

A CITIZEN-SATISFACTION SURVEY IN RIMINI

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Abstract. *This article presents a perspective analysis of performance improvement, in terms of customer satisfaction, with reference to the public sector. The survey was carried out through a questionnaire divided in two main areas, 24 variables with 118 answer modes, on a proportional stratified sample of 322 residents in the city of Rimini, according to data provided by the Territorial Information Service in order to measure the degree of satisfaction in public services, and how it is positioned with respect to expectations. This study was made also to understand what are the variables affecting citizen satisfaction and that therefore reflect on the quality of the services provided.*

Keywords: *quality of public services, citizen customer satisfaction.*

1. INTRODUCTION

The quality of services is an important aspect characterizing the performance of public institutions, such as the capacity to operate with efficiency and effectiveness. The needs of citizen-users should be considered through the techniques of customer satisfaction, allowing the administration to identify possible differences between the current needs and expectations of the community, in order to improve the quality of services.

Quality consists of both an objective part (i.e. tangible aspects) and a subjective one (i.e. the intangible aspects), especially as in case of services. Today, the concept of quality is technically defined as a pattern made up of four different subsystems as mentioned below (Cantieri, 2007):

- *Expected quality:* relates to expectations and therefore to the user. The goal is to identify what the user wants; i.e. the implicit, explicit and latent needs;

- *Designed quality*: refers to performance provided by the Administration, with the aim to identify what it intends to give and the modality in providing service;
- *Given quality*: is also applicable to performance, determining what the Administration effectively supplies compared to the standard services;
- *Perceived quality*: relates to the users' expectations, with the aim to evaluate citizen satisfaction in terms of received service.

1.1 THE LINK BETWEEN QUALITY AND CUSTOMER SATISFACTION

The quality of a service can be defined as the sum of all the aspects and characteristics on which depend its capacity in satisfying a given need. There is a close link between customer satisfaction and quality of service (Margheri, 2002); therefore the prior knowledge of the customers' expectations and needs becomes a necessary step in developing indicators for quality measurement, as well as the ratio between the supplied benefits and satisfied needs.

Customer satisfaction takes on the strategical role in identifying any differences which exist between the levels of expectation and perception. This gap expresses, in turn, the level of non-quality, and the direction of corrective actions according to the classification of deviations as described below:

- *Deviations between needs and provided services* (i.e. expected and given quality): it occurs when the needs are not fully understood by the Administration or in the case when different priorities are assigned;
- *Deviations between expectations and designed service standards* (i.e. expected and designed quality): it occurs when there is a time lag between the citizen expectations and the standard services provided by the Administration;
- *Deviations from standard facilities and services effectively performed* (i.e. between designed and given quality): this happens when the provided service does not reach the intended standards;
- *Deviations between delivered effective performance and the perception of the citizen-user* (i.e. given and perceived quality): this occurs when the provided service is different from the expectations.

Once the deviations are identified, the competency of the Administration to guarantee citizen satisfaction is connected with a continual improvement, that is thinking in terms of systemic solutions, in order to find the causes which prevent an effective performance and to promptly intervene in overcoming them: it must be taken under consideration that citizen satisfaction is relative (depending on the context where it belongs) and dynamic (varying in time).

Therefore the development of public institutions, follows a pattern that

alternates improvement and maintenance actions. In this context, customer satisfaction represents an excellent indicator because on the one hand it can measure the degree of satisfaction of the users' needs and expectations, and on the other hand, provides the extent of efficiency level related to a particular corrective action (Zanella, 2002).

1.2 CUSTOMER SATISFACTION IN PUBLIC ADMINISTRATION

All organizations operating under a competitive market are induced to seek competitiveness and develop a greater consumer orientated policy, because it becomes necessary for them to have a satisfied and loyal customer. In fact, marketing research shows that it is much more difficult and costly for companies to gain new clients than keeping the old ones. For this reason, improving customer satisfaction becomes a profitable investment and one of the main targets for companies in maintaining and expanding their market shares.

The relationship between citizen and Administration is based on the necessity to fulfil and resolve collective needs and problems, and these aspects are felt as a right on the part of the citizen and a duty on the part of the Administration (Gramigna, 2005). So, in theory, the latter should simply perform the functions and activities in serving efficiently the citizen, but in reality, the relationship between citizen and Administration is more complex and problematic. In fact the citizen represents a customer of the public service, and the quality of service depends on the established relation with that particular office at that specific time. There is not a significant difference between the concept of citizen satisfaction with respect to the same definition used in the private sector, except for the objectives (Fontana, 2005). In the public area, the target is to fulfil the collective demands, listen and understand in-depth the needs that the citizen requests, while developing and improving dialogue and relationship skills. In this case, CS allows to define public policies, improve service supply systems and involvement of customers in the three phases of the system: pre-service, interaction and post-service.

The assessment of citizen satisfaction plays a significant role in front-office services, since it is where the local Administration and citizen-user interact allowing access to the provided service and establishing a mutual relation with the public (Bezzi, 2007). The front office can be defined as the last line of the Administration, but also the first point of contact with the citizen. In this sense, its distinction is twofold: on the one hand it is identifiable with the Administration, its values and rules, while on the other hand it should support the citizens' perspective, respecting their rights and satisfying their needs.

The concept of front-office in the past referred only to direct interaction,

meaning that the citizen went personally to the relevant office for information and then request the proper documents or certificates and/or other services. Today this assessment must be integrated with the current role that technology has taken on within front-office services, both in Administration and citizen-service relations and management (Zani et al., 2007). In fact, technology allows the citizen-user to directly interact with some phases in the supply of services, or to have a partial support from the administration staff.

2. STATISTICAL ANALYSIS OF PUBLIC UTILITIES IN RIMINI

The survey was carried out in June 2013 on a sample of 322 citizen-users to firstly measure the degree of perceived satisfaction of the services supplied by the public administrative offices in the city of Rimini, assessing any deviations from the initial expectations, and secondly to comprehend which were the elements of the provided service and their impact on the citizen-user's level of satisfaction or dissatisfaction. The questionnaire was divided into two main different parts consisting of 24 closed questions with the following five response levels: Not at all, Not much, Neutral, Good, Excellent. The first macro area consisted of six variables related in outlining the features of the average user profile, while the second area is made up of the remaining eighteen variables, in relation to the aspects of the public service received, in terms of user satisfaction and quality of service levels. The opinions were collected through filling in a questionnaire given anonymously to a sample of citizen-users, with the aid of team of collaborators in charge of assisting them in the completion of the required information.

The reference population was that of adult residents in the city of Rimini, according to official data provided by the Territorial Information Service (SIT) and to the demographic situation in 2012. The data provided by the SIT of Rimini concerns adult male and female residents divided by each populated district in the municipality: 127 residential areas. It was decided to group these residential areas in only six districts, which until 2011 were officially recognized by the city of Rimini and the Emilia-Romagna region but, as a result of the national and regional public costs spending review, such districts were abolished. From this grouping, we obtained the total of adult residents for each district listed in columns 2 and 3 of Table 1.

The calculation of sample size was determined through the formula:

$$n = \frac{(d / 2)^2 + p(1 - p)z_{\alpha/2}^2}{(d / 2)^2 + \frac{p(1 - p)z_{\alpha/2}^2}{N}}$$

Table 1: Adult residents in the city of Rimini and number of sample units by District (strata)

District	Strata size (N_i)	$f_i = N_i/N$	Sample units in strata ($n_i = n \cdot f_i$)	Adult males (M_i)	$f_i^M = M_i/N_i$	Adult females (F_i)	$f_i^F = F_i/N_i$	Male sample units ($f_i^M \cdot n_i$)	Female sample units ($f_i^F \cdot n_i$)
1	16,898	0.1361	44	7,601	0.4498	9,297	0.5502	20	24
2	21,985	0.1770	57	10,197	0.4638	11,788	0.5362	26	31
3	16,947	0.1364	44	8,079	0.4767	8,868	0.5233	21	23
4	26,521	0.2135	69	12,429	0.4686	14,092	0.5314	32	37
5	25,265	0.2034	65	12,320	0.4876	12,945	0.5124	32	33
6	16,585	0.1335	43	8,028	0.4841	8,557	0.5159	21	22
Total	124,201		322	58,654	0.4723	65,547	0.5277	152	170

where (Delvecchio, 2015):

N is the size of the reference population: in this survey coincides with the adult residents in the city of Rimini, i.e. 124,201 units;

d is the maximum permissible error in the survey: an error rate of 5.5% was used, i.e. 0.055;

p is the expected prevalence of arrangements assessed, which in our case is the proportion of satisfied users of the services: we used a conservative approach, assuming a prevalence of 50%, i.e. 0.5;

α is related to the security measure of estimate: since in this case it was used a 95% confidence level, $z_{\alpha/2} = 1.96$.

The number of 322 units were obtained through the aforementioned formula, by proportional stratified sampling according to gender and district, with the aim to provide the most representative sample as shown in Table 1. There are two main reasons behind this choice, the first is that this sampling method is probabilistic (Cicchitelli et al., 1997), thus allowing to extend the results from our sample to the entire population, the second because we procured the official data from the Registry of the city of Rimini.

2.1 MULTIPLE CORRESPONDENCE ANALYSIS OF SATISFACTION

The multidimensional analysis allows to consider many aspects of customer satisfaction, with the aim of simplifying, summarizing and representing the phenomenon. In particular, the multiple correspondence analysis (MCA) is used to study the structure of relationships in a set of qualitative variables with the purpose of interpreting the associations between them, using the projection of the responses on a reduced space dimension (Fabbris, 1997).

That leads to the definition of new variables given by the linear combinations

of the responses in the binary encoding of the \mathbf{Z} disjunctive complete matrix, so as to maximize the projection of each of the column vectors on those new dimensions. The solution is given in terms of the eigenvalues λ and eigenvectors of the Burt matrix \mathbf{B} , in which the eigenvectors identify the directions of maximum elongation of the cloud of points and the eigenvalues measure the variability of the same cloud along those directions. The new factors, used to represent the responses and the cases, are projected as points in the space factor perpendicular to each other, as combinations of the responses included in the analysis, each showing the maximum dispersion \mathbf{B} , in descending order. The sum of eigenvalues (so-called total inertia) is equal to the trace of \mathbf{B} : it follows that the ratios $\lambda_i / \sum \lambda_i$ between each eigenvalue and the trace are the proportions of dispersion reproduced from the corresponding factor. If the values are close, there is a high association between the modes of the variables (correlation), whereas if they are distant, there is a high dispersion between such modes (discrimination).

From the discrimination measures as indicated in Table 2 together with the position of the original variables shown in the graph of the main aspects considered, it can be deduced that the first dimension is the level of user satisfaction, while the second one represents the evaluation of service quality.

Table 2: Discrimination measures

Original aspects of investigation	Dimensions		Average
	1	2	
Opening hours	.740	.231	.485
Waiting times	.390	.279	.335
Promptness of service	.669	.366	.517
Service discovery	.662	.453	.557
Simplicity of forms.656	.299	.478	
Comfort	.791	.577	.684
Overall satisfaction.821	.695	.758	
Frequency of use	.393	.418	.406
Number of offices	.730	.432	.581
Improved service	.536	.255	.396
Staff courtesy	.846	.494	.670
Staff competency	.660	.615	.638
Clarity of information	.911	.734	.822
Total	8.539	5.460	7.000

Analyzing the projections and the position of the variables (shown in the graph of Figure 1) a match between positive judgments on the quality of service and level of user satisfaction-citizens can be observed.

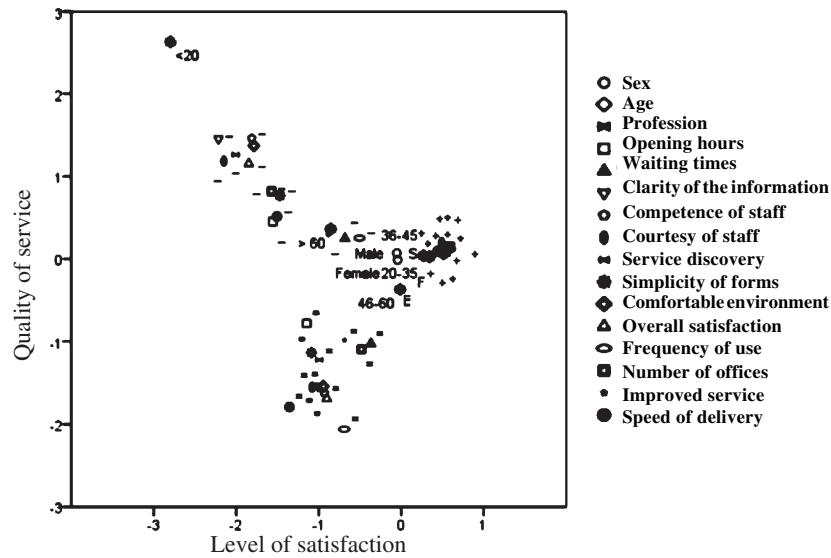


Figure 1: Response scores

This relates to the elements of staff courtesy, clarity and competency, confirming that the human aspect is what matters most in quantifying the quality of public service and therefore the level of satisfaction of the customers including variables such as waiting times, improved service, opening times and promptness of service have a high value of discrimination on the first dimension, much greater than that associated with the second dimension, showing a misalignment between quality and level of satisfaction.

The average of the discrimination measures for each dimension is equal to its eigenvalue, expressed in terms of the total explained variance (Table 3): dimensions are ordered according to descending eigenvalues, for which the first dimension corresponds to the highest average discrimination, and so on.

Table 3: Eigenvalues summary

Dimension	Cronbach Alfa	Explained variance	
		Total (eigenvalue)	Inertia
1	.956	8.539	.657
2	.885	5.460	.420
Total		13.999	1.077
Average	.929	7.000	.538

Since the quantifications of the categories are the average scores of objects grouped in that category, Figure 1 shows associations between responses of the various variables, with position determined on the basis of their coordinates relative

to the identified dimensions.

The respondents who are in the *positive part* of *first semi-axis* form a very homogeneous group. Their profile is primarily female belonging to a central age band (20-60 years), expressing a mainly positive satisfaction level concerning the human aspect of the service received in terms of public administration staff courtesy and competency.

The respondents who are in the *negative part* of *first semi-axis* result in a heterogeneous group among themselves. They consist of young (<20 years) or elderly (>60 years) males who appear to be totally or moderately dissatisfied, mainly for the disservice received in terms of waiting times, promptness of service and clarity of forms.

2.2 CLUSTER ANALYSIS

The aim was to classify the 322 users on the basis of the perceived quality of public services, in order to identify critical aspects of the level of satisfaction to be treated differently. In this analysis, the Euclidean distance measure with aggregation criterion of Ward were chosen (Gherghi et al., 2011).

The phases of this study, have at first involved the evaluation of the optimal number of groups in which the population under study were divided in (Table 4).

Table 4: Distances between groups for solutions from 1 to 10

Cluster	Distance between groups (absolute value)	% change of the distance compared to the preceding stage
10	46.877	10.30
9	60.136	10.70
8	70.146	11.09
7	78.156	12.36
6	118.069	16.62
5	210.277	25.38
4	251.077	24.17
3	1151.446	89.26
2	2251.393	92.22
1	4422.432	94.24

Passing from group 4 to group 3, a considerable increase of distance can be observed; in other words it should join the groups that are very distant from each other and thus the optimal number of clusters is equal to 4, consisting of 149 customers in cluster 1, 57 customers in cluster 2, 28 customers in cluster 3, 87 customers in cluster 4, that have similar levels of satisfaction and are different from the other groups (given by the Ward criterion).

To understand their pattern, and therefore characterize the profiles of the citizens-consumers, an analysis of the partial distributions to which the different groups were associated was made according to the different variables in the questionnaire.

The first group (Table 5) is the largest and represents 46.4% of the total; it is made up of respondents with a high level of education who are mainly professionals, age included in the two central bands, and a lesser presence of women if compared to the whole sample. This group generally focuses on a level of positive opinion feedback, and are absolutely positive only on factors such as clarity of information and promptness of service (Table 6).

Table 5: Distributions of cluster 1 by gender, age and profession

Gender	Frequency	Percentage
Females	77	51.6
Males	72	48.4
Age		
20-35	14	9.7
36-45	67	45.2
46-60	54	35.5
> 60	14	9.7
Profession		
Freelancer/Entrepreneur	134	90.3
Self-employed	15	9.7
Total	149	100.0

Table 6: Response rates in cluster 1

Aspects of investigation	Non-response	Negative feedback	Regular feedback	Positive feedback
Opening hours	-	-	11.1	93.5
Waiting times	-	22.6	3.2	74.2
Promptness of service	-	-	-	100.0
Clarity of the information	-	-	-	100.0
Staff competency	-	-	12.9	87.1
Staff courtesy	-	-	6.5	93.5
Service discovery	-	1.6	1.6	96.8
Simplicity of forms	-	-	3.2	96.8
Comfortable environment	-	-	3.2	96.8
Overall satisfaction	-	-	3.2	96.8
Frequency of use	-	-	3.2	96.8
Number of offices	-	-	3.2	96.8
Improved service	-	12.9	-	87.1

The second group (Table 7) refers to 8.0% of the respondents, and is made up of a majority of female employees in an evenly distributed age band. This group presents varied favourable judgments but tends to give an uncertain/negative feedback on almost all aspects considered (Table 8).

Table 7: Distributions of cluster 2 by gender, age and profession

Gender	Frequency	Percentage
Females	33	58.3
Males	24	41.7
Age		
20-35	14	25.0
36-45	14	25.0
46-60	15	25.0
> 60	14	25.0
Profession		
Freelancer/Entrepreneur	51	90.3
Self-employed	6	9.7
Total	57	100.0

Table 8: Response rates in cluster 2

Aspects of investigation	Non-response	Negative feedback	Regular feedback	Positive feedback
Opening hours	-	41.7	41.7	16.7
Waiting times	-	58.3	41.7	-
Promptness of service	-	41.7	41.7	16.7
Clarity of information	-	25.0	45.8	29.2
Staff competency	-	33.3	41.7	25.0
Staff courtesy	-	8.3	52.1	39.6
Service discovery	-	10.4	41.7	47.9
Simplicity of forms	-	39.6	41.7	18.8
Comfortable environment	-	2.1	37.5	60.4
Overall satisfaction	-	33.3	33.3	33.3
Frequency of use	-	66.7	25.0	8.3
Number of offices	2.1	27.1	52.1	18.8
Improved service	2.1	27.1	60.4	10.4

The third group (Table 9) can be identified as the unsatisfied and not responding including 8.6% of users, with a prevalence of males, mainly students and unemployed who have a negative opinion of the service received (Table 10).

Table 9: Distributions of cluster 3 by gender, age and profession

Gender	Frequency	Percentage
Females	12	43.5
Males	16	56.5
Age		
20-35	5	17.4
36-45	4	13.0
46-60	5	17.4
> 60	15	52.2
Profession		
Freelancer/Entrepreneur	24	87.0
Self-employed	4	13.0
Total	28	100.0

Table 10: Response rates in cluster 3

Aspects of investigation	Non-response	Negative feedback	Regular feedback	Positive feedback
Opening hours	30.4	34.8	34.8	-
Waiting times	43.5	52.2	4.3	-
Promptness of service	30.4	69.6	-	-
Clarity of the information	30.4	69.6	-	-
Staff competency	34.8	52.2	13.0	-
Staff courtesy	21.7	73.9	4.3	-
Service discovery	26.1	69.6	4.3	-
Simplicity of forms	39.1	34.8	26.1	-
Comfortable environment	26.1	73.9	-	-
Overall satisfaction	21.7	73.9	4.3	-
Frequency of use	26.1	69.6	4.3	-
Number of offices	26.1	69.6	4.3	-
Improved service	43.5	56.5	-	-

The fourth and last group refers to young workers (Table 11), the main characteristic that stands out among this 27.0% of respondents was their positive feedback in regards to the administration staff profile, especially concerning the aspects of competency and promptness of service, although they do not make much use of public services as highlighted by the percentage factor associated to the frequency of use (Table 12).

Table 11: Distributions of cluster 4 by gender, age and profession

Gender	Frequency	Percentage
Females	48	55.6
Males	39	44.4
Age		
20-35	40	44.4
36-45	14	16.7
46-60	14	16.7
> 60	19	22.2
Profession		
Freelancer/Entrepreneur	79	91.7
Self-employed	8	8.3
Total	87	100.0

Table 12: Response rates in cluster 4

Aspects of investigation	Non-response	Negative feedback	Regular feedback	Positive feedback
Opening hours	-	-	11.1	88.9
Waiting times	-	11.1	27.8	61.1
Promptness of service	-	5.6	-	94.4
Clarity of information	-	-	22.2	77.8
Staff competency	-	-	-	100.0
Staff courtesy	-	5.6	11.1	83.3
Service discovery	-	-	27.8	72.2
Simplicity of forms	-	5.6	16.7	77.8
Comfortable environment	-	-	5.6	94.4
Overall satisfaction	-	5.6	16.7	77.8
Frequency of use	-	94.4	5.6	-
Number of offices	-	22.2	33.3	44.4
Improved service	-	16.7	27.8	55.6

3. CONCLUSIONS

The survey results point out a range of substantial satisfaction feedback by the users, confirming the validity of the policies undertaken by the Public Administration which in recent years has highly invested in the development and continuous improvement of service quality.

The most important factor that has emerged from this survey was the human aspect, a bit contradictory with respect to the development of public policies that

in recent years have aimed only to introduce computerized systems to improve the quality of service. In conclusion, the Administration should both continue innovating online service, but also take concrete steps towards a political development through staff updating and training, while increasing the awareness of the importance of their role in citizen-user satisfaction, and consequentially rendering the quality of service provided the final purpose of their responsibilities.

REFERENCES

- Bezzi, C. (2007). *Cos'è la valutazione. Un'introduzione ai concetti, le parole chiave e i problemi metodologici*. Franco Angeli, Milano.
- Cantieri, A. (2007). *Customer satisfaction: a che punto siamo. Indagine sulle rilevazioni della qualità dei servizi percepita dagli utenti*. Rubbettino, Soveria Mannelli.
- Cicchitelli, G., Herzel, A., Montanari, G.E. (1997). *Il Campionamento Statistico*. Il Mulino, Bologna.
- Delvecchio, F. (2015). *Statistica per lo studio dei fenomeni sociali*. Cleup, Padova.
- Fabbris, L. (1997). *Statistica multivariata - analisi esplorativa dei dati*. McGraw-Hill Education (Italy), Milano.
- Fontana, F. and Rossi, M. (2005). *La rilevazione della customer satisfaction negli enti locali*. Halley, Matelica.
- Gherghi, M., Lauro, C. (2011). *Appunti di Analisi dei Dati Multidimensionali, metodologia ed esempi*. RCE Multimedia, Napoli.
- Gramigna, A. (2005). *Amministrazioni in ascolto. Esperienze di customer satisfaction nelle amministrazioni pubbliche*. Edizioni Scientifiche Italiane, Napoli.
- Margheri, A. (2002). *Qualità e customer satisfaction negli enti pubblici*. Cedam, Padova.
- Zanella, A. (2002). *Qualità, normativa e certificazione: il ruolo della statistica*. Carocci, Roma.
- Zani, S., Cerioli, A. (2007). *Analisi dei dati e data mining per le decisioni aziendali*. Giuffrè, Milano.