

Measuring Public Service Quality and Attaining Customer Satisfaction in Egypt

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Abstract

Purpose: *There has been a consistent concern within policy and academic circles regarding the performance of public sector agencies. Empirical evidence from existing literature highlights the significance of providing a high standard of service quality to achieve elevated customer satisfaction. This study seeks to assess and gauge the quality of services delivered by the public sector in Egypt through the creation of a customer satisfaction matrix. This matrix involves comparing customers' expectations with their perceived service experiences.*

Design/methodology/approach: *To measure customer satisfaction levels regarding the quality of public services, a customer service matrix has been formulated. Additionally, the researchers have devised a mathematical equation to represent the method of gauging the quality of public services. The equation incorporates the following symbols: y (Evaluation index); xES (Efficiency of Service); xQS (Quality of Service); xTS (Timing of Service); xCT (Customer Trust); and xCS (Customer Satisfaction).*

Findings: *The matrix furnishes public service entities with comprehensive information and insights into customers' perceptions of public service quality. The government could initially implement it on a small scale before scaling it up to a national level. Ultimately, the researchers devised a three-point action plan comprising 'performance objectives, actions, and measurement.' This comprehensive plan is applicable to both public and private organizations aspiring to elevate their service quality and attain heightened customer satisfaction.*

Originality/ Value and What Distinguishes this Study from Other Studies: *This study as far as the researchers know is presenting an up-to-date original method for measuring customer satisfaction of public services. They developed a customer service matrix and a mathematical equation for gauging the quality of public services. The outcomes present an opportunity for professional service providers to continually enhance technical and management indicators, prioritize personnel training, and engage in ongoing professional development to improve service quality.*

Keywords: *Customer satisfaction; Public service quality; matrix; mathematical equation; technical and management indicators.*

Introduction

The primary objective of public services is to deliver effective and user-friendly services, guaranteeing a high-quality environment for the citizens. Public services encompass activities that contribute to the social, economic, and political well-being of society, distributing its benefits. These services are often classified into

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routine, protective, and developmental categories, depending on their social functions (Kim & Hong, 2020). According to Aluko et al., (2021) service quality plays a pivotal role across various business endeavors as a key influencer of perceived value. Whether in the construction industry or any other business organization, service quality is a crucial factor that strongly shapes the customer's overall interaction with products and services. Broadly regarded as a vital business concept, the quality of service provided by service providers profoundly impacts customer satisfaction. Furthermore, the satisfaction of customers is closely tied to both their anticipated service and the actual service received, ultimately stemming from the overall excellence of the service provided.

Lin, X., Mamun, et. al., (2023) explained in their study that scholars in previous research have employed both single and multiple dimensions to gauge LSQ (Logistic Service Quality) Underscoring the significance of factors influencing SQ (Service Quality), can impact customer satisfaction by shaping their initial perceptions. Building on various researchers have extended and refined LSQ scales and assessments. (Parasuraman et al., 1985, as cited in Lin, X., Mamun, et al., 2023) Examining the LSQ relationship with CS, considering LSQ dimensions like timeliness, order discrepancy handling, personal contact quality (PQ), operational information sharing, and order condition, is highly important for boosting the level of service quality (Uvet, 2020 as cited in Lin, et. al., 2023).

Customer satisfaction is the emotional response of customers when they perceive a discrepancy between their prior expectations and the actual performance of the product or service they use (Lin et al., 2023), and it is the feeling of disappointment or joy that everyone feels after comparing the performance of a product with the expected product performance. It is the goal of every company's survival. (Hamzah et al., 2021).

Customer satisfaction is a business gospel that tends to produce value for guests, anticipate and manage their prospects, and demonstrate the capability and responsibility to meet their requirements. Quality of service and customer satisfaction are critical factors for the success of any business.

The key to achieving sustainable advantage is furnishing high-quality service that leads to customer satisfaction. Client satisfaction is the result of a client's perception of the value he/she receives in a sale or relationship, where value equals the perceived service quality, compared to the value anticipated from the deals (Nilashi et al., 2023).

Citizens' perceptions of the public sector pose special challenges to policymakers. Therefore, in the long run, public sector performance may suffer from negative performance evaluations by citizens. Therefore, it is important to understand whether and to what extent citizens believe that public institutions are performing poorly. Most researchers accept the idea that customer satisfaction is discretionary related to desirable business issues. Research has shown that customer satisfaction has a tangible impact on purchase intentions and customer retention (Keiningham et al., 2005).

A small emerging literature suggests that the public sector is fighting an uphill battle as citizens view the public sector as inefficient and burdened by administrative regulations, and tend to view equivalent services provided by the public sector even more negatively. (Hvidman, 2019)

The research reveals the importance of providing good services through public institutions to the recipients of these services, in order to align with the primary goal of governments to improve the standard of living for their citizens, increase satisfaction with public service customers, and achieve the desired fulfillment for these customers.

The researchers aim, through this scientific paper, to develop a matrix for evaluating providers of public services over a specific period, whether these providers are individuals or entities, to assist public institutions in evaluating and identifying strengths and weaknesses to maximize the benefit of these services and gain customer satisfaction.

Theoretical Background

Customer Service

Customer service behaviors include proactively consulting with customers to verify that customer expectations are met or exceeded, anticipating customer problems or needs, and proactively developing solutions. It is suggested that proactive customer service behavior includes three characteristics that reflect personal initiative. First, it is self-directed behavior. All types of proactive behavior can exhibit this characteristic. Second, proactive customer service behaviors are long-term oriented. Associates are expected to anticipate customers' future needs or respond with services that may assist future customer interactions. Third, proactive customer service behaviors are long-lasting. (Cao et al., 2023)

Quality of Public Services

The quality of public services is a serious issue for researchers around the world because good governance leads to good public services. Whether in security conditions or during emergencies and other natural disasters, communities are always in dire need of high-quality public services. The quality of public services depends on the level of public service delivery and customer expectations. This means that service quality can be achieved by meeting customer needs and desires. (Nurung et al., 2019)

Measuring Public Satisfaction

Satisfaction refers to the feeling that the sacrifices you make are commensurate with the rewards you receive. In the consumer field, satisfaction refers to the feelings that customers feel when using a product (Theresia & R Bangun, 2017). Woodside et al. It is believed that customer satisfaction is a kind of post-purchase evaluation, which is not only the consumer's post-consumption preference, but also a general consumption attitude based on experience. (Tan et al., 2019)

Public satisfaction originates from customer satisfaction theory. The concept of "customer satisfaction" was first proposed in Oliver's "Expectations and Paradoxes" theory. Customer satisfaction is the comparison of the actual performance of products and services with pre-purchase expectations. Several models of customer satisfaction theory have gradually emerged, such as the Swedish Customer Satisfaction Barometer (SCSB), the American Customer Satisfaction Index (ACSI), and the European Customer Satisfaction Index (ECSI), and are constantly developing. Among them, the most commonly used is the American Customer Satisfaction Index.

When conducting analysis, this model mainly links customer satisfaction with its influencing factors such as customer expectations, perceived quality, and perceived value. Some scholars in the field of public administration also apply the ACSI model to the study of satisfaction with government public services (Xie et al., 2022).

Literature Review

Service quality refers to a customer's overall evaluation of the quality of their interaction with a vendor and the extent to which this experience has met their needs. Enhanced service quality fosters customer loyalty within the realm of administration providers in a marketing context. In the domain of e-commerce, researchers have observed a positive correlation between online service quality and online loyalty. Within an Information Systems (IS) environment, a user's ongoing utilization of a system serves as an indication of their loyalty to that system. An investigation into continuance usage intention concerning loyalty toward a computer application demonstrated that service quality has a direct impact on the intention to continue usage. While past studies have consistently shown a positive connection between service quality and continuance usage behavior, conflicting findings exist where some studies suggest that the relationship between service quality and continuance usage behavior is inconsequential (Ramdhony et al., 2023).

According to Boyle (2020), prior to exploring optimal methods for gauging customer satisfaction, it is imperative to establish a comprehensive understanding and clarity regarding the specific elements under scrutiny. The terms 'customer' and 'satisfaction' pose specific challenges in their definition and application within the realm of public services. The term 'client' has frequently been employed, with officials and politicians making reference to clients and client groups. Historically, this usage often conveyed an attitude of 'we know best' toward the public, where there was minimal meaningful interaction with the public to ascertain and address their needs. The relative lack of influence the public holds in shaping the services provided to them under a client system has led many advocates for public service reform to abandon terms like "client" .

The level of customer satisfaction is greatly influenced by the quality of service offered by service providers. Furthermore, customer contentment depends on both the anticipated and actual service, which, in itself, is a result of the overall service quality. When customers receive services in line with their expectations, the service quality is considered satisfactory, leading customers to view it as excellent. This perception of excellent service quality not only strengthens long-term relationships but also has positive effects on the company's reputation, market presence, and the retention and profitability of clients (Aluko, 2021).

Service quality must initiate with from understanding customer needs and culminate in customer satisfaction along with positive perceptions of service excellence. In the realm of public services, the caliber of service is predominantly shaped by the attitude, behavior, and professionalism exhibited by the civil service. Aligned with Kotler's perspective, well-executed public services are poised to influence and impact overall satisfaction among individuals.

Nor et al., (2021) argued that satisfaction levels are contingent upon the disparity between perceived performance and public expectations, resulting in one of three broad satisfaction levels. When performance falls short of expectations, public satisfaction is elusive. Meeting expectations results in community contentment, while surpassing expectations leads to heightened public satisfaction, happiness, or delight.

Public services encompass "social, economic, and political activities aimed at distributing benefits within society." These services are categorized based on their social functions into routine services, protective services, and developmental services. Firstly, routine services are those commonly utilized in daily life, such as water and sewage, garbage collection, and public transportation. Secondly, protective services focus on maintaining public order and safeguarding individuals and property, including areas such as safety, security, firefighting, justice, and disaster protection. Lastly, developmental services aim to facilitate the development of individuals' physical, intellectual, and psychological potential. Examples include education, parks, leisure, public health, and public assistance. (Kim & Hong, 2020)

Shen et al., (2021) stated that enhancing service quality stands as a crucial element that heightens customer contentment and enhances the effectiveness of property management service providers, ultimately leading to a boost in corporate profitability. Additionally, given that consumers factor in social and environmental considerations in their decision-making process, corporate social responsibility emerges as a noteworthy concern.

According to Li & Shang (2020) satisfaction emerges as the most potent predictor of the intention to reuse, and this association between satisfaction and the inclination for continuous use consistently demonstrates robustness across various research contexts. Perceived usefulness and confirmation represent cognitive beliefs shaped through the comparison of pre- and post-utility expectations. These beliefs are more malleable and prone to bias than satisfaction, which directly emanates from the tangible user experience, encapsulating the user's perception of service usefulness.

Data Envelopment Analysis (DEA) has gained widespread adoption as a method for assessing the efficiency of service-providing units. Its popularity stems from its ability to effectively handle the multiple outputs characteristic of public sector production.

Being non-parametric, DEA also eliminates the need for input price data. This technique is commonly applied in sectors such as healthcare, universities, research institutes, government agencies, public libraries, schools, public transport services, and banks. However, recent advancements have introduced approaches that recognize the significance of incorporating customer opinions in evaluating DEA efficiency within public services. Consumer satisfaction and opinion surveys serve as prevalent tools for constructing opinion indexes, which gauge service quality. These opinion indexes are then employed as output variables in DEA models, reflecting a contemporary perspective on assessing efficiency in the public sector (Tapia & Salvador, 2022).

According to Lee and Lee as cited in (Tapia & Salvador, 2022), social media platforms have evolved beyond mere communication channels and now serve as valuable sources of insights into citizens' perceptions of present and future public services.

Social data, derived from these platforms, represent one of the most effective means of gauging public opinions, given that they are voluntarily expressed by citizens themselves, as opposed to being generated in controlled settings like surveys or interviews. Consequently, an analysis of social data not only helps distinguish citizens' preferences and aversions but also reveals the underlying reasons behind these opinions.

Hvidman (2019) mentioned that earlier literature underscores the profound impact of heightened satisfaction on customer loyalty, reflected in intentions for repurchasing. However, more recent studies challenge the notion that satisfaction alone suffices to entice customers to revisit or repurchase e-services. Instead, it is the perceived-value attributes, eclipsing even satisfaction or service quality, that emerge as the driving force behind customers' loyalty.

The ongoing discourse among policymakers and academics revolves around determining whether the public or private sector is better suited for the production of specific goods and services. A particular concern to policymakers is the challenge posed by citizens' perceptions of the public sector. Negative views can lead to undesirable outcomes such as increased tax evasion, a preference for private service providers over public ones, and difficulties in attracting top-notch candidates to public sector jobs. Consequently, sustained negative assessments by citizens may adversely impact the long-term performance of the public sector. Thus, it is crucial to comprehend the extent to which citizens perceive public agencies as underperforming.

The assessment of service quality involves the comparison between customers' expectations and their perceived experience of a service. This evaluation is based on the alignment of customers' anticipated performance from an organization with their actual perception of service delivery. Notably, two widely acknowledged scales, SERVQUAL and SERVPERF, have been developed to gauge service quality. Introduced in 1985 by Parasuraman, Berry, and Zeithaml, SERVQUAL is the predominant and extensively employed scale. It assesses service quality by juxtaposing client perceptions of received service against their expectations, comprising ten dimensions and 97 items. Subsequently, in 1988, the authors condensed the dimensions to five, each with 22 items for perceptions and 22 for expectations, encompassing tangibles, reliability, responsiveness, assurance, and empathy. Another scale, SERVPERF, established in 1992 by Cronin and Taylor, focuses solely on perceptions to measure service quality. Although it mirrors the five dimensions of SERVQUAL, it includes only 22 items related to customer expectations.

These dimensions encompass tangibility, assurance, responsiveness, reliability, and the purchasing process, collectively measuring service quality. (Al-Nidawi, 2018)

The previous parts presented different literature perspectives regarding service quality, customer loyalty and satisfaction in addition to different methods of gauging service quality. In the following section the researchers are going to present customer service matrix and mathematical equation through which the method of measuring the performance level of public service providers is presented.

Developing a Concept of How to Measure Public Service Quality

Measuring Public Service through Matrix

Table (I) Customer Service Matrix (CSM)

ITEMS	Excellent	Very Good	Good	Acceptable	Weak
Quality of Service Provided	1	0.8	0.6	0.4	0.2
Efficiency of the Service Provider	1	0.8	0.6	0.4	0.2
Timing of Service provision	1	0.8	0.6	0.4	0.2
Degree of Customer Trust	1	0.8	0.6	0.4	0.2
Degree of Customer Satisfaction	1	0.8	0.6	0.4	0.2

Source: Researchers' Own Work

Table (III) Level (A) Performance in Providing Public Service

ITEMS	Excellent	Very Good	Good	Acceptable	Weak
Quality of Service Provided	✓				
Efficiency of the Service Provider		✓			
Timing of Service provision				✓	
Degree of Customer Trust	✓				
Degree of Customer Satisfaction			✓		

Source: Researchers' Own Work

Table (IV) Level (B) Performance in Providing Public Services

ITEMS	Excellent	Very Good	Good	Acceptable	Weak
Quality of Service Provided			✓		
Efficiency of the Service Provider					
Timing of Service provision					✓
Degree of Customer Trust			✓		
Degree of Customer Satisfaction				✓	

Source: Researchers' Own Work

Note: Table III & Table IV are presenting two levels (A & B) of public service performance whether they are individuals, branches, or public companies.

Note: According to the above-mentioned evaluations for both level(A) and the alternative level (B), both are filled out with customers' service ratings during a specific period of time. Level (A) has obtained, $3.8 = 0.6 + 1 + 0.4 + 0.8$ 1+. Therefore, according to the key to service evaluation schedule, the level of service provided falls between No. 3 and 4, which indicates that very good service was provided. (**Very Good Service = 34 >**). As for level (B) customers' service ratings were as following: $0.6 + 0.8 + 2.2 = 0.4 + 0.6 + 0.2$, Therefore, according to the key of service evaluation schedule, the level of service provided falls between No 2 and 3, Which indicates that good service was provided. (**Good Service = 23 >**)

(All above-mentioned tables are presented in supplementary tables appendix 1)

Measuring Public Service through Mathematical Formulation

That matrix can be formulated mathematically, where we can create an equation that represents the method of measuring the performance level of public service providers by recognizing the degree of satisfaction and fulfillment of the recipients of those services. We can express the evaluation index by the symbol (y), where the variable (x) enclosed in between 0 to 10. where the symbol (x_{ES}) represent the efficiency of service delivery, the symbol (x_{QS}) represent the service quality, the symbol (x_{TS}) represent the service delivery timing, the symbol (x_{CT}) represent the building customer trust in the institution, the symbol (x_{CS}) represent the customer satisfaction level. According to the matrix proposed by :the researchers, the results of that equation

$$y = \frac{1}{10} \sum_{x=0}^{x=10} [x_{QS} + x_{ES} + x_{TS} + x_{CT} + x_{CS}]$$

will be determined and compared to the proposed evaluation level from poor to excellent.

Table (II) Key to Service Evaluation (KSE)

No.	Degree of impact of the service provided	Degree
1	Excellent Service	$4 \geq 5$
2	Very Good Service	$3 > 4$
3	Good Service	$2 > 3$
4	Acceptable Service	$1 > 2$
5	Poor Service	$0 \geq 1$

Source: Researchers' Own Work

Comparing both (A) and (B), we find that (A) outperformed (B), as (A) provided services to customers during a specific period of time with a very good level of performance, while (B) provided services to customers during the same specific period of time with only a good level of performance. Through this matrix, the performance rates of public service providers can be compared to help strengthen and motivate these workers. It is also possible to compare the performance of one branch and another within an organization or even between one organization and another, which makes this proposed matrix cover a large field in evaluating, classifying and comparing performance levels to various entities

$$\begin{aligned}
 \text{Service evaluation} = & \left\{ \begin{array}{l} \text{Excelleny} \\ \text{V.Good} \\ \text{Good} \\ \text{Acceptable} \\ \text{Poor} \end{array} \right. \begin{array}{l} 4 < y \leq 5 \\ 3 < y \leq 4 \\ 2 < y \leq 3 \\ 1 < y \leq 2 \\ 0 < y \leq 1 \end{array} \\
 & - y \text{ (Evaluation index)} \quad - x_{Q.S} \text{ (Quality of Service)} \quad - x_{C.T} \text{ (Customer Trust)} \\
 & - x_{E.S} \text{ (Efficiency of Service)} \quad - x_{T.S} \text{ (Timing of Service)} \quad - x_{C.S} \text{ (Customer Satisfaction)}
 \end{aligned}$$

Conclusion and Action Plan

Conclusion

Based upon the review of many previous literatures that discussed the performance of public service providers during the period from 2005 until now, this paper emphasizes the importance of improving the level of services provided by the state to ensure citizen satisfaction.




Through the paper, researchers developed a matrix to evaluate the performance levels of public service providers. This matrix includes a set of variables such as the quality of the provided services and their consistency with the client's needs, the efficiency of the service provider, whether they have done everything necessary to serve the client, and whether they possess the appropriate knowledge for their tasks. In addition to the timing of terminating that service and whether it is timely appropriate to the customer's need.










Finally, to what extent was the service provider able to build bridges of trust between him and the customer, and to what degree was the service provider able to win the satisfaction of this customer? A relative weight was given to each factor ranging from distinguished service to poor service, and a mathematical equation was used to facilitate the calculation of that matrix.

That paper helps evaluate the performance levels of public service providers through the customer service matrix. The importance of the matrix, from the researchers' point of view, lies in its ability to determine specific values, either through the matrix or through the proposed mathematical equation. These values range from best performance, which is excellent, to poor service. The outputs of this matrix can be used to evaluate public service providers, whether they are individuals within an organization, or to assess one or more branches of a public institution, or even to evaluate the performance level of a public institution over a specific period. This evaluation helps in establishing a fair system for incentives, rewards, promotions, and even the entire career path, in addition to identifying the actual needs of public service seekers to assist in the future design of more effective and satisfying services for these clients. Through the matrix, it is also possible to compare the performance of one service provider with another, or to compare one branch with another, or one public institution with another, or even to compare the performance of the same institution during different time periods and to identify strengths and weaknesses, helping decision-makers efficiently plan public business in the future.

The researchers came up with an action plan illustrating how can any public institution meet customers' expectations or even go over their expectations by setting objectives, prepare a plan for implementing these objectives, and finally develop a measurement scale for conducting gap analysis and take correction actions.

Action Plan

 Process Objectives	 Action	 Measurement
Promote meaningful change that holds significance for customers within every organizational division. Each division should introduce two alterations annually, with active support from customers.	Designate two individuals from each business unit as customer advocates whose role is to represent the interests of customers rather than the company.	Attaining at least 85% of customer satisfaction.
Collect input from customers who express dissatisfaction to pinpoint and enact enhancements.	Permit customers to escalate to a manager upon their initial request without any resistance.	Identify ten quarterly improvements initiated by customer feedback and complaints to management.

 Process Objectives	 Action	 Measurement
Acknowledge outstanding performance among customer service representatives by appointing them as team leaders. Request their involvement in mentoring new employees and incentivize their efforts with a quarterly leadership bonus.	Create a leadership program specially tailored for customer service representatives.	Recognize two new leaders each quarter based on performance metrics. Aim to decrease new employee turnover to 12%.
 Performance Objectives	 Action	 Measurement
Retain dissatisfied customers to enhance overall customer lifetime value.	Enhance customer recovery by actively listening to their problems and identifying solutions that align with customer's satisfaction.	Achieve a customer churn rate of 4% per month or less.
Respond to customer feedback expressing a deficiency in received apologies were deemed necessary. Aim to consistently apologize on behalf of the organization whenever customers experience inconvenience.	Participate in training sessions focused on improving listening skills and undergo assessments to measure progress.	Require all team members to finish training within one month, aiming for an average assessment score of 80%. Team members scoring below 60% must undergo additional training until their scores improve.
Address customer concerns regarding insufficient apologies in situations where they felt one was warranted. Set a goal to consistently issue apologies on behalf of the company whenever customers experience inconvenience.	Ensure that customers are consistently treated with common courtesies and respect at all times.	Managers should monitor and document instances where employees fail to apologize when customers are inconvenienced. The objective is to achieve 100% compliance with the fundamental principle.
 Customer Experience Objectives	 Action	 Measurement
Minimize the waiting period for customers' services.	Enhance staffing levels at all divisions and departments.	Maintain an average wait time of less than 10 minutes during peak periods.
Enable customers to attain their required services without the need for waiting.	Introduce a system that allows customers to fulfill their needs within a specific time schedule for the sake of improving the overall experience.	Set a target to have 30% of rides on high-volume attractions scheduled by the end of the fourth quarter.
Ensure the readiness of all necessary facilities not only for regular customers but also for those with special needs.	Make customers feel comfortable before attaining their services.	Strive for an improvement in the satisfaction rate with services, aiming for an expected increase to 70% or higher.

Recommendations

For Enhancing Public Employees' Performance, the Researchers Suggest the Following:

- Governments should facilitate a more efficient communication pathway between clients and higher-tier customer support specialists enabling customers with complexed queries and demands to directly engage with an authoritative figure, bypassing the initial frontline interaction.
- Public managers are advised to meticulously consider employee attributes, compensation structures, and organizational contexts to achieve successful performance-related pay (PRP) implementation in the public sector. (Park, 2022).
- According to Heinrich & Marschke, (2010) a designer of incentive systems might devise a more potent performance incentive plan by thoroughly comprehending employee motivations and strategically assigning or reallocating tasks among workers based upon each job specification.
- Selecting a leader with a clear understanding of employee performance is crucial in fostering motivation and encouraging optimal effort for rewards. The direct supervisor, who possesses knowledge of the employee's work, is linked to the incentives provided, emphasizing accountability and motivation for efficient work. (Liu & Liu, 2022)

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