Preliminary framework to manage tenant satisfaction in facilities management service encounters

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Abstract

Purpose: Homogeneity in main business of renting office spaces among commercial facilities has led to fierce competition. To retain tenant attractiveness, many are now concerned about quality of Facilities Management services apart from rent, office space and location. Quality of FM service can be attained with successful service encounters. Thus, this paper is to establish an initial platform on which tenant satisfaction in FM service encounters can be achieved.

Design/ methodology/ approach: Preliminary survey focused on gaining insights into FM encounters in commercial sector and applicability of service attributes under SERVQUAL model. Detailed survey concentrated on determining tenant perceptions on satisfactory levels of service attributes developed in the preliminary study and relationships between FM encounters and different service attributes. Collection of descriptive and inferential statistics was used to analyze results.

Findings: Findings reveal assurance and empathy to be highly correlated with tenant satisfaction while other attributes are less correlated. However, perceptions of satisfaction levels of tenants on tangibility and reliability provides contradictory results to its correlation values. Satisfaction level in remote service encounters is lower compared to phone and face-to-face encounters. Complexity and management concerns towards physical facilities is imperative to uplift satisfaction in remote encounters.

Research limitations/ implications – The scope of study was limited to FM encounters in Sri Lankan Grade "A" commercial office properties with high quality standard finishes, state of the art systems, exceptional accessibility and a definite market presence in Colombo.

Originality/ value: Developed a preliminary framework that guides users to identify best combinations of service attributes with respective FM encounters where tenant satisfaction needs to be achieved.

Keywords: Commercial sector, Tenant satisfaction; SERVQUAL model; Facilities Management, Service encounter

1.0 Introduction

Paradigm of "satisfaction" has been revolutionized at almost every organizational set up from being an attitude, ascertaining the ultimate service delivery to a multidimensional paragon governing expectations across the entire business environment (Oliver, 2010). Hence, identifying determinants of such satisfaction has become a central concern for service management academics and practitioners in their studies in recent years (Shaikh & Khan, 2011). Saravanan and Rao (2007) stated that satisfaction of commercial tenants is based on the level of service quality delivered by service providers. This is determined by a tenant's cumulative experience at all points of contact with the company (Eshghi, Ganguli, & Roy, 2008). According to Negi (2009) for service providers, it is crucial to know which service attributes add value and increase satisfaction and which would merely fulfill minimum requirements and minimize dissatisfaction.

In the arena of facilities management, growing concerns of tenants has led organizations to focus critically on quality of its non-core services in realizing tenant satisfaction. Degree of service quality is conceived by the collective perception of numerous service encounters. One of the hurdles in looking at antecedents and consequences of commercial tenant satisfaction is absence of proper interrelationships among non-core service quality and FM service encounters. Due to this deficiency, any construct arising from such satisfaction is also considered problematic. Hence there exist a crucial requirement of establishing an appropriate agenda to evaluate tenant satisfaction, creating the research problem of 'How *commercial tenant satisfaction could be improved and managed in facilities management service encounters?'*. This led to introduction of a framework to identify best combinations of service quality attributes with respective FM service encounters where tenant satisfaction needs to be achieved as an aim of the research.

2.0 Literature Review

2.1 Need of tenant satisfaction management in FM service encounters

Kyle and Baird (1995) emphasized importance of defining tenant satisfaction as a reflection of entity performance. Tenant satisfaction is conceptualized as interaction-specific means of individual experience on a particular service encounter (Cronin & Taylor, 1992). Jones and Suh (2000) argued tenant satisfaction as a cumulative process based on overall evaluation of service experience. These highlight the fact that tenant satisfaction is based on experience with service providers and also with outcome of service. Bracketz, and Kenley (2002) defined tenant satisfaction as the end result of cost and profit analysis of commercial tenure. Canter and

Rees (1982), defined tenant satisfaction as a reflection of the degree to which inhabitants feel in helping them to achieve goals. Kotler (1982) viewed tenant satisfaction as a mental state experienced with the fulfillment of an expected outcome.

Researchers have identified tenant satisfaction from different perspectives. Most definitions have favored the notion of satisfaction as a response to an evaluation process. Specifically, there is an overriding theme of tenant satisfaction as a fulfillment response (Oliver, 2010); overall evaluation process (Fornell, 1992); attribution (natural tendency of tenants to find causality) is a common phenomenon (Oliver, 2010) or evaluative response (Joseph & Ronald, 1988). However, there is disagreement concerning the evaluative concept. Researchers expose tenant satisfaction as either an intellectual response (Bolton & Drew, 1991; David & Peter, 1988) or an emotional response (Robert, & William 1992; Halstead, David, & Sandra 1994). Kotler (1982) viewed tenant satisfaction as a mental state experienced with fulfillment of an expected outcome. Further, measurement of satisfaction can be identified as the number of product/service support problem calls, direct complaints by phone, e-mail, etc. (Lepkova & Jefimovienė, 2012). In order to clearly delineate the conceptual domain, many researchers have limited the focus to an evaluative response (Giese & Cote, 2002), which identifies the service perceived by a tenant and usually entails comparing performance to respective expectations (Oliver 2010). Accordingly, in this research tenant satisfaction is defined as the discrepancy between expectations and perceptions generated from an evaluative response and both intellectual and emotional aspects are being considered together. Moreover, service encounters such as neatly doing services or repairs, consistency in services provided without any failures are belongs to intellectual encounters while the encounters as providing services at a convenient hours to customers more towards emotional encounters in the sense of tenants' satisfaction (Chou, 2009).

Many contemporary commercial facilities now identify tenant satisfaction as a key for long term business sustainability (Bottom, 2007). According to Hui & Zheng (2010), tenant satisfaction can be identified as an efficient means of transportation to evaluate and reflect the performance of management of facilities. Further, tenant satisfaction is directly related to tenant loyalty and eventually will reflect on tenant retention (Oliver, 2010; Westlund, Cassel, Eklof, & Hackle, 2001). Loyalty is the key to tenant retention (Dick & Basu, 1994; Storbacka, Strandvik, & Gronroos 1994), and retention is critical for long-term financial success of any organization (Peterson & Wilson, 1992; Reichheld & Sasser, 1996).

Tenant satisfaction depends on management and monitoring of individual service encounters (Bitner, Bernard & Mary 1990; Parasuraman, Zeithaml, & Berry, 1998). Shostack (1997)

elaborated service encounter as the time when a tenant interacts directly with the service including its personnel, physical facilities, and other tangible elements. Bitner *and Hubert* (2000) recognized service encounters as critical moments of truth in which tenants often develop indelible impressions. Likelihood of satisfaction with service provided would improve when the tenant experiences more positive encounters (Norwell & Stevans, 1992), and these service encounters take superiority over any preconceived quality or service guarantee (Heskett, 1997).

Dismukes (2002) introduced three types of service encounters such as remote encounters, phone encounters and face-to-face encounters. Remote encounter can occur without any direct human contact while other encounters are governed by human interactions. Czepiel and Solomon (1995) detailed, waiting time, personal interactions, expectations and perceptions of participants as aspects seen in every type of encounters. Bitner′s (1990) model of service encounter evaluation highlights the variables which have received most attention from researchers. According to Bitner (1990), unlike other researches this research has a broader applicability in service satisfaction and its insight base is recommended for service managers who seek to improve their tenant satisfaction in service encounters. Figure 1 represents a simplified version of Bitner′s model.

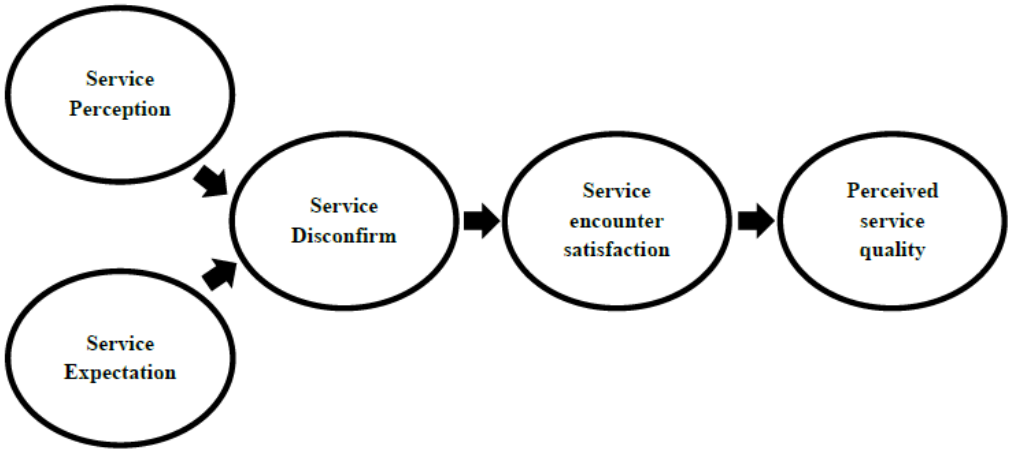


Figure 1: Simplified Bitner's model

Adopted: Bitner (1990)

Service encounter is more attached to functional quality (how a service is delivered) as opposed to technical quality (what service is delivered) (Bebko, 2001; Bitner & Hurbet, 2000). Thus, perceived service quality could be the result of evaluation of a number of service encounters. A service encounter has a multitude of insights that lend to its application in FM

(Kincaid, 1994). According to Baharum, Nawawi, & Saat (2009) five encounters namely cleanliness, building services, signage, security and car parking are comprehensive dimensions to cover property management services. Ehrenberg (2003) revealed in a research on tenant retention that service orders and repair work, cleaning and garbage collection, security and safety services, operator/ reception services, car park and vehicle management, storage services, access control and building services and amenities as most frequent FM encounters in commercial environment. Further, it is difficult to deny that FM would benefit from having an overriding management discipline that can adequately address issues of service quality and delivery in aforesaid encounters.

Although there are many different systems of delivering services, there can be a great deal of structures in tenant interface. These structures ought to be analyzed and improved through insight and discipline.

2.2 Tenant satisfaction management models

The relationship between service quality and satisfaction has received considerable attention during the past few years (Sureshchandar, Chandrasekharan, & Anantharaman, 2002). Many research studies conducted in different areas focused to determine whether satisfaction is influenced by service quality or vice versa (Rust & Oliver, 1994). Danaher and Rust (1996) recognized good service quality as a proactive measure to meet competition by attaining tenant satisfaction. Bolton and Drew (1994) studied relationship between satisfaction and service quality indicating that tenant satisfaction depends on pre-existing attitudes about service quality. Parasuraman *et al.*, (1998) further suggested that satisfaction as a function of estimation of service price and service quality.

An attempt to combine satisfaction and service quality as one entity or process was considered problematic by Sureshchandar et al, (2002). Further Grove, Fisk and John (2003) strongly advocate that tenant satisfaction and service quality are separate and distinct. Strong arguments are made by other researchers to consider tenant satisfaction judgments to be the very least causal antecedents of service quality. Interdependence between service quality and satisfaction could be found in the difference between service qualities as a service providers concern, whereas satisfaction is a concern of the tenant.

Considering the dependable statistical correlation among constructs, majority of studies have disclosed a linear relationship between satisfaction and service quality (Cronin & Taylor 1992; Parasuraman, *et al* 1988). Most models of service quality, together with SERVQUAL and SERVPREF, also assume a linear relationship among the effect of various causes, including

satisfaction and quality (Dabholkar, Shepherd, & Thrope, 2000; Cronin, & Taylor, 1994). However, few studies have shown that relationship among constructs is non-linear (Hernon, & Altman, 1996). Ting (2004) specifically evidenced this in a curvilinear function. However, tenant's expectations and perceptions may vary over time (McMahon, 2006). Thus, relationship between constructs may diverge over time. But this has scarcely been considered in the commercial property sector studies to map relationships between satisfaction and quality over time constructs (Mohammad, & Singhry, 2013). It is evident that, most of the studies concluded there is indeed a linear relationship between satisfaction and service quality. Accordingly, this study assumes the relationship between customers' satisfaction and service quality is linear.

2.2.1 SERVQUAL model

Parasuraman *et al* (1985) measures service quality as a difference between expectations of "what an individual want" and perceptions of "what an individual get". It can be further elaborated as customers' pre-consumption service quality expectations are confirmed or disconfirmed by their actual perceptions of the service experience (Grönroos, 1993). This led to development of "SERVQUAL" model which is a multi-dimensional model/ instrument designed in order to ascertain any actual or perceived gaps between customer expectations and perceptions of the service offered.

Parasuraman *et al.* (1985) identified 97 attributes which have an impact on service quality. These attributes were categorized into ten dimensions (Kumar, Kee & Manshor, 2009) and subsequently proposed 97 instruments were processed through two stages to purify instruments and select those with significant influences.

Original SERVQUAL survey comprised of a set of twenty-two paired expectations/ performance items (making up to forty-four items) which purported to capture the domain of service quality (Noorsidi, Noor & Shahabudin, 2008). Parasuraman *et al.*, (1998) suggested that domain of service quality can be conceptualized with five dimensions: tangibles, reliability, responsiveness, assurance, and empathy (Hemmasi, Strong, and Taylor, 1994). Table 1 indicates interpretation of Zulkhairi and Maimunah (2013) on these dimensions in relation to FM services from a commercial sector perspective.

Table 1: Description of SERVQUAL dimensions

SERVQUAL Dimension	Quality Element
Tangible	Employee dressing and neat in appearance
	Visual appealing of the physical facilities
	Maintenance of up to date equipment
	Compatibility in physical facilities with the type of service provided
Reliability	Consistency in services provided without any failures
	Performing the service at the designated time
	Sympathetic and reassuring when handing problems
	Dependability of service company over services
	Accurate record keeping
Responsiveness	Information provided about when services will be performed
	Promptness of services provided
	Availability of personnel to respond client requirement
	Attitude of service personnel which creates a confidence
	Trustworthiness of the employees
Assurance	Skills and knowledge possessed to perform the service
	Politeness and respect of service personnel
	Security in doing transactions with service personnel
	Management support given to do employees job
Empathy	Conductance of services at convenient hours to users
	Understanding of users about the service provided
	Effort made to know what the needs of their customers are
	Individualized attention to users

Source: (Zulkhari & Maimunah, 2013)

The SERVQUAL instrument is based on the gap between service receiver's internal perceptions and expectations of services (See figure 2) (Zeithaml, Parasuraman, & Berry, 1990).

Service quality can be measured by the level of discrepancy between expectations or desires and respective perceptions of what is actually received, as described by SERVQUAL scale (Bebko, 2001). It measures the difference between what is expected from a service encounter and perceptions of actual service encounters (Swati, 2013). SERVQUAL model is important to group individuals of a company into different quality ranks by determining respective SERVQUAL scores (Ladhari, 2009). This is important in devising and prioritizing service delivery strategies (Roethlein, & Wicks, 2009).

Researches has shown SERVQUAL to be an effective and stable tool for measuring service quality across service industries (Parasuraman *et al.*, 1998; Zeithaml *et a*l., 2006;

Bebko,2001), and entails a wider acceptability as a measuring instrument among service practitioners.

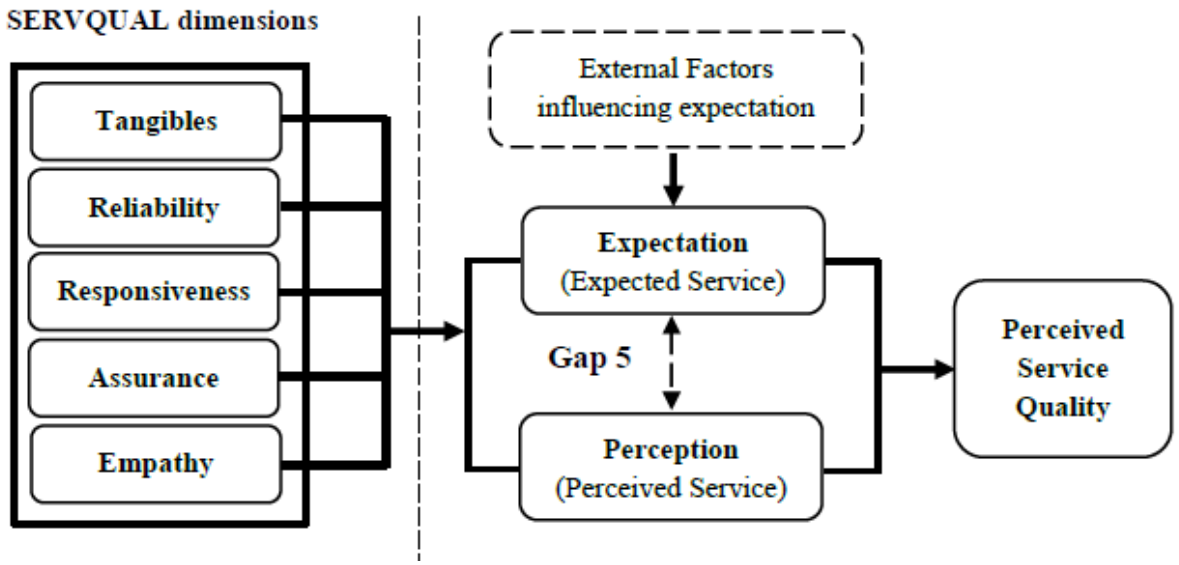


Figure 2: Measuring service quality under SERVQUAL model

Adopted: Kumar (2009)

Studies conducted at higher education institutes (Russel, 2005), hotels (Raspor, 2009), insurance companies (Tsoukatos, Marwa, & Rand, 2004) and restaurants (Namkung & Jang, 2008) reveal that SERVQUAL items are reliable predictors of overall service quality and gap identification comforts to prioritize operational level strategies. Further, Tsoukatos, Marwa, & Rand, (2004) identified quality gap of their case studies for recommendation and prioritization of quality improvement strategies to apply in each case. According to studies, SERVQUAL model fails to capture the dynamics of changing expectations and it is focusing on the process of service delivery rather than outcomes of the service encounter. However, in spite of these limitations, SERVQUAL is still the best existing measurement for service quality as it developedmany measuring dimensions (Grönroos, 1984: Grönroos, 1993). In this research therefore, more emphasis is given to adopt SERVQUAL model as the basis of service quality evaluation.

2.3 Conceptual Model

Regardless of advanced technology offered, most commercial establishments have failed to provide a desirable service interface to tenants causing high tenant turnover and negative impressions (Dissanayake & Wanninayake, 2007). The issue is further aggravated by the

present competitive business environment where tenants can switch commercial buildings easily seeking better options for higher levels of satisfaction. This clearly verifies the research problem by indicating the importance to manage FM interfaces properly to retain and satisfy tenants.

No study has been conducted yet to identify relationship between FM service encounters and commercial tenant satisfaction. To address this issue, conceptual framework in figure 3 was developed by integrating Bitner's and SERVQUAL model based on literature findings.

The SERVQUAL model is the prominent method used to measure consumers' perceptions of service quality (Shahin, 2006) while the Bitner's model represents a close and direct relationship between service encounters, satisfaction and perceived service quality (Bitner, 1990). This commonality encouraged to develop and adopt the conceptual model of service quality by integrating Bitner's model and SERVQUAL model. First part of the conceptual model indicate that service attributes influence FM encounters which directly connect with service quality and tenant satisfaction and the later part shows the antecedent of tenant satisfaction is service quality while those two are directly influenced by FM encounters.

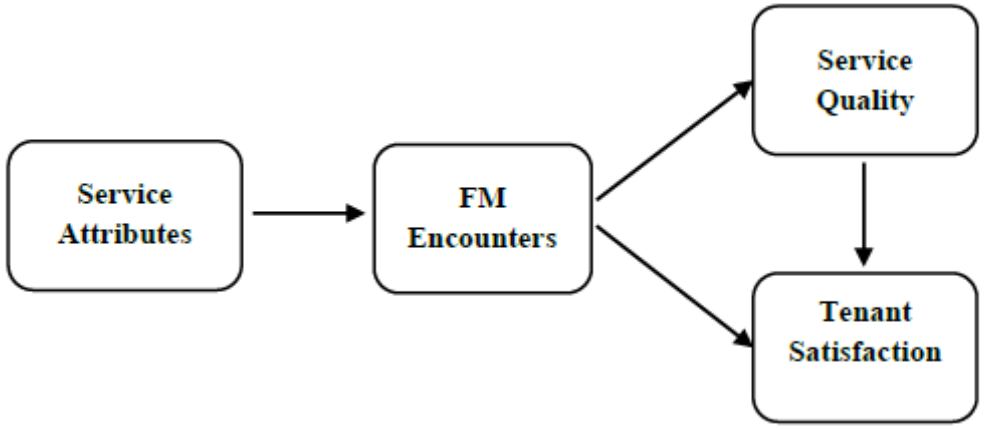


Figure 3: Conceptual Model based on Bitner's model and SERVQUAL model
Adopted: (Bitner, 1990)

3.0 Research Sample and Data Collection

Particularly in Sri Lanka, scattered and large pool of commercial tenants impose a hurdle in finding a representative sample of entire tenant community. According to Madawala (2014), demand for office space at the Colombo city has been at the frontline for many years. In 2008, Colombo Metropolitan Region accounted for over 48% of the country's GDP (Mayank & Robin, 2009). Hence, research sample was narrowed down to tenants occupying commercial properties in Colombo.

Whilst there is no formal classification system for commercial office space, Research Intelligence Unit (RIU) of Prime Real Estate Consultants, a real-estate advisory firm of Sri Lanka elaborated several factors that can be used to identify high-end or Grade "A" office premises such as high quality standard finishes, state of the art systems, exceptional accessibility and a definite market presence (Madawala, 2014). There are 9 Grade "A" commercial properties available in the Colombo City including World Trade Center (WTC), and Hatton National Bank (HNB) Head Quarters (Madawela, 2014). According to RIU's ongoing research the gross floor area (GFA) of main Grade "A" developments in Colombo 1, 2 and 3 zones which together can be identified as the heart of capital city of Sri Lanka total up to 2.282 million sq.ft. This represents around 90 percent of total Grade "A" commercial property available in that area, at eight major commercial developments (Madawela, 2014). With the assumption that tenant satisfaction in FM service encounters in grade "A" facilities can be used to generalize findings towards other commercial properties and as the major share of tenant base is at grade "A" properties it was selected as the research sample.

3.1 Preliminary Survey

A preliminary study was conducted subsequent to literature review as the initial data collection mechanism with respondents as detailed in table 2. Preliminary study was conducted to verify literature findings and establish a common set of agreements for service quality dimensions to reach the best outcome from a detailed survey.

Table 2: Preliminary survey sample respondent profile

Respondent	Designation	Service duration in the facility	Awareness of SERVQUAL attributes
Respondent 1	Facilities Manager	12 years	Aware
Respondent 2	Building Manager	6 years	Aware
Respondent 3	Maintenance Manager	8 years	Novice
Respondent 4	Facilities Manager	4 years	Novice
Respondent 5	Maintenance Manager	7 years	Novice

Preliminary questionnaire was prepared under three sections. One section focused on identifying background details of respondents, such as designation and years of service. Second section was designed to get information on FM encounters and impacts such encounters made on tenant satisfaction with five questions such as what are the FM service encounters met by tenants within their facility, impacts of tenant dissatisfaction in FM service

encounter etc. Third section was designed to gather respondent's perceptions over applicability of original SERVQUAL attributes to the study by questioning the applicability the factors identified in SERVQUAL technique to Facilities Management in commercial buildings to achieve tenant satisfaction in FM service encounters. Any suggestion or addition of new attributes were also considered in this preliminary data survey. As suggested by Carifio and Perla (2007), to strike a balance between comprehensiveness of responses and to complexity of response options, 5 point likert scale was used. Findings of literature and preliminary reviews were used by list down SERVQUAL dimensions.

3.2 Detailed Survey

Detailed questionnaire survey was conducted with a selected sample of commercial tenants to gain insights of SERVQUAL gaps and preliminary information to develop gap minimizing framework.

However, without knowing the size of population, sample method cannot be used effectively. Therefore, non-probability convention sampling method was adopted to collect data for this research which is common in exploratory research, for pretesting of questionnaires (Durkacz & McGregor, 2016)

Detailed questionnaire was given to 41 tenants in nine (9) grade 'A' commercial properties with a response rate of 100%. Sample size had to be restricted from nine to eight due to lack of accessibility to tenants in Grade "A" commercial properties. Sampling was done with the intention of coming up with diversified sampling so that configuration of detailed survey sample which is consisted with various businesses of tenants as indicated in table 3.

Table 3: Detailed survey's sample respondent profiles

Nature of business	Banking Institutions	Audit Firms	Consultancy firms	Garment manufacturing	Educational & Administration	Logistics and Cargo	Engineering Consultants	Media and IT services	Leisure and Hospitality	Travelling Agencies	Power generation	Insurance companies	**Total Respondents**
Number of Respondents	5	2	3	4	5	2	5	3	4	3	2	3	**41**

Detailed questionnaire consisted of four sections. Section one gathered information about the respondents. Section two focused on identifying respondents' satisfaction levels over

different service attributes while section three was to determine overall satisfaction levels and service quality of FM service encounters. Identification of best combinations of service encounters and satisfaction attributes were elicited through section four of the questionnaire. Questionnaire survey gathered the opinion of the respondent through a likert scale of 1 to 5 which 1 denotes the extreme negative implication and 5 denotes for extreme positive implications with equal intervals.

4.0 Data analysis and Development of framework

Preliminary study focused on identification of common FM encounters in commercial properties, impacts of tenant dissatisfaction and most appropriate attributes to manage tenant satisfaction in FM encounters. Followed by this, detailed study analysis was conducted to quantify satisfaction of different service attributes and their applicability over different encounters from tenants' perspectives. Finally, based on above, preliminary framework to manage tenant satisfaction in FM encounters will be developed and presented.

4.1 Preliminary Survey Analysis

Service encounters identified were used to establish common FM service encounters in commercial buildings. 100% response rate was seen on encounters such as service orders and repair work, cleaning and garbage collection, security and safety services, operator/ reception services, car park and vehicle management, storage services, access control and building services and amenities except for storage service encounters. However, storage service encounters resulted with a 60% response rate. No significant contribution was made under other suggestions for encounters as most respondents agreed with listed encounters. Information was gathered on necessities for tenant satisfaction in service orders and repair works, cleaning and garbage collection, security and safety services, operator/ reception services, car park and vehicle management, storage services, access control and building services and amenities. One sample t-test was conducted using SPSS to gauge level of concern to be given on managing respective FM encounters under following hypothesis.

Null hypothesis;

H0 : *Mean level of concern given for managing respective FM encounters to gain tenant satisfaction* ≤ 3

Alternative hypothesis;

H1 : *Mean level of concern given for managing respective FM encounters to gain tenant satisfaction* > 3

If the tailed critical t-value was less than the observed t-value from SPSS and if the means are in correct direction, then null hypothesis (H_O) can be rejected. This can also be proven by maintaining a lower significance (*p*-value) than 0.025. Table 4 indicates the summarized figures given by both descriptive statistics and one sample t-test. With reference to above criteria, in analyzing t-test output results, it was clearly evident that except for storage services, remaining all FM service encounters were having a larger t-value than critical t-value of 2.776 and lower significance level than 0.025. Hence it rejects null hypothesis by accepting the alternative hypothesis. Since seven encounters out of eight were rated above hypothesized mean value, it was apparent that respondents have perceptions of proper management of FM encounters. Moreover, it could also be possible to consider aforesaid encounters as key FM service encounters in the commercial properties sector.

Table 4: Summary of t-values and descriptive statistic results for FM encounter

FM Encounter	Test Value = 3					
	t	df	Sig. (1-tailed)	Mean	95% Confidence interval of the difference	
					Lower	Upper
Service orders and Repair work	6.000	4	.002	4.2000	.6447	1.7553
Cleaning and Garbage collection	5.715	4	.003	4.4000	.7199	2.0801
Security and Safety services	5.715	4	.003	4.4000	.7199	2.0801
Operator/ Reception services	3.162	4	.017	4.0000	.1220	1.8780
Car Park and Vehicle management	3.500	4	.013	4.4000	.2894	2.5106
Storage Services	-2.449	4	.035	2.4000	-1.2801	.0801
Access control	4.000	4	.008	3.8000	.2447	1.3553
Building Services and Amenities	5.715	4	.003	4.4000	.7199	2.0801

To reduce broad nature of FM encounters and duplication of such encounters in subsequent sections, classifications under three categories of remote, phone and face-to-face encounters were considered as common nominators according to Dismukes (2002).

Table 5-FM encounters classification

FM Encounter / Encounter Type		Service orders and Repair work	Cleaning and Garbage collection	Security and Safety services	Operator/ Reception services	Car Park and Vehicle management	Access control	Building Services and Amenities
Remote Encounters (RE)	N	0	0	0	0	0	4	5
	P	*0%*	*0%*	*0%*	*0%*	*0%*	*80%*	*100%*
Phone Encounters (PE)	N	4	0	1	5	0	0	0
	P	*80%*	*0%*	*20%*	*100%*	*0%*	*0%*	*0%*
Face-to-Face Encounters (FE)	N	1	5	4	0	5	1	0
	P	*20%*	*100%*	*80%*	*0%*	*100%*	*20%*	*0%*
Encounter Classification		**PE**	**FE**	**FE**	**PE**	**FE**	**RE**	**RE**

As shown at table 5, access control, building services and amenities and storage services were categorized under remote encounters (RE) while service orders and repair works and operator/ reception services were classified under phone encounters (PE). Remaining three encounters of cleaning and garbage collection, security and safety services and car park management were categorized under face-to- face encounters (FE).

In the previous section, it was clearly stated that all respondents agreed upon management of aforesaid FM encounters is essential to achieve tenant satisfaction. Moreover, analysis of this section reveled that broader scope of FM and its encounters could be classified in to above classifications rationally. Hence, it could be concluded that managing main encounter types of remote, phone and face-to-face would lead to tenant satisfaction in all FM encounters. Thus, subsequent sections would interpret FM encounters under above classifications covering the entire FM scope.

High tenant turnover, negative impressions, monetary loss, additional rework/ expense, damage to tenant and management of relationships and loss of competitive edges are identified as impacts of dissatisfaction in FM service encounters. Moreover, all respondents agreed that

management of FM service encounters is essential for tenant satisfaction which would reflect indirectly on business success with financial and non-financial benefits.

Under the preliminary study, applicability of attributes detailed in table 6 was assessed. To analyze level of applicability of service attributes, one sample t-test was conducted with the same decision rule followed in the previous test. To the t-test, Null hypothesis; H0 : H0 : Mean level of applicability for a particular attribute is less than or equal to 3 against the Alternative hypothesis; H1 : Mean level of applicability for a particular attribute is greater than 3 , where mean level 3, is the neutral point in Likert scale. In the analysis all data sets was fixed at 3 because, by definition, Likert scale distributes from 1 to 5 and given the rating scale 3 is neutral (Thusharika & Abeynayake, 2016). Further, mean value of almost all of service attributes were higher than three. Based on above reasons value 3 was assigned for the analysis.

Except the attribute '*Management support given to do employees job'* all other 21 attributes which were identified through literature review (refer table 1) rejected null hypothesis, which provides the opportunity to accept the alternative hypothesis highlighting the significant applicability over mean value. A significant finding in this section was implications raised during interpretation and customization of principles to commercial properties sector. Hence, although certain attributes were able to reject null hypothesis theoretically, issues materialized among most respondents on aforesaid implications.

Several research studies conducted on SERVQUAL in using only quantitative research approach has evidenced certain deficiencies due to lack of appropriateness and validity in dimensions (Yau, Triplett, & Neal, 1994). Hence to overcome this an expert survey was undertaken to verify SERVQUAL attributes in the preliminary survey prior to detailed survey. Respondent profiles are indicated in table 3. Special contributions by this group of FM practitioners who were getting accustomed to such constructs verified responses given by other respondents. This also became an important task in the preliminary study since modifications, customizations, rejections and additions of new attributes was done according to suggestions of respondents of the commercial properties sector. Table 6 illustrates customization of attributes identified in the preliminary survey and the detailed survey.

Table 6: Transformation of preliminary survey service attributes

Preliminary Attributes (PA)		Modified Detailed Attributes (DA)	
PA-1	Employee dressing and neat in appearance	DA-1	Ease of handling and operability of equipment and physical facilities
PA-2	Visual appealing of the physical facilities	DA-2	FM personnel is properly dressed in uniforms with name tags and neat in appearance
PA-3	Maintenance of up to date equipment	DA-3	Cleanliness of physical facilities
PA-4	*Compatibility in physical facilities with the type of service provided*	DA-4	Name plates and adequate signage is provided in the office space and common areas (Main entrance, Main lobby, lift lobby, car park)
PA-5	Consistency in services provided without any failures	DA-5	*During services or repairs, staff and the work is done neatly (during the repairs carried out the area are neat, after the repairs carried out the area are neat)*
PA-6	Performing the service at the designated time	DA-6	Consistency in services provided without any failures
PA-7	*Sympathetic and reassuring when handing problems*	DA-7	FM Service personnel perform their services at designated time
PA-8	*Dependability of service company over services*	DA-8	*Services and repairs are conducted within the promised time*
PA-9	Accurate record keeping	DA-9	*Correct and relevant information provided to tenants*
PA-10	Information provided about when services will be performed	DA-10	Maintaining error free and fast retrieval of services related documents
PA-11	Promptness of services provided	DA-11	Tenants are informed in advance about when services and repairs will be performed
PA-12	Availability of personnel to respond client requirement	DA-12	Tenants receives a prompt service by FM service personnel and physical facilities
PA-13	Attitude of service personnel which creates a confidence	DA-13	*FM Service personnel is willing to help tenants*
PA-14	*Trustworthiness of the employees*	DA-14	*Robustness of FM service personnel and physical facilities*
PA-15	Skills and knowledge possessed to perform the service	DA-15	FM Service personnel possess the required skills and competencies to perform the service
PA-16	Politeness and respect of service personnel	DA-16	FM Service personnel is polite and respect the tenants and their requirements
PA-17	Security in doing transactions with service personnel	DA-17	Tenants can depend on FM service personnel over confidentiality of the services performed
PA-18	*Management support given to do employees job*	DA-18	Attitude of FM service personnel create a confidence in tenant
PA-19	Conductance of services at convenient hours to users	DA-19	Services and repairs are done at convenient hours to tenant
PA-20	Understanding of users about the service offered to them	DA-20	FM Service personnel explains the nature of the repair of service job in an understandable way to tenant
PA-21	Effort made to know what are the needs of their users	DA-21	FM Service personnel and physical facilities are easily accessible by tenants
PA-22	Individualized attention to users	DA-22	FM Service personnel makes an effort to understand the tenant needs
		DA-23	FM Service personnel flex routine operations to meet tenant objectives

4.2 Detailed survey analysis

Preliminary Attributes (PA) which were identified in the preliminary survey were customized, modified, rejected/added with new attributes at the detailed survey as Modified Detailed Attributes (DA). Those finalized service attributes are illustrated in Table 7.

Table 7: Finalized service attributes used for detailed survey with descriptive statistics results

Service Attributes			RII	Mean	Rating
Attribute 1 :	Tangibility	Ease of handling and operability of equipment and physical facilities	0.7171	3.5854	16
Attribute 2 :		FM personnel is properly dressed in uniforms with name tags and neat in appearance	0.7707	3.8537	8
Attribute 3 :		Cleanliness **o**f physical facilities	0.7366	3.6829	13
Attribute 4 :		Name plates and adequate signage is provided in the office space and common areas (Main entrance, Main lobby, lift lobby, car park)	0.7756	3.878	7
Attribute 5		During services or repairs, staff and the work is done neatly (during the repairs carried out the area are neat, after the repairs carried out the area is neat)	0.7317	3.6585	14
Attribute 6 :	Reliability	Consistency in services provided without any failures	0.7512	3.7561	11
Attribute 7 :		FM Service personnel perform their services at designated time	0.8732	4.3659	2
Attribute 8 :		Services and repairs are conducted within the promised time	0.8439	4.2195	3
Attribute 9 :		Correct and relevant information provided to tenants	0.761	3.8049	9
Attribute 10 :		Maintaining error free and fast retrieval of services related documents	0.7317	3.6585	14
Attribute 11 :	Responsiveness	Tenants are informed in advance about when services and repairs will be performed	0.8000	4.000	4
Attribute 12 :		Tenants receives a prompt service by FM service personnel and physical facilities	0.7561	3.7805	10
Attribute 13 :		FM Service personnel is willing to help tenants	0.7610	3.8049	9
Attribute 14 :		Robustness of FM service personnel and physical facilities	0.7902	3.9512	5
Attribute 15 :	Assurance	FM Service personnel possess the required skills and competencies to perform the service	0.8927	4.4634	1
Attribute 16 :		FM Service personnel is polite and respect the tenants and their requirements	0.7805	3.9024	6
Attribute 17 :		Tenants can depend on FM service personnel over confidentiality of the services performed	0.7902	3.9512	5
Attribute 18 :		Attitude of FM service personnel create a confidence in tenant	0.7415	3.7073	12
Attribute 19 :	Empathy	Services and repairs are done at convenient hours to tenant	0.8732	4.3659	2
Attribute 20:		FM Service personnel explains the nature of the repair of service job in an understandable way to tenant	0.7512	3.7561	11
Attribute 21 :		FM Service personnel and physical facilities are easily accessible by tenants	0.8000	4.000	4
Attribute 22 :		FM Service personnel makes an effort to understand the tenant needs and requirements	0.7268	3.6341	15
Attribute 23		FM Service personnel flex routine operations to meet tenant objectives	0.7512	3.7561	11

Satisfaction levels of predetermined service attributes were tested at the detailed survey. As elaborated, perceptions of service quality and satisfaction emerged from multiple service encounters. Rating scale was developed considering this in a more objective nature. Moreover, data was collected and analyzed assuming that gender, age and other demographic characteristics are independent of results obtained. To analyze satisfaction level of each service attribute, Relative Importance Index (RII) analysis was conducted. Along with RII, mean value for each attribute was calculated to identify overall perception for each service attribute (refer table 7).

According to Carifio and Perla (2007), likert scale with ordinal values are of limited use in analyzing purposes as the distance between responses are not measurable. Hence, research was focused to follow a similar practice to Dissanayaka (2011) by developing a modified scale considering the range of responses which could be used for analysis purposes. Considering the range of 4 (5-1) with equal distances of 0.8 (4/5), original likert scale was transformed to following scale indicated in table 8 which was used for discuss findings.

Table 8-Modifed Likert scale

Original Scale	1	2	3	4	5
Modified Scale	1-1.8	1.81-2.6	2.61-3.4	3.41-4.2	4.21-5

As shown in table 7, with reference to mean values, except for attributes 7, 8, 15 and 19 all other attributes have mean values within range of 3.41-4.2. It is indicative that, except for aforesaid attributes, in a given random 10 service encounters, tenant satisfaction would be realized in 8-9 encounters. RII rankings 1, 2 and 3 indicated attributes 7, 8, 9 and 10 as most satisfied service attributes. Hence, for such attributes, in a given random 10 service encounters, tenant satisfaction would be in all 10 encounters.

However, it is prudent to scrutinize positioning and category to which these attributes belong when evaluating satisfaction levels. Particularly, in case of RII rankings varying from 1-16, significant rankings were scattered in dimensions of reliability, assurance and empathy. However, it is premature to establish relationships among attributes to main dimensions and satisfaction based on above results. Thus, a correlation analysis was performed to evaluate aforesaid constructs in a more rational way (refer table 9).

Table 9 indicates correlation analysis done for SERVQUAL dimensions with satisfaction levels. Correlation among variables was tested at a significance level of 0.05. Critical Value table for Pearson’s correlation coefficient was used to find interception point of degree of

freedom 39 (N-2) and 0.05 significance value. Since 39 was not available in the table, as the closest value, 40 was taken as a proxy for analysis purposes. Interception point of 40 and 0.05 indicated a correlation of 0.304, which is the minimum value to confidentially state that 95 times out of a hundred, the relationship among variables exists in the population from which the sample was taken.

Table 9 – Correlation analysis among framework variables

Correlated Variables		Tangibility	Reliability	Responsiveness	Assurance	Empathy
Satisfaction	Pearson Correlation	.431	.403	.432	.624	.512
	Sig.(2-tailed)	.005	.009	.005	.000	.001
	Mean	3.7390	3.9610	3.8817	3.9027	4.0098

Correlation among variables was tested at a significance level of 0.05. As correlation values for 5 dimensions of SEVQUAL was greater than minimum correlation value, entire population perceive 5 dimensions to be significant to satisfaction rejecting null hypothesis. Since all dimensions indicated a positive correlation value, increment of satisfaction over each dimension would lead to overall tenant satisfaction and vice versa. Results exemplify reliability as the weakest dimension while assurance was rated as most strong variable affecting satisfaction. Correlation of tangibility and responsiveness was at an approximately equal level while empathy was rated high. It could be presumed that; tenant satisfaction could be gained easily if attributes with strong attachment (correlation) are properly managed. However, results demonstrate certain implications over these concerns.

Results illustrated reliability as one of the most satisfied dimensions with high ranked RII attributes. However, correlation analysis proved reliability as the weakest relationship to satisfaction meaning although tenant's perceptions are highly positive, it would not make a significant impact to overall satisfaction level. Contradictory results were seen in findings of Zarita *et* al (2009) in the study of satisfaction level of service quality in office buildings in Malaysia. Although, tangibility and responsiveness resulted in similar correlations mean values were not similar. Assurance and empathy dimensions were highly correlated to overall tenant satisfaction. Tenant's perceptions over these dimensions were highly satisfied as

opposed to other dimensions. Particularly, assurance and empathy dimensions being more oriented towards human aspect of services offered, interactions with FM service personnel was considered as highly satisfactory by tenants (refer table 10).

Table 10 Summary of correlation analysis results for framework variables

Correlated Variables		Service Quality	Dependence on service encounters	Overall satisfaction
Service Quality	Pearson Correlation	1	.864	.797
	Sig. (2-tailed)		.000	.000
	N	41	41	41
Dependence on service encounters	Pearson Correlation	.864	1	.720
	Sig. (2-tailed)	.000		.000
	N	41	41	41
Overall satisfaction	Pearson Correlation	.797	.720	1
	Sig. (2-tailed)	.000	.000	1
	N	41	41	41

Detailed survey was conducted on an overall perception of service quality and level of dependence in FM encounters to ultimate tenant satisfaction. Considering values obtained for Pearson's 'r', strong relationship among all three variables with one another is witnessed. It means that changes in one variable is strongly correlated with changes in the second variable and according to Pearson's theory, correlation between two variables would be strongest with a value of '1' and weakest with a value of '0'.

At this step, by absorbing findings of all levels of analysis, skeleton of framework was expanded. Figure 4 illustrates the framework developed adhering to findings of preliminary and detailed study analysis. This summarized framework comprises of three main components of service attributes based on SERVQUAL model, FM encounters with three main classifications and tenant satisfaction and service quality. As mentioned in previous section, antecedent of tenant satisfaction is service quality Thereby, it is prudent to interpret that service quality would be the foundation for building tenant satisfaction which is graphically illustrated on right side of the below figure. The framework illustrates the relationship between service quality attributes and satisfaction.

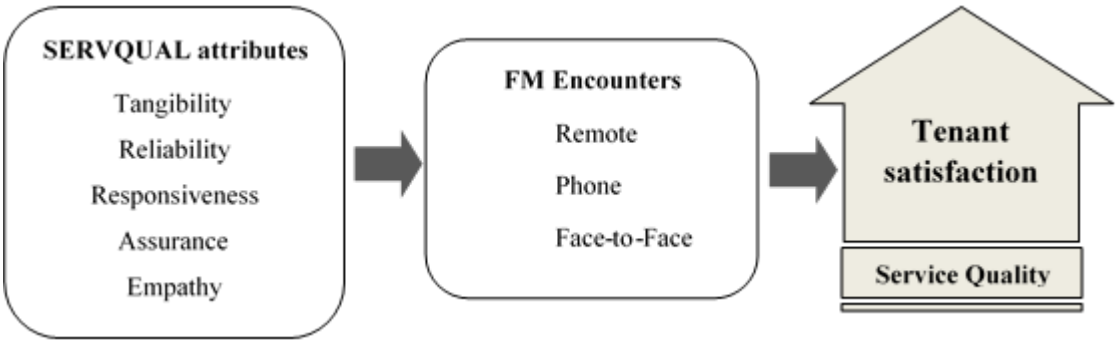


Figure 4: Summarized framework

In order to determine most appropriate *service encounter-service attribute* combinations, t-tests were conducted, covering all possible. Following hypothesis was considered in this test.

Null hypothesis; $H_0 : p \geq 0.05$

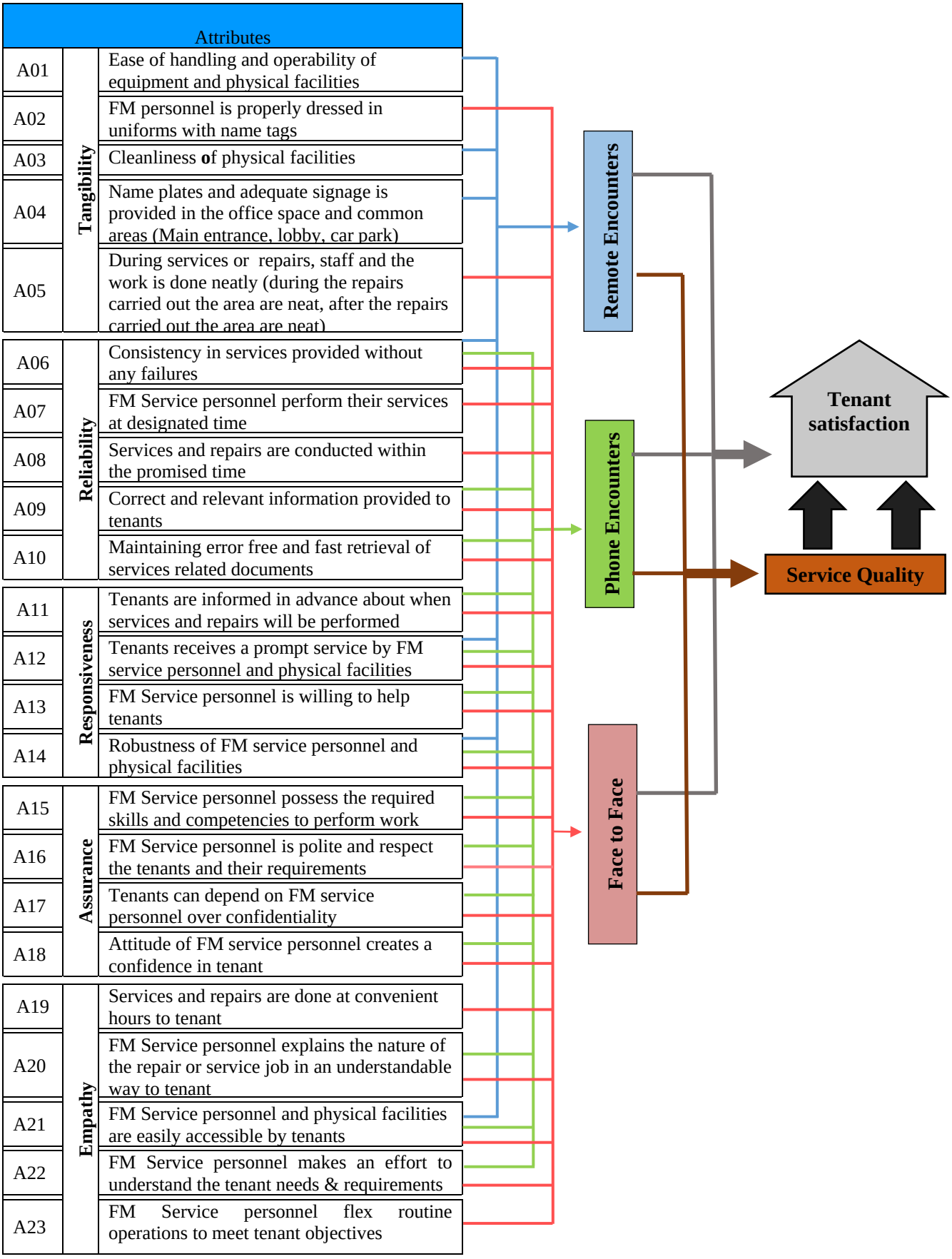
Alternative hypothesis; $H_1: p < 0.05$

Whereas, p is the significance level for a given service encounter-service attribute combination.

With findings of t-tests, the main product of this research, FM service encounter framework is presented in figure 5 leading to the successful attainment of solution for research problem of this study.

The framework mainly consists of two parts. The right side indicates types of service encounters, identified according to literature findings and preliminary study results seen in commercial sector. To cover broadly service encounters were classified as remote, phone and face-to-face encounters as used in the framework as well.

The answer on how to manage the respective encounter or factors to be considered in achieving tenant satisfaction in FM services is provided on the other side of the framework. Hence, the left side of the framework denotes service attributes. Service attributes are categorized under five categories of original SERVQUAL model: Tangibility, Reliability, Responsiveness, Assurance and Empathy. Both Responsiveness and Assurance categories entail four attributes each while other three categories comprise of five attributes making a total of 23 attributes.



A - Attribute

Figure 5: Framework of FM encounters leading to satisfaction**5.0 Discussion**

SERVQUAL laid the foundation for determining appropriate service attributes to develop FM encounter satisfaction framework with twenty-two principles under main categories of tangibility, reliability, responsiveness, assurance and empathy.

In identifying FM encounters according to preliminary sample respondents' service orders and repair work, cleaning and garbage collection, security and safety services, operator/ reception services, car park and vehicle management, storage services, access control and building services and amenities were established as main FM encounters seen in commercial sector, classifying storage services, access control and building services and amenities under remote encounters; service orders/ repair work and operator/ reception services under phone encounters; cleaning and garbage collection, security and safety services and car park and vehicle management under face-to- face encounters as Ehrenberg (2003) opined. Moreover, high tenant turnover, negative impressions, monetary loss, additional rework/ expenses, damage to tenant and management relationship and loss of competitive edge were identified as impacts of tenant dissatisfaction.

Financial and non-financial impacts were identified as consequences of tenant dissatisfaction. Original SERVQUAL attributes were modified at the end of preliminary study.

The attribute named '*Management support given to do employees job'* was completely removed out of 22 attributes of original SERVQUAL model, which was identified in literature review while five attributes were changed to different attributes without compromising the substance creating a total of 23 attributes (Refer Table 6 and Table 7).

Service attributes was identified as one outcome of preliminary survey and then satisfaction level of each service attribute and interrelationship of such attributes to different service encounters was determined in detailed survey. Moreover, this indicated high satisfaction of service attributes perceived by tenants, although certain dimensions resulted in contradictions with correlation values to tenant satisfaction. In detailed study in 10 given service encounters, tenant satisfaction was realized in 8-9 encounters. Significant rankings of 1, 2 and 3 indicated attributes 7, 8, 9 and 10 as most satisfied service attributes by tenants (Refer table 7). Particularly, significant rankings were scattered respectively among dimensions of assurance, reliability and empathy. Previous study of Rosen & Karwan (1994) also conclude that the assurance is the most significant dimension in various service settings. Correlation analysis exemplified significant relationships of five dimensions to tenant satisfaction. Contradictory results in terms of correlation and satisfaction level were seen in tangibility, reliability and responsiveness dimensions. Consistency of high satisfaction- high correlation was seen under assurance and empathy dimensions. Remote encounters were significantly influenced by

attributes under tangibility while phone and face-to-face encounters were influenced mostly in responsiveness, assurance and empathy dimensions. Statistical significance analysis generated best FM encounter-service attribute combinations leading to FM service encounter satisfaction framework development. Findings revealed that remote encounters were heavily influenced by tangibility while phone and face-to-face encounters were influenced by responsiveness, assurance and empathy attributes (refer Figure 5).

The main limitation of findings is geographical extent of the survey. Although, theoretically results could be generalized to entire population, practical implications could still exist. Present findings are therefore indicative rather than conclusive. Also, there exists some possibility of response biases occurring due to differences in perceptions, attitudes, and behavior. Further, this research was narrowed down to investigate on tenant satisfaction with regard to FM encounters focusing only on office environments. Additionally, data collection and analysis was done considering only class 'A' buildings in urban areas of Colombo, Sri Lanka.

6.0 Conclusions

The developed framework guides users to identify best combinations of service attributes depending on FM encounters where tenant satisfaction need to be achieved. Findings revealed that each FM service encounter has links connecting the best combinations towards tangibility, reliability, responsiveness, assurance and empathy aspects of satisfaction. Therefore, the developed framework can be used as a FM services management tool. Further, it provides a guide to FM practitioners to map proactive measures for different service encounters over related satisfaction attributes to maximize tenant satisfaction. Although service encounter framework was developed based on commercial facilities, insights of developed framework can be expanded to different structures in different industries. It would be intriguing to compare impact of other factors such as number of lease renewals by tenants, service charge and rentable space with tenant satisfaction except for service quality.

Further, this research contributes to facilitate management of FM service encounters in office environments and how such FM service encounters could be managed through various service attributes, contributing to knowledge by signifying the concept of service encounter to achieve tenant satisfaction. Three main classifications of encounters help gain knowledge on determining significant elements (human or physical) entailed with each FM encounter. Developed framework can be applied practically by FM practitioners to understand tenant's perceptions over different satisfaction attributes and interrelationships of such attributes with

different service encounters. Further, the framework assists FM practitioners to map proactive measures for different service encounters over related satisfaction attributes. Further, it is suggested to develop a detailed framework to manage tenant satisfaction in Facilities Management service encounters with larger samples and more statistical technique based on this preliminary study.

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