SEM has been applied across a wide range of disciplines, including healthcare (Katharaki et al., 2010), human resource management (Ringle et al., 2020), marketing and strategic management (Henseler et al., 2009, Sarstedt et al., 2021).

PLS-SEM application process comprises the model specification, model assessment, and model-fit assessment. PLS-SEM estimates path coefficients, including direct, indirect, and total effects among the constructs; their analysis is interpreted in terms of predictive relationships rather than causal, given the cross-sectional, self-reported nature of the data.

Model Specification: PLS-SEM was specified and assessed via structural and measurement models' specification and assessment (Diamantopoulos & Siguaw, 2006; Hair et al., 2021).

Structural Model Specification: The proposed model consists of five constructs:

1. CFSD Orientation, (CFSD-O)
2. CFSD Leadership/Management (CFSD-LM)
3. CFSD Infrastructure (CFSD-I)
4. CFSD Human-Capital Performance Competence and Accountability (CF-HCPCA)
5. Citizen-Perceived Service Quality Satisfaction (CP-SQS).

Measurement Model Specification: The study employed a **formative** model specification. Constructs were measured using multiple indicators aligned with formative criteria guidelines. Formative indicators represent distinct, non-interchangeable antecedent dimensions capturing different aspects that causally and collectively define the construct's full conceptual domain; thus, dropping an indicator changes its conceptual meaning (Diamantopoulos & Siguaw, 2006; Coltman et al., 2008; Sarstedt et al., 2022).

Indicators' content coverage was ensured through theory-driven construct operationalization. The instrument integrates contextually adapted SERVQUAL-informed indicators with additional, factors derived from public service literature (see **research instrument**, p. 6).

Table 2 represents constructs with their appointed indicators. The indicators measuring CFSD-O, CFSD-LM, CFSD-I and CF-HCPCA were introduced with the common question: "To what extent do the following factors affect service quality and your satisfaction from it?"

CP-SQS is conceptualized and modeled as a single, evaluative construct, (rather than two distinct constructs), capturing citizens' satisfaction as derived from perceived service quality attributes, (see Section 2.5). Therefore, all indicators measuring the CP-SQS are framed as satisfaction-based evaluations of service quality attributes, introduced with the question: "To what extent do the following factors, attitudes and behaviours, affect your overall satisfaction with service quality delivered?" Full wordings for all indicators are provided in Appendix A.

Table 2: SDD Constructs and Indicators (Measures)

SDD Constructs	Indicators
CFSD-O	CFOR_1 Excellent understanding of citizens needs/expectations CFOR_2 Focusing on satisfying citizens' needs/expectations CFOR_3 Seeking citizens' active participation/opinions CFOR_4 Offering appropriate services CFOR_5 Citizens' responsiveness & collaboration
CFSD-LM	LM_1 Having a clear vision, orientation, strategy & goals LM_2 Effective Human-Resources Management LM_3 Flexibility/effective management of managing citizens' needs
CFSD-I	INFR_1 Appropriate SD org. Structures INFR_2 Appropriate SD roles (duties/responsibilities) INFR_3 Simple/user-friendly SD procedures INFR_4 Appropriate SD control & improvement systems INFR_5 Appropriate legal/regulatory framework
CF-HCPCA	HCPA_1 Human-capital professional competence HCPA_2 Human-capital commitment to service quality & satisfaction HCPA_3 Human-Capital performance evaluation & accountability on SQS
CP-SQS	SQS_1 Proper handling of citizens' problems & needs SQS_2 SD attitudes and behaviours SQS_3 Reliability/Responsibility SQS_4 Willingness and Readiness to serve

Research Hypotheses: The study examined the interrelationships among the constructs of the CF-SDD Model and assessed their predictive relationships with citizen-perceived service quality satisfaction (CP-SQS), through the following hypotheses (Table 3).

Table 3: Research Hypotheses

Hypotheses testing the constructs' relationships
H1: CFSD-O positively predicts CFSD-LM H2: CFSD-O positively predicts CFSD-I
H3: CFSD-LM positively predicts CF-HCPCA H4: CFSD-LM positively predicts CFSD-I H5: CFSD-LM positively predicts CP-SQS
H6: CFSD-I positively predicts CF-HCPCA H7: CFSD-I positively predicts CP-SQS
H8: CF-HCPCA positively predicts CP-SQS

4. Results

Model Assessment

PLS-SEM analysis involves assessment of the measurement model, structural model and model fit. Figure 3 presents the PLS-SEM model; circles represent the examined constructs, rectangles represent their formative indicators, and arrows represent the hypothesized relationships between them. Moreover, values in circles indicate the R^2 values, while those in arrows indicate the structural model's path coefficients, and the measurement model indicators' outer weights.

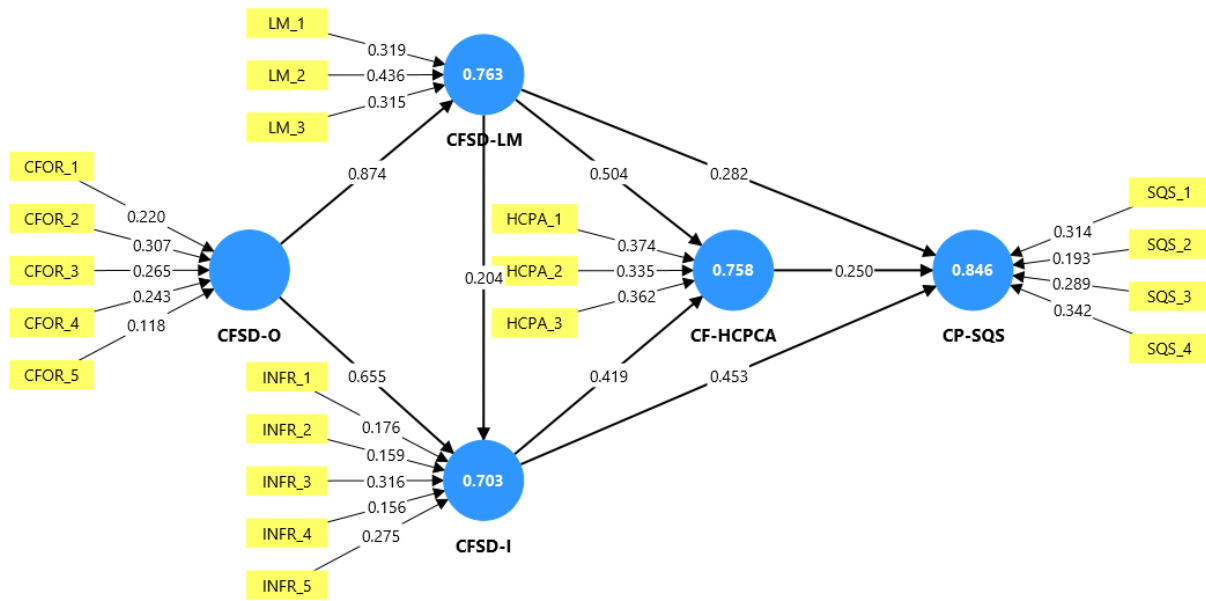


Figure 3: PLS-SEM Model (constructs, indicators and hypothesized relationships)

4.1 Measurement Model Assessment

Measurement model assessment involves the assessment of content validity, convergent validity, collinearity, and indicators' statistical significance and relevance (Hair et al., 2022).

I) Content validity was assessed using a strong theoretical background, experts' (LGO's officers) feedback, and pilot testing of the questionnaire to confirm respondents' understanding of questions and scales, thereby supporting the validity of the measurement model.

II) Convergent validity was assessed using separate redundancy analysis for each construct (Chin, 1998), employing corresponding global-single items, included in the questionnaire. A correlation of ≥ 0.708 indicates that a construct explains over 50% of the alternative measure's variance (Hair et al., 2022). All formative constructs' path coefficients exceeded the 0.708 threshold and therefore exhibited convergent validity (Table 4).

Table 4: Convergent Validity Results

CONSTRUCT	Convergent Validity
CFSD-O	0.764
CFSD-LM	0.885
CFSD-I	0.886
CF-HCPA	0.849
CP-SQS	0.840

III) Collinearity was assessed using Variance Inflation Factor (VIF) thresholds: $VIF < 3$ indicates no collinearity issue, $3-5$ indicates acceptable collinearity, and $VIF \geq 5$ denotes critical collinearity issues (Hair et al., 2022). VIF results indicated no problematic collinearity, because no formative indicator reached $VIF \geq 5$. The highest VIF was 4.578 (INFR_2), while some indicators' VIFs were below 3 (e.g., SQS_1, SQS_2, SQS_3, SQS_4, CFOR_3, CFOR_5), (Table 5).

Table 5. Measurement Model Collinearity- Indicators' VIF Values

Indicators	VIF	Indicators	VIF
CFOR_1	3.180	LM_1	3.750
CFOR_2	3.368	LM_2	3.709
CFOR_3	2.455	LM_3	3.324
CFOR_4	3.258	HCPA_1	4.415
CFOR_5	1.668	HCPA_2	3.327
INFR_1	4.559	HCPA_3	3.471
INFR_2	4.578	SQS_1	2.817
INFR_3	4.451	SQS_2	2.543
INFR_4	4.361	SQS_3	2.251
INFR_5	4.415	SQS_4	2.784

IV) Indicators' significance and relevance assessment

Indicators' relevance was assessed through standardized outer weights ranging from -1 to +1. Weights closer to ± 1 indicate strong relationships (positive or negative) and higher contributions to the construct, while weights close to 0 indicate relatively weak relationships. Indicators with nonsignificant weights but significant loadings (≥ 0.50) remain relevant (Hair et al., 2022). Bootstrapping results show that all indicators have positive weights and loadings above 0.50, confirming their relevance and generally strong relationships (Table 6).

Table 6: Formative indicators significance and relevance testing – outer weights results.

Indicators to constructs	Outer weights (Outer loadings)	Outer weights <i>t</i> -values	Outer weights <i>p</i> -values ($p < 0.05$)	95% Confidence Interval (Percentile) [2.50; 97.50]
CFOR_1 -> CFSD-O	0.220 (0.886)	6.285	0.000	[0.152; 0.287]
CFOR_2 -> CFSD-O	0.307 (0.911)	7.728	0.000	[0.229; 0.386]
CFOR_3 -> CFSD-O	0.265 (0.858)	9.031	0.000	[0.207; 0.323]
CFOR_4 -> CFSD-O	0.243 (0.892)	6.363	0.000	[0.168; 0.317]
CFOR_5 -> CFSD-O	0.118 (0.684)	4.365	0.000	[0.067; 0.172]
HCPA_1 -> CF-HCPA	0.374 (0.950)	7.074	0.000	[0.269; 0.478]
HCPA_2 -> CF-HCPA	0.335 (0.920)	7.607	0.000	[0.253; 0.423]
HCPA_3 -> CF-HCPA	0.362 (0.929)	8.199	0.000	[0.274; 0.446]
INFR_1 -> CFSD-I	0.176 (0.915)	3.835	0.000	[0.085; 0.266]
INFR_2 -> CFSD-I	0.159 (0.913)	3.455	0.001	[0.066; 0.247]
INFR_3 -> CFSD-I	0.316 (0.940)	6.029	0.000	[0.212; 0.418]
INFR_4 -> CFSD-I	0.156 (0.902)	3.803	0.000	[0.075; 0.236]
INFR_5 -> CFSD-I	0.275 (0.933)	5.082	0.000	[0.170; 0.381]
LM_1 -> CFSD_LM	0.319 (0.930)	7.766	0.000	[0.236; 0.397]
LM_2 -> CFSD_LM	0.436 (0.950)	10.413	0.000	[0.354; 0.517]
LM_3 -> CFSD_LM	0.315 (0.918)	8.300	0.000	[0.242; 0.389]
SQS_1 -> CP-SQS	0.314 (0.897)	8.952	0.000	[0.245; 0.384]
SQS_2 -> CP-SQS	0.193 (0.847)	6.742	0.000	[0.137; 0.248]
SQS_3 -> CP-SQS	0.289 (0.851)	10.162	0.000	[0.234; 0.346]
SQS_4 -> CP-SQS	0.342 (0.902)	10.020	0.000	[0.276; 0.410]

Indicators' statistical significance was assessed through outer weights testing, using bootstrapping, with 5000 subsamples at a 5% significance level and confidence interval (percentile method). Indicators' weights with $p < 0.05$, $t > 1.960$ (two-tailed), or 95%

confidence intervals excluding zero are deemed significant (Shmueli et al., 2019; Hair et al., 2021). Results indicated that all formative indicators were significant at 5% level in forming the construct (Table 6).

4.2 Structural Model Assessment

It includes the assessment of collinearity, path coefficients' significance and relevance, the model's explanatory power (R^2), and predictive accuracy (Q^2) (Hair, et al., 2022).

I) Collinearity among the endogenous constructs and their predictors was assessed using the threshold of $VIF \geq 5$ for indicating a possible collinearity problem (Hair et al., 2022). Results (Table 7) indicated that all VIF values were well below 5, denoting absence of critical collinearity issues within the structural model.

Table 7: Structural Model Collinearity– Constructs (VIF) Values

COLLINEARITY ASSESSMENT STRUCTURAL (INNER) MODEL	VIF
HC-PCA -> CP-SQS	4.125
CFSD-I -> CF-HCPCA	2.513
CFSD-I -> CP-SQS	3.239
CFSD-LM -> CF-HCPCA	2.513
CFSD-LM -> CFSD-I	4.227
CFSD-LM -> CP-SQS	3.560
CFSD-O -> CFSD-I	4.227
CFSD-O -> CFSD-LM	1.000

II) Structural model's relationships significance and relevance.

Relationships significance was tested through path coefficients' and total-effects' t -values and p -values, or bootstrap confidence intervals. Path coefficients with $p < 0.05$, are significant at 5% level, if the 95% confidence interval does not include zero (Shmueli et al., 2019; Hair et al., 2021). Bootstrapping results indicated that all path coefficients' and total effects' p -values were below 0.05, and all 95% percentile confidence intervals excluded zero, confirming that all relationships between the constructs were statistically significant at the 5% level (Table 8).

Relationships' relevance was tested using path coefficients' and total effects' sizes. Path coefficients closer to ± 1 indicate strong relationships, closer to 0 indicate weak relationships, and outside ± 1 may indicate unacceptable multicollinearity, (Hair et al., 2022). Path coefficients indicated positive and generally strong relationships among most constructs, with the strongest observed between CFSD-O and CFSD-LM (0.874), followed by CFSD-O and CFSD-I (0.655), suggesting that CFSD-Orientations strongly predicts these constructs. The path coefficients of CFSD-LM with CFSD-I (0.204), and with CP-SQS (0.282), as well as the path coefficients of CF-HCPCA with CP-SQS (0.250) indicate positive, but rather lower values.

Total effects, representing the combined direct and indirect relationships with a target construct, indicated that all predecessor constructs significantly predicted their respective target constructs. CFSD-O exhibited the strongest total effects on CFSD-LM (0.874), followed by CFSD-I (0.833), CP-SQS (0.821), and CF-HCPCA (0.789), indicating the prominent role of CFSD-O (Orientation) within the Service Delivery Design framework (see Table 8).

Additionally, bootstrapping results indicate significant indirect relationships of CFSD-O on CP-SQS via CFSD-I and CFSD-LM ($\beta = 0.296$ and $\beta = 0.246$, $p < 0.001$), supporting the presence of mediation in the model.

Table 8: Relationships significance (Path coefficients - Total effects - Confidence Intervals)

Structural Model Relationships	Path Coeff	P/Cs <i>t-value</i>	P/Cs <i>p-value</i>	Total effect	T/effect <i>t-value</i>	T/effect <i>p-value</i>	95% Confidence Intervals B/C
CF-HCPCA -> CP-SQS	0.250	7.234	0	0.250	7.234	0	[0.185; 0.321]
CFSD-I -> CF-HCPCA	0.419	10.673	0	0.419	10.673	0	[0.343; 0.496]
CFSD-I -> CP-SQS	0.453	14.817	0	0.558	20.752	0	[0.391; 0.511]
CFSD-LM -> CF-HCPCA	0.504	13.404	0	0.589	15.466	0	[0.428; 0.575]
CFSD-LM -> CFSD-I	0.204	3.667	0	0.204	3.667	0	[0.095; 0.311]
CFSD-LM -> CP-SQS	0.282	9.059	0	0.522	13.829	0	[0.219; 0.342]
CFSD-O -> CFSD-I	0.655	12.544	0	0.833	57.375	0	[0.551; 0.755]
CFSD-O -> CFSD-LM	0.874	84.417	0	0.874	84.417	0	[0.850; 0.892]
CFSD-O -> CF-HCPCA				0.789	50.924	0	
CFSD-O -> CP-SQS				0.821	61.936	0	

(III) Structural model's explanatory power (R^2).

The coefficient of determination (R^2) measures the model's in-sample explanatory power (i.e., in-sample model fit) ranging from 0 to 1. Higher R^2 values indicate greater explanatory power. Accepted guidelines classify R^2 values of 0.75, 0.50, and 0.25 as substantial, moderate and, weak (Rigdon, 2012; Hair, et al., 2019), while Chin (1998) suggested lower thresholds of 0.67, 0.33 and 0.19, respectively. R^2 values of CF-HCPCA (0.758), CFSD-LM (0.763) and CP-SQS (0.846), exceed 0.750, indicating substantial explanatory power. Although R^2 value of CFSD-I (0.703) is typically considered moderate, considering Chin's (1998) guidelines, and because it is explained by only two exogenous constructs (Henseler et al., 2009), it is accepted as substantial (Table 9).

Table 9: PLS Path Model's explanatory power (R^2 values)

Endogenous Constructs	R-square	R-square adjusted
CF-HCPCA	0.758	0.757
CFSD-I	0.703	0.702
CFSD-LM	0.763	0.763
CP-SQS	0.846	0.845

Moreover, f^2 effect sizes indicate the relative contribution of predictor constructs to endogenous constructs (Cohen, 1988), with thresholds of 0.02, 0.15, and 0.35 representing small, medium, and large effects, respectively (Hair et al., 2019; Sarstedt et al., 2021). The results indicate large effects for CFSD-O on CFSD-LM and CFSD-I, CFSD-I on CP-SQS, and CFSD-LM on CF-HCPCA; a medium effect for CFSD-I on CF-HCPCA; and small effects for CFSD-LM on CFSD-I and CP-SQS, as well as CF-HCPCA on CP-SQS.

IV). Structural Model's Predictive Power (Q^2).

The Q^2 value (Stone-Geisser, 1974), is the prevailing measure to assess the model's predictive power (i.e. accuracy in predicting new observations). Q^2 values were estimated through the PLSpredict algorithm, generating holdout-sample-based predictions on indicator and construct level, (Sarstedt et al., 2021), based on recommended guidelines of 10

repetitions, (k=10 folds) (Shmueli et al., 2019), ensuring minimum subgroup sample size requirements (Hair et al., 2019). Q^2 predict values above zero indicate acceptable predictive power, whereas zero or negative values indicate an absence of predictive power. Higher Q^2 values indicate smaller discrepancies between observed and predicted values, reflecting greater predictive accuracy. Q^2 values exceeding 0, 0.25 and 0.50 indicate small, medium, and large predictive accuracy respectively (Chin, 1998; Henseler et al., 2009; Sarstedt et al., 2021; Hair et al., 2022).

At the construct level, PLSpredict results indicated that all Q^2 predict values were above 0 (predictive relevance benchmark), and significantly above 0.50, representing the structural model's high predictive power (Table 10).

Table 10: PLS Path Model's predictive power (Q^2 values)

Endogenous constructs	Q^2 predict
CF-HCPCA	0.665
CFSD-I	0.687
CFSD-LM	0.759
CP-SQS	0.696

At the indicator level, the out-of-sample predictive power was measured using **MAE** (mean absolute error), and **RMSE** (root-mean-squared error) of PLSpredict. Based on established guidelines, if all indicators in PLS-SEM yield lower RMSE (or MAE) values (prediction errors) than the naïve LM (linear model) benchmarks, this indicates the model's strong predictive accuracy (Shmueli et al., 2019, Hair et al., 2022). PLSpredict results showed that all indicators of the target construct (CP-SQS), as well as those of the other constructs, had lower RMSE (or MAE) values compared to the naïve LM benchmarks, indicating the CF-SDD model's high predictive power (Table 11).

Table 11: Endogenous construct indicators' predictive power (Q^2)

Endogenous Constructs' Indicators	Q^2 predict	PLS-SEM RMSE	PLS-SEM MAE	LM_RMSE	LM_MAE
HCPA_1	0.594	0.417	0.305	0.415	0.313
HCPA_2	0.562	0.464	0.358	0.464	0.364
HCPA_3	0.580	0.438	0.324	0.439	0.331
INFR_1	0.599	0.428	0.325	0.429	0.324
INFR_2	0.571	0.458	0.357	0.458	0.356
INFR_3	0.605	0.376	0.273	0.377	0.273
INFR_4	0.552	0.450	0.348	0.450	0.349
INFR_5	0.592	0.456	0.356	0.458	0.361
LM_1	0.670	0.463	0.366	0.463	0.365
LM_2	0.651	0.456	0.363	0.458	0.368
LM_3	0.671	0.444	0.358	0.446	0.355
SQS_1	0.566	0.486	0.400	0.488	0.399
SQS_2	0.505	0.528	0.443	0.529	0.444
SQS_3	0.503	0.538	0.452	0.538	0.449
SQS_4	0.558	0.515	0.424	0.518	0.425

4.3 Model-Fit Assessment

SmartPLS4 provides model goodness-of-fit assessment; however, its use should be cautiously interpreted, as the general suitability of goodness-of-fit measures in PLS-SEM remains debated and threshold values for SRMR and similar metrics have not yet fully developed (Hair et al., 2019). Accordingly, this study primarily focuses on R^2 , Q^2 , and PLSpredict as

more appropriate indicators of predictive performance, assessing the model's in-sample explanatory power and out-of-sample predictive ability (Ringle et al., 2020). Despite these considerations, PLS-SEM application of model fit assessment indicates excellent fit, with SRMR values of 0.016 (saturated) and 0.017 (estimated).

4.4 Robustness Checks

The robustness of findings was supported through multiple diagnostics, including theory-based indicator content coverage, collinearity assessments (including full collinearity VIFs), and subgroup analyses across key demographics, (e.g., gender and education). Results for structural relationships indicated consistent directions and broadly similar magnitudes of the main path coefficients, supporting the stability of relationships across subsamples. Moreover, the use of PLS-SEM, which is suitable for non-normally distributed data (Hair et al., 2017), supports the robustness and stability of the estimated relationships.

5 Discussion

5.1 Discussion of Findings

PLS-SEM results validated the proposed CF-SDD Model for public/local government organizations, providing strong empirical evidence of robust, predictive relationships among: (a) constructs with their indicators in measurement model; (b) constructs within structural model; and (c) antecedent constructs with citizen-perceived service quality satisfaction.

The empirical results indicated that:

(a) Service Delivery Design significantly predicts citizen-perceived service quality satisfaction, underscoring the importance of a citizen-focused approach in SDD that incorporates all relevant actors and influencing factors.

(b) Within this context, such a Citizen-Focused Service Delivery Design should integrate key institutional and workforce dimensions including service-delivery orientation, infrastructure, leadership/management, and human-capital performance and accountability.

(c) The proposed indicators demonstrate strong predictive relationships with their respective service-delivery dimensions, supporting their relevance, as valuable strategies, for developing a coherent citizen-focused service design framework.

CFSD-Orientations key strategies emphasize identifying and meeting citizens' needs and expectations, delivering appropriate services, and seeking citizen participation. Effective **CFSD-Infrastructures** requires developing supportive service-delivery structures, work-design, procedures, control and improvement systems, and regulatory frameworks aligned with targeted service quality and satisfaction. **CFSD-Leadership/management** entails clear vision, strategy and goals on service quality satisfaction, flexible strategies for addressing evolving public needs, and effective human-resource management aligned with strategy and goals. Strengthening human-capital contribution requires enhancing **performance and accountability** through competencies, motivation, commitment, and performance-evaluation systems supporting service quality, satisfaction, and continuous improvement.

5.2 Novelty and Theoretical Contribution of the Research

The study's significance and novelty lie in major theoretical and practical contributions to public service-delivery design, most notably the development of a Citizen-Focused Service Delivery Design (CF-SDD) model that foregrounds the citizen perspective in public and local government contexts. Most prior research primarily focuses on managerial efficiency, institutional reform, or provider performance (e.g., Osborne, 2017; Torfing et al., 2021), neglecting citizen experience. In contrast, this study captures and conceptualizes citizens'

cognitive and affective perceptions of factors associated with service-quality satisfaction, providing strategically valuable, evidence-based insights for policymakers and practitioners to enhance service-delivery design and policy implementation.

Finally, its explicit focus on citizens' perceptions within the context of Local Government—studying the underexplored environment of the Republic of Cyprus—underscores both its empirical value and its theoretical contribution. The study bridges theoretical innovation with practical applicability, providing a robust framework for reimagining public service design through the integrated lenses of citizen experience, co-creation, and participatory governance.

5.3 Limitations and Future Research

As the first study in Cyprus examining the predictive relationships between public/local government service delivery design and citizen-perceived service quality satisfaction, the findings should be interpreted considering limited prior national evidence and the cross-sectional design. The sample closely aligns with national census data in gender and partially aligns across districts, suggesting that findings may broadly reflect national trends. However, the use of a voluntary online panel may introduce potential self-selection and non-response bias, warranting cautious generalization.

Moreover, as the study is conducted within the specific institutional and socio-cultural context of Cyprus, the generalizability of findings to other countries or administrative settings should be approached with caution. Nevertheless, the underlying theoretical relationships may be transferable to similar public service contexts, subject to institutional and contextual differences. Future research could employ longitudinal or cross-country designs to further validate the model across varying institutional and societal contexts.

6. Conclusions and managerial implications

6.1 Conclusions

To address the citizens' increasingly complex and emerging needs and expectations, Local Government Organizations need, more than ever, to redesign service delivery, adopting citizen-focused approaches that enhance public satisfaction and trust. Accordingly, the CF-SDD concept aims to bridge the perceived service-orientation gap by emphasizing the citizen-perceived service quality satisfaction, as the central outcome. This requires LGOs to understand citizens' needs and expectations, identify determinants of service-delivery outcomes and develop effective strategies that improve service-delivery management and enhance public servants' role and contribution to service-quality satisfaction. Such transformation requires leadership strategies that motivate, empower, and support employees, alongside performance management that strengthens public accountability. Successful implementation of such strategies requires management and employees to embrace organizational changes and practices fostering a citizen-oriented approach, effectively serving citizens' interests.

6.2 Managerial Implications.

Citizen-focused service delivery design in local government organizations can be supported through several managerial practices. First, systematic monitoring mechanisms—such as citizen satisfaction surveys, digital feedback platforms, and advisory panels—can capture citizens' needs and identify service improvement areas. Second, participatory approaches, including public consultations, participatory budgeting, and co-creation workshops, involving citizens in service design and decision-making, can strengthen citizen trust. Third, organizational restructuring—such as one-stop shops, revised employee roles, streamlined administrative processes, and supportive regulatory frameworks—can empower frontline

decision-making and reduce bureaucracy. Fourth, digital tools, including online service portals, mobile reporting applications, and data-driven monitoring systems, can improve service accessibility and efficiency. Finally, investment in human-capital training, empowerment, and performance management, through clear service standards, and measurable performance indicators, (e.g., service processing times, response times to citizens' requests, satisfaction scores), can strengthen responsiveness, and accountability.

Embracing such managerial practices, the LGOs can more effectively deliver high-quality public services and reinforce citizens' trust in local government.

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APPENDIX A: Full Measurement Items Wording.

“Based on your customer service experience with the Local Authority where you reside, to what extent do the following factors affect service quality and your satisfaction from it? “

	The Local Government Management:
Construct	Citizen-focused Service Delivery Orientation
CFOR_1	To have an excellent understanding of citizens problems, needs and expectations.
CFOR_2	To focus on satisfying citizens’ needs, problems and expectations
CFOR_3	To seek the citizens active participation, that is to seek their opinions and suggestions for service provision quality and their satisfaction from it.
CFOR_4	To provide appropriate services, aimed at effectively addressing the needs and expectations of citizens (including diverse, innovative, and specialized services)
CFOR_5	Citizens’ responsiveness & collaboration for attaining service improvement and compliance with laws and regulations for the common benefit.
Construct	Citizen-focused Service Delivery Leadership/Management
LM_1	To have a clear vision, orientation, strategy and goals in providing service quality satisfaction.
LM_2	To effectively manage human resources, that is, to properly train, guide, motivate, and evaluate the employees in delivering service quality and citizen satisfaction.
LM_3	To demonstrate flexibility and to guide staff in exhibiting adaptability in managing citizens’ needs derived from emerging conditions and needs of contemporary society.
Construct	Citizen-focused Service Delivery Infrastructure
INFR_1	The appropriate organisational service delivery structures, enabling citizen services to be completed at a single service point, easily and quickly (e.g. a one stop shop)
INFR_2	Clear and appropriate allocation of duties and responsibilities to staff, enabling them to serve citizens more quickly and efficiently
INFR_3	Simple and user-friendly service delivery procedures and systems to ensure prompt service delivery and reduced bureaucracy (e.g. electronic service delivery)
INFR_4	Appropriate systems for monitoring and improving service delivery (e.g. complaint management systems, systems for measuring citizen satisfaction level)
INFR_5	A modern institutional and legal framework for local government that supports local authorities to effectively serve the citizens.
Construct	Citizen-focused Service Delivery Human-Capital Performance and Accountability
HCPA_1	The professional competence of staff (i.e. their knowledge, skills, experience and expertise in delivering service quality and ensuring citizen satisfaction)
HCPA_2	The staff commitment to delivering service quality ensuring citizen satisfaction.
HCPA_3	The performance evaluation and accountability of staff for customer service delivery to citizens, (i.e., staff should be evaluated and held accountable for the service they deliver).

“Based on your service experience with Local Authority where you reside, to what extent do the following factors, attitudes and behaviours, affect your overall satisfaction with service quality delivered?”

Construct	Citizen-perceived Service Quality Satisfaction
SQS_1	The effective handling of citizens’ problems and needs
SQS_2	The LGO’s staff attitudes and behaviours, during service delivery, affect my overall satisfaction with service quality to the following extent.
SQS_3	Demonstrating reliability and responsibility in ensuring your effective service delivery.
SQS_4	Demonstrating willingness and readiness to serve and/or assist you.

Measurement Scale: 1= Not at all, 2= Slightly, 3= Moderately, 4= Significantly, 5= Decisively