

Service Quality Measurement of Antivirus Software Industry by using Servqual Model

Nilesh Kate, Mahendra More

Abstract: - *The Quality of Service in Antivirus-Software Industry is an important factor for successful Business. This Paper Studies the Antivirus-Software Users from the IT industry, Educational institutions, Manufacture sector industry for understanding the genesis of service quality and potential gaps in service quality. The objectives of the study to find out Major Service quality attributes or dimension using SERVQUAL Model. A better understanding of consumer will give the Antivirus software providing companies an opportunity to improve the quality of service and to gain the competitive advantage.*

Key Words:- *Quality, Service, Anti-Virus Software, SERVQUAL Model.*

I. INTRODUCTION

In today's business scenario global antivirus software market has registered growth in revenue form that is -1.2% compounded annual growth rate (CAGR). The global market valued US\$ 3770 million in 2019 and expected to reach US\$ 3500 million by 2024.

Indian Antivirus market is estimated to reach US\$ 246.3 million by 2024 [14].

Government activities, multiplication of cell phones, increasing internet penetration and internet of things (IoT) area, considerable increment of digital and cyber security spending and developing Information Technology (IT), Small Medium Enterprises (SME) and edu-tech hubs in the nation are a portion of the key elements to drive the development of antivirus market in India.

Cyber security expenditure in India is estimated to reach US\$ 37666 million by 2025. High market potential in antivirus software industry due to following major reasons [15]: *Fast Growing cyber security market, Public awareness and Media coverage of cyber security problems, Growing number of internet users, E-Commerce new opportunities and Risks, Competition: when service makes a difference.*

Antivirus software prevents, discovers and delete wicked programs. It assists real-time scanning of the systems memory, operating system and files by using heuristic methods. This methods helps to prevent computers from being infected with malware.

Today in dynamic and complex global business environment, service sector plays a vital role not only in developed countries but also in developing and emerging economies due to fastest growing service sector contributes high the economy of the country.

Service management and service quality is considered as key drivers for a success and survival of any service organizations in modern and competitive business environment. Meeting service quality standards for customer satisfaction is a matter of concern; poor service quality would have severe effect on customer satisfaction. The purpose of the present study is to understand service quality factors and customers perception towards service quality; to identify and analyse the service gap between customer expectations and actual service for antivirus software service providers.

II. LITERATURE REVIEW

A. Parasuraman, et al. defined services are intangible. Difficult to measure, test and set standard quality, subsequently, it is very difficult understand the customer expectation and their assessment criterion for quality of service. Several academician researcher and practitioners search in terms of service quality concepts, frameworks and models for different organizations. Many researcher defined quality with different dimensions of quality. So quality cannot be defined in any standard form [2]. Reeves and Bednar provided various description of quality as follows: a. quality means conformance to specification, b. quality defined as excellence in performance c. quality as value d. quality as meeting customer expectations [4].

SERVQUAL model of service quality developed by Parasuraman, et al. [1] [3] [10] [11]. This five dimension model is more acceptable and dependable for assessing service quality of any type of services of organizations [9]. This model recognized as one of the significant techniques to measure quality of service given to customers. In today's era of digital, Service quality has been transformed from traditional to digital, which leads to change in dimensions of measuring service quality parameter in consumer minds and service differentiation among different service providers. Different new models and scales have been evolved and created with respect to digital interface in diverse research subjects [7].

In SERVQUAL five dimension model show that 22 items with sections which measures actual service provided for a specific products or services by the organizations and customers expected level of service quality from service providers [13] [5] [6]. Five dimension of service quality is as follows: (1) Tangibility: physical location and infrastructure aspect of service provider; (2) Reliability: ability to provide promised service consistently and precisely; (3) Responsiveness: capacity to provide quick response for customer assistance; (4) Assurance: employees capacity to build trust and confidence for their service among customers; and (5) Empathy: care and personal attention gives to its customers.

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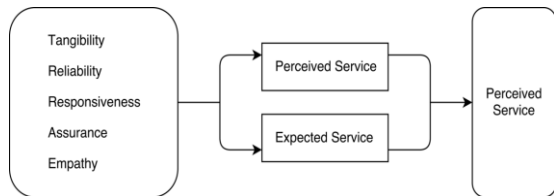


Figure-1. SERVQUAL Model

Source:Parasuraman, Zeithaml and Berry (1988)[1].

Customer Satisfaction is a crucial element of measurement of service performance in business. Customer Satisfaction has been defined by many researchers for different products and services in various circumstances. Customer satisfaction is a process of evaluation of product or service quality on the basis of customer’s needs and expectation [12]. Customer expectation as "desires or needs of customers which are what they feel a service provider ought to offer instead of would offer [1]. A customers future expectation depends upon their present and past experience about service providers [11].

III.OBJECTIVES OF THE STUDY

1. To identify and analyze the service quality factors for antivirus software industry by using SERVQUAL model.
2. To find out service gap based on customers perceptions and expectations for different service quality dimensions.
3. To find out major Service quality factors that hold the highest level of importance for the customers of Antivirus-Software.

IV.RESEARCH METHODOLOGY

This study consist of descriptive research design and it is single cross-sectional in nature. Primary data has been collected through structured questionnaire method. Data was collected from Anti-virus software consumers of Pune based IT Industry, Educational Institutes and Manufacturing industry. Sampling Procedure adopted was Non-probability convenience sampling. 80 questionnaires were distributed out of which 71 were returned. 11 had been discarded for incomplete and irrelevant answers and 60 had been used for final analysis.

Statistical Packages like Excel and SPSS 11.0 were used to analyse the data. Factor Analysis carried out by using SPSS software with rotated component matrix and varimax method used for the finding the various dimensions of SERVQUAL Model.

V. ANALYSIS AND RESULTS

Table 1: Service Quality Attributes -

Parameter	Importance Mean	Satisfaction Mean	Delta S-I
Comprehensive & Timely Updates	4.57	3.5	-1.07
Competitive Pricing	4.3	3.5	-0.8
Product Demonstration	4.27	3.7	-0.57
Anti-Virus	4.2	3.72	-0.48

Support System			
On-Time Delivery of Product	4.17	3.93	-0.24
Waiting Time for Service	4.17	3.38	-0.79
Knowledge of Company Representatives	4.1	3.5	-0.6
Promptness in Service	4.1	3.43	-0.67
On-Time Service	4.00	3.83	-0.17
Special Offers / Discounts	4.0	3.6	-0.4
Accuracy of Information	3.97	3.4	-0.57
Guidance in Decision Making	3.93	3.8	-0.13
Clear Communication on Product Features	3.93	3.5	-0.43
Working Hours	3.8	4.0	+0.2
Courteous	3.6	3.77	+0.17
Follow-Up on Service provided	3.6	3.7	+0.1
Behavior of Company Representatives	3.5	3.83	+0.33
Cost of Installation	3.3	4.46	+1.16
Location	3	3.8	+0.8
Ambience of Shop / Retailer Facility	2.6	3.14	+0.54

Inference:

From the table 1, service gap has been found from antivirus software customer experiences and expectations from various service quality dimensions. It is seen that value of each and every aspect of actual service is less than expectations. Comprehensive and timely updates factor has largest gap and no aspect with positive delta value (satisfaction minus importance) from top dimensions of service parameter. In the bottom aspects there are seven aspects with a (very small) positive delta: “Working Hours”, “Follow-Up on Service provided”, “Behaviour of Company Representatives”, ”Cost of Installation”, ” Location” “Ambience of Shop/Retailer Facility”. Respondents are quite satisfied with these features. The bottom ten aspects needs to focus on more effort towards services.



Table 2: Most important five service quality factors

Service Quality variables	Importance Mean value	Satisfaction Mean value
Comprehensive & Timely Updates	4.57	3.5
Competitive Pricing	4.3	3.5
Product Demonstration	4.27	3.7
Anti-Virus Support System	4.2	3.72
On-Time Delivery of Product	4.17	3.93

Table 3: Least important five service quality factors

Service Quality Factors	Importance Mean value	Satisfaction Mean value
Follow-Up on Service provided	3.6	3.7
Behaviour of Company Representatives	3.5	3.83
Cost of Installation	3.3	4.46
Location	3	3.8
Ambience of Shop / Retailer Facility	2.6	3.14

Inference:

It is observed from table 2 that comprehensive and timely updates (4.57) is foremost important factor for service quality of antivirus software customers. Whereas, competitive pricing (4.3) is second important, product demonstration (4.27), support systems (4.2) and on-time delivery of product (4.17) ranked third, fourth and fifth important factors considered by antivirus software customers from service providers respectively.

Table 3 indicates that least important service quality factors considered by antivirus software customers as following: follow up on service provided (3.6), behaviour of company representative (3.5), cost of installation (3.3), location (3), ambience/retailer facility (2.6).

Table 4: Rotated Component Matrix by using factor analysis

Rotated Component Matrix	Component				
	1	2	3	4	5
On Time Service			0.79		
On Time Delivery of Product			0.81		
Clear Communication on Product Features					0.756
Accuracy of Information					0.893
Guidance in Decision Making		0.741			
Knowledge of Company Representative					0.709
Product Demonstration	0.743				
Behaviour of Company Representative					0.7
Courteous			0.702		
Follow-up on service provided	0.737				
Location				0.773	
Working Hours		0.787			
Ambience of shop /Retailer Facility				0.787	
Waiting time for service	0.813				
Promptness in service	0.86				
Competitive Pricing			0.76		
Special offers/ Discount		0.72			
cost of installation					0.726
Antivirus support system			0.705		
comprehensive & timely updates			0.814		

Inference:

KAISER-MEYER-OLKIN (KMO) test and Bartlett's test of Sphericity has been



carried out to check whether data is adequate for factor analysis or not [8]. It is found from KMO test 0.798 value that data is appropriate for factor analysis. From Rotated Component Matrix of factor analysis (table no 4), five factor has been extracted using high loading factor.

The aspects of service quality are clustered into five factors of the SERVQUAL as follows:

1. Responsiveness

- Product demonstration.
- Follow-up on service provided.
- Waiting time for service.
- Promptness in service.

2. Empathy

- Guidance in decision making.
- Working hours.
- Special offers / discounts.

3. Reliability

- On-Time service.
- On-Time delivery of product.
- Competitive pricing.
- Cost of installation.
- Anti-Virus support system.
- Comprehensive & timely updates.

4. Tangibles

- Location.
- Ambience of shop / retailer facility.

5. Assurance

- Clear communication on product features.
- Accuracy of information.
- Knowledge of company representatives.
- Behaviour of company representatives.
- Courteous.

Five dimensions of SERVQUAL model has been identified on the basis of important level and based on mean analysis five dimensions of service quality has been given ranked as mentioned in table 5.

Table 5: Rank analysis of SERVQUAL factors on the basis of importance score.

Rank	SERVQUAL Factors	Importance mean	Satisfaction mean	Delta S-I
1 st	Reliability	4.09	3.823	-0.27
2 nd	Responsiveness	4.04	3.5525	-0.49
3 rd	Empathy	3.91	3.8	-0.11

				.11
4 th	Assurance	3.82	3.6	-0.22
5 th	Tangibles	2.8	3.47	+0.67

Inference:

It's found that Reliability is foremost important factor considered by Antivirus software's user companies. It can be concluded that anti-virus software providers should focus on support systems, timely updates and on-time services to increase the reliability of service provided by them.

Responsiveness is the second highly significant factor considered by customers of anti-virus software's service providers and it is seen customer expects quick response to their query regarding antivirus software.

Empathy is third essential factor considered by anti-virus software users. Empathy indicated by variables such as personal attention and guidance in decision making from company representatives.

Assurance is the fourth important factor. Customers expects clear communication on product features, accuracy of information. They are also concerned about the knowledge and behaviour of company representatives. Tangibles is the fifth component of service considered by customers, it includes location and ambience of service facility. But for the five SERVQUAL factors: Reliability, Responsiveness, Empathy, Assurance, Tangibles there is a gap (importance minus satisfaction) of -0.27, -0.49, -0.11, -0.22, +0.67 respectively which means customers are not satisfied with the first four SERVQUAL factor which hold highest scores of importance and are satisfied with the fifth SERVQUAL factor viz. tangibles which hold lowest score of importance.

VI. MANAGERIAL IMPLICATIONS AND CONCLUSION

Results of this present study could help small, medium and large enterprises/companies to focus on specific attributes/dimensions that most important from customers point of view: reliability, responsiveness and empathy; antivirus software companies give proper attention on the following parameter of services: building trust through fulfilling promises of particular service; quick response in resolving the problems of the customers; increasing the capability and expertise in the promised service aspect.

In conclusion, antivirus software companies to increase their service efficiency and effectiveness by focusing on following service parameter: on-time service, support systems, comprehensive, timely and quick updates with quick response in service. While Reliability, Responsiveness, Empathy, Assurance were important factor



for customer satisfaction and tangibles were having less impact on their expectations. This would help anti-virus software companies to understand their customers and fulfil their requirements in best effective manner.

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LIMITATIONS OF THE STUDY AND SCOPE FOR FURTHER RESEARCH

This study is single cross sectional in nature and limited to Pune region only. Further researcher can extend the study for longer period of time and others part of major cities in India, so result may vary for different geographic area. SERVQUAL is a process oriented rather than outcome of service encounter. Future researcher can add more service quality attributes measuring service quality gap for different industry segments along with service encounters outcome.

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