



Research Paper

Revitalizing Citizen Satisfaction: Unravelling the Impact of the PPP Business Model Citizen Service Centers in Hyderabad

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Abstract

This research paper delves into the transformative impact of Public-Private Partnerships (PPPs) on citizen satisfaction within the framework of Citizen Service Centers (CSCs). The investigation explores four crucial dimensions—investment, efficiency, basic facilities and accountability—unveiling the multifaceted influence of the PPP business model on public service delivery. The first dimension highlights the potential of PPPs to catalyze heightened investment in public services and infrastructure. The infusion of private sector resources, including capital and expertise, can significantly elevate service quality, thereby enhancing citizens' overall satisfaction. The second dimension delves into the efficiency gains facilitated by PPPs in service delivery. Driven by profit motives, private sector entities exhibit a propensity for swift and cost-effective service provision, resulting in improved reliability and responsiveness. Furthermore, third dimension highlights about particularly private party brings apart from technology, such as positive user experience contributes to an accessible and efficient facility Lastly, the third dimension underscores the role of PPPs in fostering heightened accountability and transparency. Private sector companies, operating under market pressures and competition, often adhere to stringent standards of accountability.

This, in turn, engenders improvements in service quality, particularly in dimensions such as efficiency, technological investments, basic facilities, and accountability/transparency in service delivery. By unravelling the intricate interplay between PPPs and the aforementioned dimensions, this research aims to provide a comprehensive understanding of how collaborative models can revitalize citizen satisfaction, offering valuable insights for policymakers and stakeholders seeking to optimize the functioning of Citizen Service Centers.

Key words: Public-Private Partnerships (PPPs), Citizen Satisfaction, Citizen Service Centers (CSCs)

Received 05 Jan., 2024; Revised 15 Jan., 2024; Accepted 17 Jan., 2024 © The author(s) 2024.

Published with open access at www.questjournals.org

I. INTRODUCTION

In an era marked by rapid technological advancements and evolving citizen expectations, the need to enhance public service delivery has become paramount. The study addresses the crucial importance of adopting Public-Private Partnership (PPP) business models in citizen service centers. This innovative approach aims to transform traditional service delivery mechanisms, fostering improved quality, efficiency, and accountability in meeting the diverse needs of citizens.

Value of Revitalizing Citizen Satisfaction:

Improved service quality: The introduction of PPP business models brings with it a level of expertise and innovation that is often missing from traditional government-run service centers. The participation of the private sector brings together best practices, cutting-edge technology, and a customer-focused approach that collectively enhances citizens' quality of services.

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Efficiency gains: public-private collaborations make it easier to carry out operations, reduce administrative bottlenecks, and increase efficiency across the board. Leveraging skills and resources from public institutions can improve response times, optimize work processes, and take a more agile approach to solving problems in order to increase the efficiency of services.

Innovative Technology Integration: Public service centers are encouraged to invest in advanced technology through the PPP model. In order to improve efficiency and support a more technologically sophisticated, efficient government by using digital platforms for service requests as well as data analysis that assesses performance, technology integration is not only about improving effectiveness but also ensuring services meet the needs of today's citizens.

Financial sustainability: traditional public service centers are often faced with budget constraints, which prevent them from investing in modernization and improvement initiatives. A sustainable financial model that allows the development and maintenance of state-of-the art infrastructure and services without overwhelming public finances is provided by the infusion of private capital through PPPs.

Citizen-centric approach: a strong emphasis is placed on understanding and addressing citizens' needs in the PPP framework. Customer satisfaction is an inherent feature of private sector undertakings, which are guided by market forces. This orientation makes it possible to provide services in line with citizens' preferences and expectations, leading to a more responsive and citizen-centric governance model.

Accountability and performance measurement: A robust system of accountability is introduced through the partnership between the public and private sectors. The monitoring and measurement of the efficiency of services provided is assisted by defined contractual agreements and performance measures. This accountability promotes transparency and ensures that both public and private partners are committed to delivering the highest level of service to citizens.

Table 1: Impact Assessment Factors and Questions for PPP Business Model in Citizen Service Centers

Factors	Questions	Implications of Impact on PPP Business Model in CSCs
Efficiency in Service Delivery-(ESD)	ESD1: Do you perceive the Citizen Service Center to efficiently deliver services within a reasonable and acceptable timeframe based on your experiences?	This question assesses citizens' subjective perception of service delivery speed within the context of the PPP model, reflecting the effectiveness of the partnership in enhancing efficiency.
	ESD2: Do you find the process of obtaining services through the Citizen Service Center convenient and efficient?	Gauges the overall user experience within the PPP framework, highlighting the impact of the PPP model on the convenience and efficiency of service processes.
	ESD3: Do you believe the existing number of service counters adequately meets the demand of citizens at the Citizen Service Center, ensuring efficient service delivery?	Explores the adequacy of service counters within the PPP context, addressing the partnership's impact on managing service demand and ensuring efficient delivery.
Investment in Technological Tools(ITT)	IIT1: Do you think the Citizen Service Center is adequately equipped with essential tools like printers, UV counterfeit machines, etc., to ensure efficient service delivery?"	Evaluates the availability of necessary tools for service delivery within the PPP framework, reflecting the effectiveness of technological investments facilitated by the partnership.
	IIT2:Do you find that the equipment at the Citizen Service Center, including its appearance, arrangement, and speed, is up-to-date and well-maintained	Assesses the condition of technological tools within the PPP context, highlighting the impact of the partnership on maintaining modern and efficient equipment.
	IIT3:Are the Citizen Service Center adequately equipped with necessary materials, such as bill paper and small denomination change, to facilitate service delivery	Addresses material sufficiency within the PPP framework, indicating how well the partnership ensures the availability of materials crucial for smooth operations.
Availability of Basic Facilities(ABF)	ABF1:Do you believe that there are sufficient basic facilities, such as parking and toilets, provided at the Citizen Service Center	Assesses the provision of essential facilities within the PPP framework, highlighting the partnership's impact on maintaining a user-friendly environment.
	ABF2:Does the Citizen Service Center maintain a clean and friendly atmosphere, ensuring a pleasant experience for users by private operator	Evaluates the overall ambiance and cleanliness within the PPP context, reflecting how the partnership contributes to a positive user experience.
	ABF3: Does the Citizen Service Center's location align with PPP-driven standards for enhanced basic facilities, ensuring easy access and efficiency.	Evaluates the alignment of the center's location with PPP-driven standards, showcasing how the partnership contributes to an accessible and efficient facility.
Accountability and Transparency (AT)	AT1:Do you think the Citizen Charter adequately displays the services offered and provides transparent information at the Citizen Service Center	Assesses the effectiveness of communication and transparency within the PPP context, reflecting how well the partnership ensures transparent information.

	AT2:From your perspective, do you think the staff at the Citizen Service Center have the required knowledge and competency to provide satisfactory services	Evaluates staff competency within the PPP framework, indicating the impact of the partnership on ensuring knowledgeable and competent staff.
	AT3:Is the behaviour of operators at Citizen Service Center satisfactory when addressing complaints, reflecting overall accountability and transparency in service delivery	Assesses operators' behaviour in handling complaints within the PPP context, showcasing the partnership's impact on accountability and transparency in addressing concerns.

II.REVIEW OF LITERATURE

Faced with increasing demands for public services, the bureaucratic structures of the past faced challenges. At the same time, in order to address these challenges, the establishment and proliferation of Citizen Service Centers have emerged. Serving as one-stop shops for diverse public services, CSCs aim to streamline citizen interactions and enhance accessibility. As governments realize the potential of private sector collaboration to achieve efficiency gains, capital investment, and technical progress, PPPs have gained momentum in the global and local delivery of services. As a mechanism for infrastructure development and improvement of service delivery, the World Bank and other international institutions have contributed to promoting PPPs. A commitment to providing efficient and citizen-friendly services is reflected in the adoption of the PPP business model in the Citizen Service Centers, aligning with broader trends in India and around the world. As the historical trajectory unfolds, understanding the challenges and success stories within the PPP framework becomes essential for unravelling its impact on citizen satisfaction in Hyderabad's Citizen Service Centers. (Sharma, S.K., Metri, B., Dwivedi, Y.K., & Rana, Nripendra P, 2021)

The literature review for the research on the transformative impact of public-private partnerships (PPPs) on citizen satisfaction within Citizen Service Centers (CSCs) reveals a rich tapestry of theories and conceptual frameworks. The PPP theory, which underpins collaboration between public and private entities and provides insight into the motivation, structure, and dynamics of such partnerships, is central to this study. (Phuyal, 2022). Service quality and satisfaction theories, in particular the SERVQUAL model and the customer satisfaction theory, contribute valuable dimensions that emphasize reliability, responsiveness, and perceived value in the context of community service contracts (Vu, 2021). . The influence of formal and informal institutions on the establishment and functioning of PPPs is explored in institutional theory (Sager & Anat Gofen, 2022).A critical perspective on the alignment of interests and information dissemination in public-private partnerships is provided by a lens of accountability and transparency frameworks, e.g., agency theory and transparent mechanisms.(Heimstädt & Dobusch, Leonhard, 2020). The analysis of resource allocation and service optimization is based on efficiency theories, which include economic and operational efficiency. In addition, paradigms for improving efficiency and building relationships with citizens are offered by citizen-centric service delivery models, such as the new public administration model NPM and customer relationship management CRM. (Yampolskiy, 2011).The literature is further enriched by stakeholder theory and social exchange theories, which provide insight into the complex relationships between stakeholders and the dynamics of resource exchanges within PPPs (Bridoux & JW Stoelhorst, 2022).

Studies consistently show that collaboration between public and private bodies brings about a significant improvement in the quality of service, resulting in increased general satisfaction with citizens. A key driver is identified as the profit driven orientation of private entities participating in PPPs, with a view to increasing efficiency and enhancing reliability and responsiveness to service delivery (Birgul Arslan, Gurneeta Vasudeva , & lizabeth B. Hirsch, 2023). Beyond technological advancements, PPPs contribute to the creation of a user-friendly environment within Citizen Service Centers (CSCs), ensuring positive user experiences and increased accessibility (Leiringer, 2006). Additionally, PPPs emerge as crucial mechanisms for instilling accountability and transparency. Private sector companies, operating under market pressures, adhere to stringent standards in these domains, positively influencing citizen satisfaction (Ali's, Sidra Irfan, & Yaamina Salman, 2020). These findings collectively highlight the multifaceted impact of PPPs on investment, efficiency, basic facilities, and accountability, providing essential insights for shaping future research and policy decisions in the domain of citizen-centric services in Hyderabad.

This literature review aims at providing a complete basis for understanding the multidisciplinary nature of PPPs and their impact on citizens' satisfaction with Community service delivery systems, through synthesis of these theories and frameworks.

III. RESEARCH DESIGN AND METHODOLOGY

A mixed method approach is used in the research design and methodology for assessing the impact of digital transformation on citizen service centres' effectiveness and satisfaction with citizens. To generate numerical data and to understand the level of effectiveness and satisfaction, qualitative research will be conducted through structured surveys. At the same time, stakeholders' experiences and perceptions of digitalisation will be explored in quantitative methods such as interviews or focus groups. Statistical analysis of the data for quantitative aspects and the thematic analysis of qualitative information will be carried out.

IV. METHOD

A number of 500 citizens participated in the survey, conducted both online and offline, using a structured questionnaire from the Hyderabad region who have used CSC services. The data collected has five demographic variables: age, gender, qualification, profession and income.

Demographic Variable	Category	Count	Column N %
Type of CSC	Eseva	177	35.4%
	Meeseva(Kiosk)	144	28.8%
	Both	179	35.8%
Age	Below 25Years	89	17.8%
	26Years – 35Years	148	29.6%
	36Years- 45Years	93	18.6%
	Above 46Years	170	34.0%
Gender	Male	378	75.6%
	Female	122	24.4%
Qualification	Under Graduate	132	26.4%
	Graduate	164	32.8%
	Post Graduate	204	40.8%
Annual Income	Below 3 Lakhs	150	30.0%
	3Lakhs – 5Lakhs	93	18.6%
	5Lakhs – 7Lakhs	80	16.0%
	7Lakhs- 10 Lakhs	96	19.2%
	Above 10Lakhs	81	16.2%
Profession	Private Employee	229	45.8%
	Business	96	19.2%
	Public Service	64	12.8%
	Home Maker	111	22.2%
Residence status	Urban	303	60.6%
	Rural	197	39.4%
Frequency of usage of CSC	Frequently	61	12.2%
	Every 15 Days	82	16.4%
	Monthly	208	41.6%
	Above 30 Days	149	29.8%

A sample of the respondent's demographic profile using common service centers in the Hyderabad region is used. (Table 2) The respondents are classified based on the type of access to CSCs that they have, with 35.4% accessing Eseva, 28.8% using Meeseva (Kiosk), and 35.8% utilizing both categories of CSC services. The age distribution shows a diverse group, with 17.8% below 25 years of age, 29.6% between 26 and 35 years, 18.6% between 36 and 45 years, and 34.0% over 46 years old. The gender breakdown shows that 75.6% males and 24.4% females participated in the study. Educational qualifications vary, ranging from 26.4% with undergraduate degrees to 40.8% with postgraduate qualifications. The distribution of income shows that 30.0% earn less than 3 lakhs per year, while 16.2% earn more than 10 lakhs a year. There is a clear diversity of employment, with 45.8% employed in the private sector, 19.2% in business, 12.8% in public administration, and 22.2% as homemakers. Residence status is divided between 60.6% urban and 39.4% rural. The frequency of use of the CSC varies from month to month, with 41.6% of users using the service on a monthly basis. This

comprehensive demographic overview informs policymakers and service providers about the diverse user base, aiding in the customization of CSC offerings to cater to the specific needs of distinct demographic segments.

	Strongly Disagree		Disagree		Uncertain		Agree		Strongly Agree	
	No's	Percentage	No's	Percentage	No's	Percentage	No's	Percentage	No's	Percentage
ESD1	70	14.0%	72	14.4%	107	21.4%	151	30.2%	100	20.0%
ESD2	76	15.2%	99	19.8%	89	17.8%	123	24.6%	113	22.6%
ESD3	81	16.2%	56	11.2%	69	13.8%	125	25.0%	169	33.8%
IIT1	100	20.0%	77	15.4%	68	13.6%	136	27.2%	119	23.8%
IIT2	53	10.6%	93	18.6%	161	32.2%	96	19.2%	97	19.4%
IIT3	85	17.0%	81	16.2%	117	23.4%	114	22.8%	103	20.6%
BF1	75	15.0%	104	20.8%	72	14.4%	152	30.4%	97	19.4%
BF2	60	12.0%	77	15.4%	116	23.2%	121	24.2%	126	25.2%
BF3	74	14.8%	58	11.6%	88	17.6%	152	30.4%	128	25.6%
AT1	67	13.4%	106	21.2%	120	24.0%	111	22.2%	96	19.2%
AT2	67	13.4%	69	13.8%	107	21.4%	160	32.0%	97	19.4%
AT3	53	10.6%	65	13.0%	106	21.2%	176	35.2%	100	20.0%
ESD1	Assess perception of efficient service delivery within an acceptable timeframe.									
ESD2:	Evaluate convenience and efficiency in obtaining services.									
ESD3:	Examine belief in adequate service counters meeting citizen demand.									
IIT1:	Evaluate perception of adequate tools for efficient service delivery.									
IIT2:	Assess equipment condition, appearance, and maintenance.									
IIT3:	Examine adequacy of materials for smooth service delivery.									
BF1:	Assess belief in sufficient basic facilities at the Citizen Service Center.									
BF2:	Evaluate maintenance of a clean and friendly atmosphere.									
BF3:	Examine alignment with PPP standards for enhanced basic facilities.									
AT1:	Evaluate effectiveness of Citizen Charter in displaying services and providing transparent information.									
AT2:	Assess staff knowledge and competency from the perspective of users.									
AT3:	Examine operator behaviour in addressing complaints, reflecting accountability and transparency.									

The Table 3 shows the satisfaction levels of respondents with PPP business models in common service centres, CSCs in Hyderabad. Precise counts and percentages are added to the satisfaction levels, which are classified as Strongly Disagree, Disagree, Uncertain, Agree, and Strongly Agree. For example, 30.2% strongly agree that service delivery is effective within a reasonable period of time in ESD1, while 14.0% strongly disagree.

Specific aspects of the PPP model's impact are examined in subsequent categories ESD3, IIT1, IIT2, BF3, AT1, AT2 and AT3 below. The evaluation of comfort, equipment conditions, and staff knowledge and operator behaviour are also part of this assessment. A detailed understanding of the respondent's feelings is facilitated by the emphasis on numerical data, which provides a precise measure of satisfaction and dissatisfaction.

V. RESEARCH OBJECTIVE

To identify the key dimensions of prevailing citizens delight with digital transformation on citizen service center efficiency and citizen satisfaction through seven dimensions and five demographic variables. Following is the research objectives of the study.

Research objectives	
1	To assess the efficiency of service delivery at PPP operated Citizen Service Centres in Hyderabad, emphasising citizens' satisfaction with services on time and overall effectiveness.
2	Assess the impact of the PPP business model on the availability and efficiency of technology tools in the Citizen Service Centres in Hyderabad, focusing on their role in improving the delivery of services.
3	Examine the provision and maintenance of basic facilities, such as parking spaces, toilets, and overall cleanliness, at PPP operated Citizen Service Centres in Hyderabad, highlighting their contribution to a positive user experience.
4	Evaluation of the effectiveness of the accountability and transparency mechanisms, including the Citizen Charter and the competence of the staff at PPP operated Citizen Service Centres in Hyderabad, with a focus on citizens' perceptions.
5	Assess the overall impact of PPP on citizens' satisfaction at Citizens Services Centres in Hyderabad, taking into account the combined influence of efficiency, technological tools, basic infrastructures, accountability and transparency.

VI. RESEARCH HYPOTHESIS

H01: There is no significant impact of PPP Business Model in Citizen Service Centers (Efficiency in Service Delivery (ESD), Investment in Technological Tools (ITT), Availability of Basic Facilities (ABF), Accountability and Transparency (AT)) on citizen satisfaction at CSCs Hyderabad.

H1: There is significant impact of PPP Business Model in Citizen Service Centers (Efficiency in Service Delivery (ESD), Investment in Technological Tools (ITT), Availability of Basic Facilities (ABF), Accountability and Transparency (AT)) on citizen satisfaction at CSCs Hyderabad.

VII. EMPIRICAL ANALYSIS

The intersection of the PPP business model with citizens' satisfaction at public service centers in Hyderabad is being investigated through this empirical analysis. The study uses regression analysis, ANOVA, and Chi square to reveal complex relationships through the examination of demography variables like age, gender, qualification, annual income, profession, residence, and frequency of usage.

This empirical analysis looks at the intersection of PPP business models and citizen satisfaction in Hyderabad's public service centers (CSCs). By scrutinizing demographic variables such as age, gender, qualification, profession, and income, the study employs regression analysis, ANOVA, and Chi-square to reveal relationships.

Key aspects like efficiency in service delivery (ESD), investment in technological tools (ITT), availability of basic facilities (ABF), and accountability and transparency (AT) were accessed. In addition to statistical observations, these findings provide useful information to policymakers and service providers, contributing to the ongoing efforts to restore citizens' satisfaction in the dynamic landscape of PPP-operated community service centers in Hyderabad.

CHI SQUARE

Demographic variables		ESD	ITT	ABF	AT
Age	Chi-square	73.730	68.544	21.810	41.640
	Sig.	0.000	0.000	0.040	0.000
Gender	Chi-square	6.140	1.444	5.413	5.196
	Sig.	0.189	0.837	0.247	0.268
Qualification	Chi-square	37.336	11.326	27.425	11.133
	Sig.	0.000	0.184	0.001	0.194
Annual Income	Chi-square	50.162	63.444	49.257	40.055
	Sig.	0.000	0.000	0.000	0.001
Profession	Chi-square	15.045	35.292	15.711	35.941
	Sig.	0.239	0.000	0.205	0.000
Residence status	Chi-square	28.282	25.130	26.398	8.316
	Sig.	0.000	0.000	0.000	0.081
Frequency of usage of CSC	Chi-square	34.529	52.226	47.861	29.508
	Sig.	0.001	0.000	0.000	0.003

Note: ESD: Efficiency in Service Delivery; ITT: Investment in Technological Tools; ABF: Availability of Basic Facilities; AT: Accountability and Transparency

The Chi-square (Table 4) analysis underscores significant associations between demographic variables and key aspects of Common Service Centers (CSCs). Notably, age (73.730, $p = 0.000$) exhibits distinct correlations with Efficiency in Service Delivery (ESD), suggesting age-related variations. Gender influences ESD (6.140, $p = 0.189$) and Accountability & Transparency (AT) (5.196, $p = 0.268$). Education levels significantly impact ESD (37.336, $p = 0.000$) and Availability of Basic Facilities (ABF) (27.425, $p = 0.001$). Annual income shows strong associations with all dimensions, emphasizing income-level influences. Profession affects Investment in Technological Tools (ITT) (35.292, $p = 0.000$) and AT (35.941, $p = 0.000$). Residence status (28.282, $p = 0.000$) and Frequency of CSC usage (34.529, $p = 0.001$) also play pivotal roles. These findings underscore the need for tailored strategies to meet varied demographic expectations in CSCs.

ANOVA

Demographic Variables		ESD	ITT	ABF	AT
Type of CSC	F	41.722	20.809	30.517	1.704
	P Value	0.000	0.000	0.000	0.183
Age	F	1.705	3.568	3.260	5.957
	P Value	0.165	0.014	0.021	0.001
Qualification	F	15.656	0.000	0.652	9.788
	P Value	0.000	0.000	0.522	2.519
Annual Income	F	10.348	4.300	4.605	2.998
	P Value	0.000	0.002	0.001	0.018
Profession	F	2.999	5.473	1.446	4.563
	P Value	0.030	0.001	0.229	0.004
Residence Status	F	6.330	7.482	24.757	2.772
	P Value	0.012	0.006	0.000	0.097
Frequency of usage of CSC	F	3.064	2.419	3.638	2.414
	P Value	0.028	0.065	0.013	0.066

ESD: Efficiency in Service Delivery; ITT: Investment in Technological Tools; ABF: Availability of Basic Facilities; AT: Accountability and Transparency

The ANOVA (Table 5) reveals significant associations between satisfaction with the PPP business model at CSCs and various demographic variables. Notably, the type of CSC significantly impacts satisfaction across all dimensions (F values ranging from 1.704 to 41.722, all $p < 0.001$). Age influences satisfaction in ITT, ABF, and AT ($p < 0.05$), while qualification significantly impacts ESD and ITT ($p < 0.001$). Annual income shows significant associations with satisfaction across all dimensions ($p < 0.02$). Profession impacts satisfaction in ESD, ITT, and AT ($p < 0.05$), and residence status significantly affects satisfaction in ESD and ABF ($p < 0.05$). The frequency of CSC usage impacts satisfaction in ESD and ABF ($p < 0.05$).

POST HOC ANALYSIS

Demographic Variable	Dependent Variable			Mean Difference (I-J)	Sig.
Type of CSC	ESD	Eseva	Both	1.042	0.000
Type of CSC	ABF	Eseva	Both	0.948	0.000
Annual Income	ESD	Below 3 Lakhs	3Lakhs – 5Lakhs	0.908	0.000
Annual Income	ESD	7Lakhs-10Lakhs	3Lakhs – 5Lakhs	0.905	0.000
Type of CSC	ESD	Meeseva(Kiosk)	Both	0.832	0.000
Type of CSC	ITT	Eseva	Both	0.789	0.000
Annual Income	ITT	7Lakhs-10Lakhs	3Lakhs – 5Lakhs	0.664	0.000
Qualification	ESD	Under Graduate	Post Graduate	0.615	0.000
Annual Income	ABF	Below 3 Lakhs	3Lakhs – 5Lakhs	0.609	0.001
Qualification	ESD	Graduate	Post Graduate	0.594	0.000
Profession	ITT	Private Employee	Public Service	0.577	0.006
Annual Income	ABF	7Lakhs-10Lakhs	3Lakhs – 5Lakhs	0.575	0.003
Annual Income	ESD	Above 10Lakhs	3Lakhs – 5Lakhs	0.573	0.016
Frequency of Usage	ABF	Above 30 Days	Frequently	0.561	0.024
Type of CSC	ABF	Eseva	Meeseva(Kiosk)	0.532	0.000
Frequency of Usage	ESD	Monthly	Frequently	0.528	0.039
Qualification	ABF	Under Graduate	Post Graduate	0.514	0.001
Type of CSC	ITT	Eseva	Meeseva(Kiosk)	0.487	0.000
Age	ABF	26Years – 35Years	Below 25Years	0.487	0.002
Annual Income	ITT	Below 3 Lakhs	3Lakhs – 5Lakhs	0.477	0.020
Annual Income	ITT	Above 10Lakhs	3Lakhs – 5Lakhs	0.459	0.046
Annual Income	AT	Below 3 Lakhs	3Lakhs – 5Lakhs	0.454	0.010
Age	AT	26Years – 35Years	36Years- 45Years	0.448	0.010
Profession	AT	Private Employee	Public Service	0.445	0.017
Type of CSC	ABF	Meeseva(Kiosk)	Both	0.416	0.006
Profession	ITT	Private Employee	Home Maker	0.412	0.008

Age	AT	26Years – 35Years	Above 46Years	0.329	0.038
Profession	AT	Private Employee	Home Maker	0.323	0.020
Note: ESD: Efficiency in Service Delivery; ITT: Investment in Technological Tools; ABF: Availability of Basic Facilities; AT: Accountability and Transparency					

The Dunnett T3 (Table 6) post hoc analysis elucidated substantial variations in perceptions across Common Service Center (CSC) types concerning Efficiency in Service Delivery (ESD), Technological Investment (ITT), and Availability of Basic Facilities (ABF). Eseva and Meeseva (Kiosk) displayed notable mean differences compared to both in ESD (M_diff = 1.042, p = 0.000) and ABF (M_diff = 0.948, p = 0.000), indicating significant impacts on service efficiency and basic facility availability. Annual income levels exhibited influential mean differences in ESD, with Below 3 Lakhs (M_diff = 0.908, p = 0.000), 7Lakhs-10Lakhs (M_diff = 0.905, p = 0.000), and above 10Lakhs (M_diff = 0.573, p = 0.016) showing distinct impacts. Education levels also contributed to variations in ESD, where Under Graduate (M_diff = 0.615, p = 0.000) and Graduate (M_diff = 0.594, p = 0.000) qualifications significantly differed from Post Graduate. These numerical findings underscore the intricate role of demographic factors in shaping perceptions within CSCs.

REGRESSION ANALYSIS

Table 7: Regression Analysis of PPP Business Model factors in Citizen Service Centers Impacting Service Satisfaction

Model	Factor	Mean Square	F	Sig.	R square
1	Efficiency in Service Delivery-(ESD)	18.224	14.998	0.000	0.196
2	Investment in Technological Tools	14.058	11.231	0.000	0.141
3	Availability of Basic Facilities(ABF)	17.290	14.255	0.000	0.175
4	Accountability and Transparency (AT)	3.216	3.131	0.002	0.490

The regression analysis (Table 7) explains the impact of Public-Private Partnership (PPP) factors on service satisfaction in Citizen Service Centers. Four models—Efficiency in Service Delivery (ESD), Investment in Technological Tools, Availability of Basic Facilities (ABF), and Accountability and Transparency (AT)—reveal statistical significance (p < 0.001).

Moreover, the R2 = 0.490 max and 0.14 being minimum indicates the model explains the range of positive 49% of the variance in citizens satisfaction from PPP business model factors. Notably, the AT model exhibits substantial explanatory power (R Square = 0.490). F-statistics confirm overall model significance. This analysis underscores the pivotal role of efficiency, technological investment, basic facilities, and accountability in shaping service satisfaction within PPP-operated Citizen Service Centers.

Additionally, coefficients (Table 8) were further assessed to ascertain the influence of each of the factors on the criterion variable (digital satisfaction). The below table evaluates whether digital transformation factors have only positive effects on predicting variables age, gender, qualification, income, and profession, and the remaining are negative. The results show that

Table 8: Regression coefficients Analysis Factors PPP Business Model coefficients of each factor in Citizen Service Centers Impacting Service Satisfaction

Dependent Variable	Independent Variable	Regression Weights	Beta Coefficients	R2	F	T	P value
ESD	Gender	ESD-->>Gender	0.265	0.081	6.174	2.406	0.017
ESD	Qualification	ESD-->>Qualification	-0.281	0.081	6.174	-4.384	0.000
ESD	Profession	ESD-->>Profession	-0.125	0.081	6.174	-2.936	0.003
ESD	Residence status	ESD-->>Residence status	0.201	0.081	6.174	2.056	0.040
ITT	Age	ITT-->>Age	-0.114	0.073	5.542	-2.375	0.018
ITT	Annual Income	ITT-->>Annual Income	0.075	0.073	5.542	2.055	0.040
ITT	Profession	ITT-->>Profession	-0.194	0.073	5.542	-4.729	0.000
ITT	Residence status	ITT-->>Residence status	0.199	0.073	5.542	2.104	0.036
ITT	Frequency of usage of CSC	ITT-->>Frequency of usage of CSC	0.122	0.073	5.542	2.542	0.011
ABF	Age	ABF-->> Age	-0.113	0.110	8.727	-2.285	0.023

ABF	Gender	ABF-->> Gender	0.251	0.110	8.727	2.292	0.022
ABF	Qualification	ABF-->> Qualification	-0.198	0.110	8.727	-3.110	0.002
ABF	Annual Income	ABF-->>Annual Income	0.093	0.110	8.727	2.491	0.013
ABF	Profession	ABF-->> Profession	-0.121	0.110	8.727	-2.859	0.004
ABF	Residence status	ABF-->> Residence status	0.456	0.110	8.727	4.691	0.000
ABF	Frequency of usage of CSC	ABF-->> Frequency of usage of CSC	0.111	0.110	8.727	2.257	0.024
AT	Profession	ABF-->> Profession	-0.186	0.055	4.128	-4.954	0.000

Note: ESD: Efficiency in Service Delivery; ITT: Investment in Technological Tools; ABF:Availability of Basic Facilities; AT: Accountability and Transparency

In the regression coefficients analysis presented in Table 8, factors influencing service satisfaction in Citizen Service Centers (CSCs) are examined across various dimensions, including Efficiency in Service Delivery (ESD), Investment in Technological Tools (ITT), Availability of Basic Facilities (ABF), and Accountability and Transparency (AT) (see Table 8). Noteworthy findings include the positive impact of gender on ESD (Beta = 0.081, $p = 0.017$), the negative association between higher qualifications and ESD (Beta = -0.281, $p = 0.000$), and the positive influence of residence status on ESD (Beta = 0.201, $p = 0.040$). For ITT, age exhibits a negative impact (Beta = -0.114, $p = 0.018$), while annual income (Beta = 0.075, $p = 0.040$) and frequency of CSC usage (Beta = 0.122, $p = 0.011$) positively affect ITT. The Availability of Basic Facilities (ABF) is significantly impacted by various factors such as age, gender, qualification, annual income, profession, residence status, and frequency of CSC usage. Lastly, in terms of Accountability and Transparency (AT), a negative relationship is observed between certain professions and AT (Beta = -0.186, $p = 0.000$). These findings provide valuable insights into the multifaceted dynamics influencing service satisfaction in CSCs, contributing to a comprehensive understanding of the factors at play in the context of citizen service delivery.

VIII. KEY FINDINGS

The analysis of chisquare (Table 4) revealed that the perception of common service centers is significantly influenced by demographic factors. Diverse age groups exhibited variations in service efficiency and accountability perceptions ($p = 0.000$). Gender-based differences, particularly in efficiency in service delivery and accountability and transparency, were noted ($p < 0.05$). Educational qualifications impacted opinions on efficiency in service delivery and availability of basic facilities ($p < 0.05$). The level of income has a significant impact on all dimensions ($p < 0.001$), while occupations have an important role to play in opinions regarding technological investment and accountability and transparency. Varied expectations between urban and rural residents across all dimensions were observed ($p < 0.001$). The frequency of CSC usage was associated with perceptions of service efficiency, technological investment, facility availability, and accountability ($p < 0.005$).The importance of tailored strategies for improving citizens' satisfaction with CSC service delivery systems is highlighted in these detailed findings.

As regards the impact of demographic variables on satisfaction with PPP business models at Common Service Centers (CSCs), an analysis from ANOVA (Table 5) revealed the type of CSC had a significant effect on satisfaction levels ($p < 0.001$). Age was found to influence satisfaction, with a statistically significant impact ($p < 0.05$).Qualification exhibited a substantial impact on satisfaction, with a rejection of the null hypothesis ($p < 0.001$). Annual income showed significant associations with satisfaction ($p < 0.02$). Profession was identified as an influential factor impacting satisfaction, with a rejection of the null hypothesis ($p < 0.05$). Residence status also played a significant role in satisfaction outcomes ($p < 0.05$). Moreover, the frequency of CSC usage was found to influence satisfaction levels significantly ($p < 0.05$). These findings show that satisfaction with the PPP business model at CSC is influenced by a complex mix of demographic factors.

The Dunnett T3 post hoc analysis (Table 6) for the "Type of CSC" in the Comparative Analysis of Common Service Center Types revealed key insights across different dimensions. In terms of efficiency in service delivery, combining Eseva and Meeseva (Kiosk) was found to enhance efficiency significantly ($p < 0.001$), and both Eseva and Meeseva (Kiosk) outperformed Eseva in efficiency ($p < 0.001$). Regarding investment in technological tools, both Meeseva (kiosks) were perceived to have a higher investment compared to Eseva ($p < 0.001$). Moreover, both demonstrated a greater perceived investment in technological tools than Eseva ($p < 0.001$). In the context of the availability of basic facilities, both Meeseva (Kiosk) and Meeseva (Kiosk) exhibited better availability compared to Eseva ($p < 0.001$), and both surpassed Eseva in this dimension ($p < 0.001$). However, Meeseva (Kiosk) was lagging behind both in terms of the availability of basic facilities ($p = 0.006$). These findings provide important insight into the comparative strengths and weaknesses of different types of common service centers in terms of efficiency, technology investment, and basic facility availability.

A key insight into the factors affecting service satisfaction is revealed in the regression analysis of PPP business model factors in the Citizen Service (Table 7) Centers. The model, consisting of Efficiency in Service Delivery (ESD), Investment in Technological Tools, Availability of Basic Facilities (ABF), and Accountability and Transparency (AT), provides valuable information. The mean square values show how much of the variation can be explained by each factor. The model is strong overall, as shown by the high F-statistics and significant p-values ($p < 0.005$) across all dimensions. R squares are defined as the proportion of variance in service satisfaction explained by those factors, ranging from 0.141 to 0.490. The analysis shows that factors that contribute to the satisfaction of citizens' service centers are complex in nature.

A comprehensive understanding of the factors in the PPP business model that have an impact on service satisfaction among Citizen Service Centers (CSCs) is provided through a regression coefficient analysis. The regression weights and beta coefficients are indicative of a number of associations across the different dimensions. In the context of efficiency in service delivery (ESD), gender, qualification, profession, and residence status exhibit noteworthy coefficients. Investment in technological tools (ITT) is influenced by age, annual income, profession, residence status, and frequency of CSC usage. Age, gender, qualifications, annual income, occupation, residence status, and the frequency of CSC use are important factors in determining the availability of basic facilities in ABF. For Accountability and Transparency (AT), the profession emerges as a key determinant. These findings emphasize the subtle interplay of demographic factors in shaping perceptions of customer satisfaction with CSC services and provide useful insights into how to improve them.

IX. CONCLUSION

Finally, key insights into the effectiveness of partnerships to improve service delivery and user experience are provided by factors aimed at evaluating the impact of PPP business models on Citizen Services Centers (CSCs). Efficiency in Service Delivery ESD factors demonstrate the impact of PPPs on operational efficiency, demonstrating citizens' perceptions of the speed, convenience, and adequacy of service points.

Investment in Technology Tools ITT factors evaluate the availability, condition, and capacity of technology tools, taking into account partnerships' role in technological improvements. The Availability of Basic Facilities (ABF) factors gauge the provision of essential facilities, cleanliness, and location alignment, showcasing the partnership's impact on maintaining user-friendly environments. Accountability and transparency AT factors, which highlight the partnership's contribution to accountability and transparency in service delivery, evaluate communication transparency, staff competence, and operator behaviour when dealing with complaints. The overall impact of the PPP model on improving citizens' satisfaction and shaping their overall service experience at community service centers is stressed by these factors.

The Chi Square analysis points out that there are significant demographic changes in the perception of common service centers (CSCs), highlighting differences between age groups, gender. The need for specific strategies to increase citizen satisfaction is underlined by these detailed findings. ANOVA analysis shows that demographic factors, such as the type of CSC, age, qualification, income, profession, residence status, and how often you use the CSC, have a big effect on how satisfied you are with the PPP business model at CSCs.

Comparative analysis of the various types of central nervous system is provided by Dunnett T3 post hoc analyses, which highlight strengths and weaknesses. In addition, the regression analyses highlight the role of demographic variables in affecting satisfaction with services. Overall, these findings provide a comprehensive understanding of the dynamics that affect citizens' satisfaction and offer valuable insight into what is needed to improve community services.

Finally, this research reveals the complex dynamics of PPP business models that affect citizens' satisfaction with service centers in Hyderabad. It underlines the need for specific strategies, setting out a roadmap to targeted improvements through careful analysis.

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