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### THE KEY CHARACTERISTICS OF CONDOMINIUM'S OPERATING EXPENSES (OPEX) IN BANGKOK

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#### *Abstract*

The purpose of this paper is to investigate the key characteristics of Condominium's Operating Expenses (OPEX). It undertook a case study approach. This paper collected 14 years of financial statement data from condominium juristic persons. The data was collected and analysed to identify condominium's expense items, structure and the patterns of Condominium's OPEX. The findings reveal that there are 83 expense items involved in facility management. These expenses can be classified into four categories: utility expenses, facility service expenses, repair and maintenance expenses and management and administrative expenses. Overall ratio of expenses showed that management and administrative expenses and facility service expenses occupied 80 percent of all expenses, while utility expenses and repair and maintenance expenses are 15 and 5 percent respectively. However, repair and maintenance expenses are likely to escalate significantly related to each building's age. There are 2 patterns of OPEX's ratio. The patterns were illustrated key variables that affect expenses clearly and a variety of variables that affect multiple results. In conclusion, The Condominium's OPEX had a similar expense structure. Conclusively, the research exhibits the expense items, condominium's OPEX structure and condominium's OPEX characteristics that can be discussed for further research related to the long-term facility expense planning

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**Keywords:** Operating expense, facility expense, operation and maintenance, condominium, condominium juristic person.



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## 1. Introduction

The Condominium Act B.E. (2522) was the first legislation exhibiting the law for the registration of multi-story estate that able to be divided into separate units. According to the Department of Lands, the first residential condominium was Grand Ville house condominium located in Phrakanong, which is in the central of Bangkok. The Real Estate Business Promotion Bureau has continually recorded the number of registered condominiums with the Department of Lands. Currently, there are over 4,738 registered condominiums in Bangkok. Approximately 563,833 units are already completed and registered in Bangkok. The number of condominiums in Bangkok has raised by 11% over years (Knight Frank Thailand, 2019). There remain more than 100,000 units planned to be completed in the future (Colliers International Thailand Research, 2018). Thailand registered its first condominium 37 years ago and the number of registered condominiums has been increasing ever since.

The Condominium Act B.E. (2522) requires the condominium juristic person to notify the balance sheet of the financial entity to the co-owners. The co-owners have to pay for tax, expenses arising from the purchase and maintenance of tools, equipment and facilities of common properties (The section 18 of The Condominium Act B.E. (2522)). These expenses will be informed and collected by the condominium juristic person and unit owners pay this in advance. The condominium juristic person will arrange a general meeting annually in order to consider and give approval to condominium's operating issues related to the maintenance budget (The section 40 of The Condominium Act B.E.2522).

By the current law, the condominium juristic person still has to conduct all the operating expenses. The age of a condominium is now tied to the burden of maintenance expenses and other unknown expenses in the future which will be the co-owner's responsibility to take action. The expenses start from day one and are increasing unknowingly throughout the building's lifespan. Therefore, it is necessary to understand the characteristics of condominium operating expenses.

Due to the recording of the accounting system, the expenses do not clearly reflect the actual operating expenses of facilities. Although the accounting system of condominium juristic persons have already been classified the operating expenses into categories, the meanings of each item are still in various understanding in practice. Facility maintenance planning and budgeting, both short and long term, is unclear causing by the usage of the data from financial accounting information.

Thus, the research aims are to gather the operating expense items that occur during the building usage to identify; to clarify the actual expense structure based on evidence from the financial statement and to understand the characteristics of condominium. This study is useful to the building manager and co-owners in efforts to provide a clear understanding of condominium's OPEX. It serves as information for considering a long-term facility financial plan.

Recent research and literature related to the operating expenses were gathered and reviewed. Krairavee analysed the data from the residential condominium in 2013 and found that both high and low-grade condominium operating expenses in Bangkok are still higher than the common fee (Krairavee, 2013). According to condominium financial statement, the facility expenses of high-rise buildings can be divided into maintenance expenses, repair expenses and replacement expenses (Neamthong, 2016) From Condominium operating expense between 1997 to 2016. The maintenance expenses are increasing annually. The repair expenses are fluctuated and the replacement expenses are related to life span and

deterioration of building component (Leksomrit, 2016). The age range of building between 15-25 years, the ratio of capital expenses to operating expenses is 15:85. But when the age of the building is over 30 years, the ratio appears to be 50:50. The operating cost of the building raises 5 percent on average (Jangtiyanont, 2013).

The signification factors affecting the operation and maintenance expenses of the building include technical factors, financial factors, social factors, environmental factors and managerial factors correspondingly (Omari, 2015). Salleh, Mohd Yakin, Ismail, and Talib, (2016) added more expense factors involving an expectation of users, age of the building, building component and appropriate maintenance plan and budget. The various routine maintenances and service of high rise residential were identified. The daily maintenance and service affect building performance (Au-Yong, Ali, & Chua, 2019a). The maintenance expenses relate significantly to the quality of the building component replacement. Therefore, the building manager should consider the quality of the placement instead of the lowest replacement (Au-Yong, Ali, & Ahmad, 2016). The better of Facility maintenances and facility services will result in a higher environmental condition and resident satisfaction (Sia, Yew, Lim, & Dongqing, 2018; Grum, 2017). Furthermore, the facility maintenance budgeting can be managed and considered more efficiently by prioritised the maintenance tasks (Au-Yong, Chua, Ali, & Tucker, 2019b).

### **1.1. Variety of Condominium Operating Expense items**

Condominium expense problems are likely to occur throughout the lifespan of the building, from the development stage to the end of use. Yet, the investment expenses are often emphasised while the operational expenses during the lifespan of building are much higher (Horner, El-Haram, & Munns, 1997). Furthermore, the building system and component will deteriorate throughout the lifespan, which could cause more repair and maintenance tasks even when regular maintenance is performed. If building managers lack the information to estimate future expenses and to consider long term planning, they could not provide a sufficient maintenance budget. Then building deterioration and obsolescence will cause further failures to affect the condominium value and safety of the building users (Seeley, 1987).

There is a variety of unit expenses including operating expenses and investment expenses. In fact, there are also a variety of definitions and misunderstandings for each unit expense related to operation and maintenance expenses in practice in Thailand. So far, there has been no standard format to record the expenses. Normally, the condominium juristic person needs to record expenses in the annual balance sheet report showing the expenses so that the co-owners acknowledge together. The entity is responsible for managing expenses item appropriately and sufficiently for all operations in long term planning.

### **1.2. Building deterioration and maintenance**

The use of the building causes deterioration. Deterioration and obsolescence of building systems can be considered in many dimensions. The physical deterioration of the building causes the building to not respond to economic needs. The building does not respond to the use of space in the building, outdated technology and the image of obsolete buildings (Ashworth, 2010; ISO, 1998c). The main objective of maintenance is to keep the building at a specific standard, prevent further deterioration failure and replace components at the end of time (British Standard, 1983). The building systems will require more

maintenance over time. Condominium building deterioration and obsolescent problems in common areas are part of the responsibility of the condominium's owner. So, there will always be a need for repair, maintenance and replacement of mechanical systems and components. If there is inappropriate maintenance planning and budgeting it can influence the level of availability, reliability, operability and safety at an acceptable expense (Ashworth, 2010).

Throughout the building usage period, there are operations to maintain the condition of the building for safety and availability to avoid damage. All operations incur large expenses each year. An aging building results in a higher expense. Therefore, the deterioration and maintenance of the building will affect the building expenses that occur each year for the age of the building. Therefore, the building manager needs a suitable approach to manage the expenses while preserving the safety, health and satisfaction of its users (Horner et al., 1997). In recent years, the characteristics of building deterioration was identified. The building lifespan prediction methodologies have been developed in many mathematics models and approaches. The achievement of the research can be applied to assist better decision making in operation planning and budgeting. The validity and reliability of data are influence on generating the prediction model's accuracy (Silva, de Brito, & Gaspar, 2016).

### **1.3. Condominium Operation and Maintenance Expense behaviour**

The operation expense consists of the on-going expenses of operating and occupying building that needs to be monitored, summarised and have the characteristics of expenses reported into categories. It becomes an important data which could be a source for expense reduction and become the main priority (Spedding, 1995). In addition, in order to sustain the facility operation and maintenance, the facility management needs to be monitored and realised the changing of the context (Chotipanich, 2010). The increasing of facility expenses emphasises the need to carefully control overall expenses in order to achieve a budgeting plan (Langton & Lauge-Kristensen, 2002). Financial management perform an important part as a decisive element for its plans, estimates and controls (Langston, 2003). Understanding the characteristics of expenses can offer an opportunity to optimise the total expense and minimise the risk of the increasing expense by managing the plan it gives an understanding of the individual expense item relationship. It could be a benefit to estimate changes and to consider annual expense planning which acts as targets that guide and help control activity expenses from one year to the next.

Currently, the condominium financial statement has been recorded by an accounting recording system. There is still ambiguity surrounding the expenses information that needs to be taken into consideration in the maintenance expenses for the use of the building. Therefore, the recorded expenses will not reflect the actual expense of maintaining the building. In addition, several operating expense studies use this accounting record as a primary data. The understanding of on-going expenses associated with operating and occupying is critical knowledge for the building manager to manage the expense budget efficiency (Best, Langston, & de Valence, 2002).

In summary, the literature review helps to understand the research area related to the operating expense of the building. There is still a limit of the long-term condominium operating expense study. This due to the constraint of the scattered facility expense data. There is still a need to study to explain the expense of condominiums. By the current situation in Bangkok, the number of registered condominiums

has been increasing over time. The co-owners are legally required to participate in considering operating issues and taking responsibility for operating expenses to ensure the safety and habitable living conditions. The condominium juristic person is obligated to manage the operation and maintenance budget. For the aging condominiums, the deterioration rate is increasing and causing by inappropriate maintenance planning and budgeting as well. It results in an unavoidable burden for co-owners. At present, the accounting record system does not reflect the realistic operating expenses that account for maintenance expenses. Thus, it is necessary to gain a better understanding of the characteristics of condominium expenses. It is hoped that it will lead to a better understanding of the issues related to operating matters.

## **2. Problem Statement**

Presently, the understanding of operating expenses is still vague in terms of maintenance issues . If the study can provide a structured approach to identifying a condominium's operating expense items, the classification of each unit expense could provide guidance to record and monitor the nature of condominium OPEX .This might give an opportunity for managers to understand the structure of unit expenses and to be able to clarify the operating expenses from the accounting record system.

However, with the lack of reliable operating expenses record data, it could lead to unreliable decision making .The study should also aim to monitor the cost that occurs throughout the building lifespan .The monitoring and understanding of each different building's cost is hoped to help improve the preparation of the maintenance budget in the long term.

In addition, the building manager needs to understand the behaviour of expenses throughout the time period so they could undertake the suitable measurement and improve the operation process. Also, by detecting the exact expense of increasing and the pattern of expenses, it enables a building manager to determine the actual expense precisely. Without the understanding of expense behaviour, the manager might not only suffer from high operations cost but also the performance of facility could be far below expectations. Understanding the characteristics of condominium expenses is crucial to cost management and control .The objective of operation and maintenance budgeting should be to support building maintenance activities .The characteristics of expenses could reflect and help determine the actual condominium cost that will occur each year and also help identify the dominant unit expenses that influence the operating expenses .The record data should be used as comprehensive information for planning future expenditures as well as providing information for preparing an appropriate budget.

## **3. Research Questions**

Based on the background study and problem statement, this study proposes three key research questions which are:

- How expense items associated with residential condominiums operating expenses can be identified?
- How the structure of unit expense of residential condominiums operating expenses can be described?
- How residential condominium expenses pattern can be characterised relate to time?

#### **4. Purpose of the Study**

The purposes of this study are to identify the expense items that occur during the building usage; to bring an understanding of the actual expenses incurred from condominium operating expenses. It aims to develop a condominium operating expense structure. Furthermore, the study is to clarify the actual expense structure based on evidence from the financial statement. Actual operating expenses knowledge and understanding in the long term will help realise expenses that will occur annually as well as provide information for decision-making for the maintenance plan, repair and replacement. This study therefore aims to:

- To explore the expense items of residential condominiums operating expenses
- To identify the structure of residential condominium operation expenses
- To understand the characteristics of residential operating expenses over time

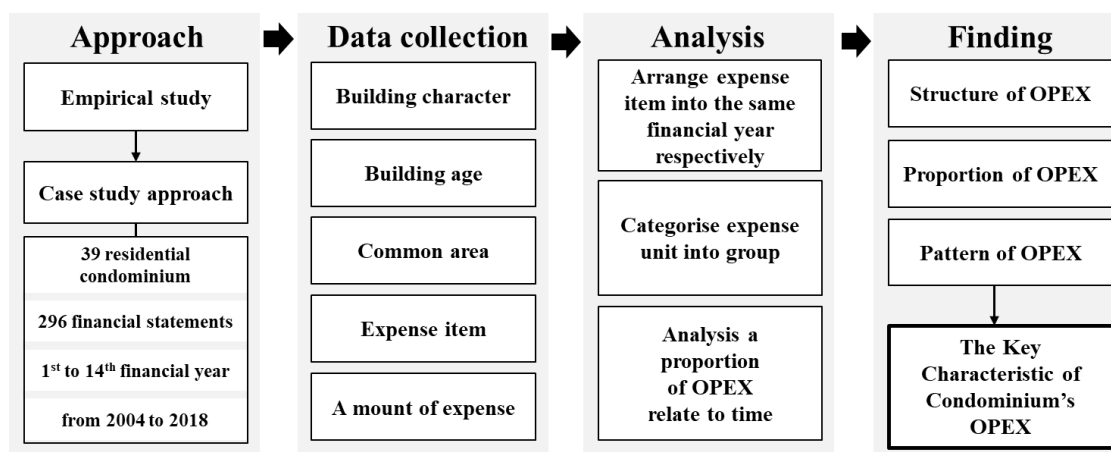
#### **5. Research Methods**

This paper aims to identify expense units and an expense structure for the operation and maintenance of the condominium in Bangkok and to analyse the trend for operation and maintenance expenses. It relies on an empirical research method by studying insightful information to understand the phenomena that arise from the case studies. The research undertook a case study approach. It collects data from residential condominiums to represent the operating expense information in a long period of time. The data analysis, approach by categorised the expense items into groups. Then, Expense ratio is calculated from the proportion of actual expenses incurred each year. The research gains an understanding of the structure of condominium's OPEX and the key characteristics of condominium's OPEX.

Referring to Figure 1, the case study selection criterion is set to scope the case study. This study collects data from 39 residential condominiums registered with the Land Department in Bangkok and located in Bangkok. Each condominium juristic person entity continuously has recorded the financial statement throughout the use of the building during the period of 1 - 14 financial years or from 2004 to 2018. The case study has been managed by only one service provider throughout their lifespan. The collections of expenses data are from the annual balance sheet reports which have recorded expenses in a similar system.

The document analysis starts by classify four categories based on data obtained from case studies. It determines to classify by category from year 1 to year 14 of the financial statement. Utility expenses, facility service expenses, repair and maintenance expenses, management and administrative expenses are analysed to illustrate the ratio of the expenses incurred in percentage each year, group and item. Finally, the amount of the annually incurred expenses was analysed to identify the pattern of OPEX and generated the characteristics of the OPEX. Thus, finding can provide the related characteristics to explain condominium's OPEX.

In conclusion and discussion, this paper generates and discusses the structure of condominium's OPEX, the proportion of condominium's OPEX and the pattern of condominium's OPEX related to time. Finally, it points out the key characteristics of residential operating expenses over time



**Figure 01.** Research framework

## 6. Findings

In the research findings, this paper illustrates condominium expense items, the pattern of condominium’s OPEX, categories of operating expense items, and the proportion of condominium’s OPEX.

### 6.1. Condominium expense items

This empirical study found that there are 83 expense items from 296 financial statements from 39 case studies based on expense accounting system structure. They were identified and divided into 4 categories: contract expenses, utilities expenses, general and administrative expenses and repair and maintenance expenses. As shown in Figure 02, 30 items are accounted for in contract expenses while 4 items belong to utilities expenses. The generative and administrative expenses and repair and maintenance expenses account for 16 and 33 items respectively.

For the pattern of operating expenses, Figure 02 found that 50 out of 83 items generically appeared and recorded in the financial statement while the other 33 items occur depending on each condominium’s operational approach. The fundamental expense items which accountant normally recorded in financial statement can be divided into four group. 11 items of contact expenses including management fee, employee salary, cleaning service expense, Security guards service expense, pest control expense, building insurance expense, elevator maintenance expense, gardening service expense, accounting auditor fee, generator maintenance expense and photocopier service expense. 4 items of utility expenses items including electricity supply expense, water supply expense, telephone expense and internet expense. 9 items of general and administrative expenses include stationery Office supplies and printing, postage expense, committee meeting expense, transportation expense, garbage service expense, gardening tool expense, bank charges and stamp duty, legal consultant fee, cleaning tool and supplier expense. 26 items of repair and maintenance expenses include swimming pool, fire alarm system, telephone system, air condition system, CCTV maintenance system, emergency light system, electricity system, key card system, facilities equipment, water system, water treatment system, gardening, building, television system, elevator system, common area, sanitary system, emergency system, generator system,

transformer and MDB, office equipment, furniture and installation, computer system, office equipment, supplies expense and tools.

From the category of condominium operating expenses, Table 1, shows the matrix of operating item category. 30 items of contract expense items can be separated into management and administrative expenses in 8 items, facility service expenses in 9 items and repair and maintenance expenses in 13 items. 16 items of general and administrative expenses can be separated into management and administrative expenses in 9 items and facility service expenses in 7 items. 33 items of repair and maintenance expenses can be separated into management and administrative expenses in 1 items, facility service expenses in 4 items and repair and maintenance expenses in 28 items.

The research considered the unit expense base on the type of condominium operation's activities. The discovery further notices that not only some items that can be distributed into more than one category because of the similar characteristics of the unit expense but also there are variations of the expense of activities in the same accounting category. This creates ambiguity and uncertainty of the expense budgeting management that will be described as following.

For the contract expense, this type of expense includes expenses that commit into out-source contract types. Commonly, the accounting system does not separate the type of operation activities. This paper then targets into clarifying each unit expense to be able to see the actual expense item that happened within this contract expense category. For the utilities expenses, this type of expense is more direct and more straightforward to understand between the accounting system and the type of operation activities. For the general and administrative expenses, this paper sourced out and regrouped the vagueness between management and facility to make it clearer and easier to understand the actual expenses. Lastly, for repair and maintenance expenses, this category commonly includes expenses that are not linked with building components or engineering system components so the outcome cost is not a pure cost for repair and maintenance. Furthermore, some expenses also appeared in contract expense due to the characteristics of the unit expense. This makes it hard to understand the overall cost of each unit expense because of the scattered information.

In summary, the study categorised these items based on their character and clarifying the expenses for each condominium's OPEX category became clearer. The management and administrative expenses related to officer salary, office stationery and office operating expenses. Repair and maintenance expenses related to building and engineering system repair, maintenance and replacement. Facility services related to complementary services, the safety and security of co-owners. Utility expenses related to the use of building infrastructure within the common area of the condominium building.





**Table 01.** Category of operating expense items

Financial statement Categories	Condominium's OPEX item categories			
	Management and administrative expenses (18 items)	facility service expenses (20 items)	Utility expenses (4 items)	Repair and maintenance expenses (41 items)
<b>Contract expenses (30 items)</b>	<ul style="list-style-type: none"> <li>▪ Management fee</li> <li>▪ Employees salary</li> <li>▪ Accounting auditor fee</li> <li>▪ Photocopier service expense</li> <li>▪ UBC member expense</li> <li>▪ Bonus for staff</li> <li>▪ Office equipment rental expense</li> <li>▪ Welfare expense</li> </ul>	<ul style="list-style-type: none"> <li>▪ Facility service expense</li> <li>▪ Cleaning service expense</li> <li>▪ Security guards service expense</li> <li>▪ Pest control expense</li> <li>▪ Gardening service expense</li> <li>▪ Fitness room service expense</li> <li>▪ Vehicle insurance expense</li> <li>▪ Vehicle service fee</li> <li>▪ Deodoriser service expense</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>	<ul style="list-style-type: none"> <li>▪ Building insurance expense</li> <li>▪ Elevator maintenance expense</li> <li>▪ Building inspection expense</li> <li>▪ Water treatment system service expense</li> <li>▪ Transformer and MBD maintenance expense</li> <li>▪ Sauna room maintenance service expense</li> <li>▪ Water treatment analyst service expense</li> <li>▪ Emergency alarm maintenance expense</li> <li>▪ PABX maintenance expense</li> <li>▪ Generator maintenance expense</li> <li>▪ CCTV maintenance expense</li> <li>▪ Lightning rod maintenance expense</li> <li>▪ Electricity service contract fee</li> </ul>
<b>Utilities expenses (4 items)</b>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>	<ul style="list-style-type: none"> <li>▪ Electrical supply expense</li> <li>▪ Water supply expense</li> <li>▪ Telephone expense</li> <li>▪ Internet expense</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>
<b>General and administrative expenses (16 items)</b>	<ul style="list-style-type: none"> <li>▪ Stationary office suppliers and printing</li> <li>▪ Postage expense</li> <li>▪ Committee meeting expense</li> <li>▪ Bank charges and stamp duty</li> <li>▪ Newspaper and magazine expense</li> <li>▪ Legal consultant fee</li> <li>▪ Photocopier service expense</li> <li>▪ Office equipment rental expense</li> <li>▪ Drinking water</li> </ul>	<ul style="list-style-type: none"> <li>▪ Transportation expense</li> <li>▪ Garbage service expense</li> <li>▪ Gardening tool expense</li> <li>▪ Traffic operation fee</li> <li>▪ Traffic police expense</li> <li>▪ Gasoline vehicle expense</li> <li>▪ Cleaning tools and supplier expense</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>

<b>Repair and maintenance expenses (33 items)</b>	<ul style="list-style-type: none"> <li>▪ Office equipment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Furniture and installation</li> <li>▪ Common area</li> <li>▪ Gardening</li> <li>▪ Vehicle</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>	<ul style="list-style-type: none"> <li>▪ Swimming pool</li> <li>▪ Fire alarm system</li> <li>▪ Telephone system</li> <li>▪ Air conditioning system</li> <li>▪ CCTV maintenance expense</li> <li>▪ Emergency light system</li> <li>▪ Electricity system</li> <li>▪ Key card system</li> <li>▪ Facilities equipment</li> <li>▪ Water system</li> <li>▪ Water treatment system</li> <li>▪ Building</li> <li>▪ Television system</li> <li>▪ Elevator system</li> <li>▪ Sanitary system</li> <li>▪ Ventilation system</li> <li>▪ Emergency system</li> <li>▪ Generator system</li> <li>▪ Supplies expense</li> <li>▪ Transformer and MDB</li> <li>▪ MATV system</li> <li>▪ Computer system</li> <li>▪ Sound system</li> <li>▪ Tools</li> <li>▪ Walky talky</li> <li>▪ Roof top floor</li> <li>▪ Elevator life hall</li> <li>▪ Cooling tower</li> </ul>
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## 6.2. Proportion of condominium’s OPEX

The proportion of condominium’s OPEX was analysed to illustrate the number of actual expenses in each category to understand the overall expense ratio. This understanding will help manage the expenditure annually in accordance with different patterns. Condominium’s OPEX ratio is categorised by groups. Figure 3 shows the proportion of expenses. It found that the management expenses are in the range of 38-45 percent. Facility services expenses are in the range of 31-45 percent. Utilities expenses are in the range of 14-17 percent. Repair and maintenance expenses are in the range of 4-12 percent. Condominium’s OPEX ratio are categorised by groups. Figure 4 shows that in management and administrative expenses are dominated by management fee and employee salary for around 80-90 percent. Utility expenses are dominated by electricity expenses for around 90-95 percent and facility service expenses are dominated by security expenses and cleaning expenses for around 60-80 percent. In summary, the proportion of service fees for buildings and management categories has a large proportion of expenses that present about 70-80 percent of the total expenses. The proportions of repair and maintenance expenses increase within the first ten years. After this period, it tends to fluctuate depending on which year a placement expense item occurred. The proportion of facility service expenses tend to decrease over time. The proportion of utility expense and management and administrative expenses do not change dramatically but are more likely to remain at a similar proportion.

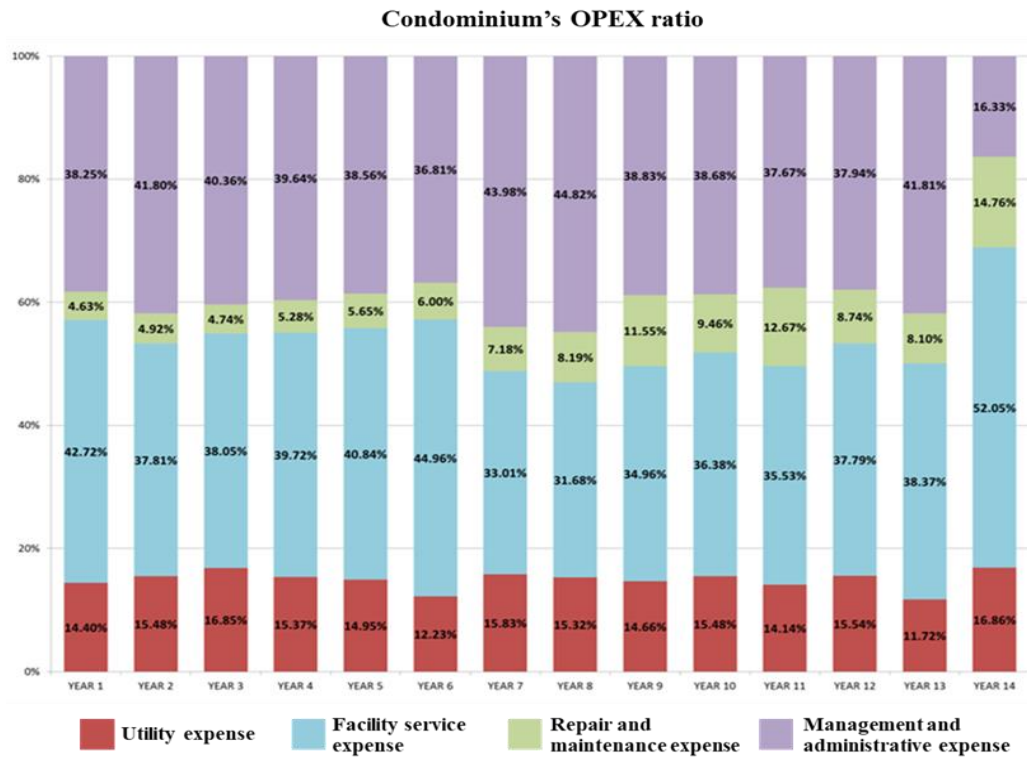


Figure 03. Condominium's OPEX ratio

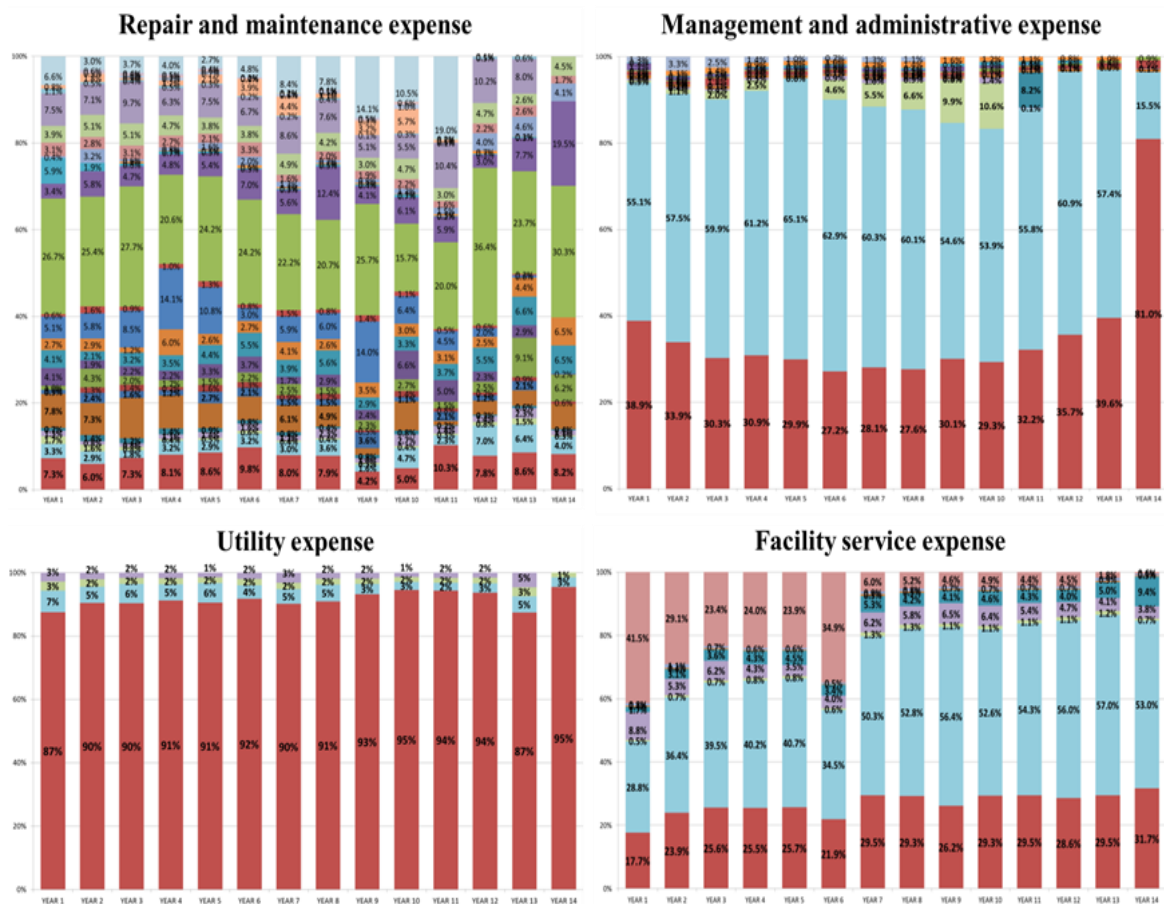


Figure 04. Condominium's OPEX ratio categorised by group

## 7. Conclusion

The objective of this research paper is to illustrate the key Condominium's Operation Expenses (OPEX). It aims to identify expense units and the expense structure of the operating expense of condominium and to analyse the trend of the operation and maintenance expenses. It undertook a case study approach. This paper collected fourteen years of financial statement data from juristic persons. The data were analysed to identify condominium's expense structure as well as to present patterns and trends of Condominium's OPEX.

The findings reveal that there are 83 expense items involved in facility operations. These expenses can be classified into four categories: utility expenses, facility service expenses, repair and maintenance expenses and management and administrative expenses. Overall ratio of expenses showed that management and administrative expenses and facility service expenses occupied 80 percent of all expenses, while utility expenses and repair and maintenance expenses are 15 and 5 percent respectively. However, repair and maintenance expenses are likely to escalate significantly related to each building's age. There are 2 patterns of OPEX's ratio. The patterns were illustrated key variables that affect expenses clearly and a variety of variables that affect multiple results.

This paper concluded that the Condominium's OPEX had a similar expense structure. Repair and maintenance expenses increase rapidly and significantly relative to the building lifespan. Conclusively, the research exhibits expense items, condominium's OPEX structure and condominium's OPEX characteristics that can be discussed for further research related to a long-term facility expense budget.

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