A Study about office space needs with consideration of supply and demand for office buildings in Jakarta

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Abstract. The need for office space in the capital's business center will continue to grow along with the development of a country's economy. Often the supply of excess office space is not in accordance with the request. This research aims to analyze why office space supply often does not match with the demand. The results will be obtained is to know the demand for office space what the market wants and the composition of office space to achieve the highest and the best use. The implementation phase of this research is (1) conducting market research and analysis as supporting data regarding the object under study, (2) analyzing supply and demand related to office building development planning, (3) determining the right composition in the procurement of office space.

Keywords: supply and demand, composition of office space, market research and analysis, highest and the best use

1. Introduction

This research was taken from the condition of the city of Jakarta. As the capital of the State of Indonesia, Jakarta is developing quite rapidly into a center in one of its regions, namely the Mega Kuningan CBD (Central Business District). The city center is filled with business activities that are marked by the continued development of business areas including office buildings. Referring to data from Colliers International in 2019, the average office supply in Jakarta is very high. According to the data, project supply throughout 2019 from the fourth quarter report to reach about 483.334 sqm in the city of Jakarta. The supply of office space will continue to increase since the construction of the business and office area is still ongoing.

Total supply of office building in the Central Business District at 6.3 million for one year and predicted in 2019 would be 6.65 million for one year and will continue to rise in line with the ongoing construction or planned (Colliers International, 2018). This is explained, that office space will continue to increase every year, including one of the strategic areas, Mega Kuningan located in the center of Jakarta's business center.

However, during development of the new office building in the city of Jakarta, it turns out that according to Colliers International data there is actually a decrease of office space demand. It was explained earlier that in 2019 there were 483.334 sqm of office space, but only had demand of 411.484 sqm. This shows that there will be oversupply of office space in the downtown area of Jakarta.
Office supply in the Central Business District region has increased with an average increase of 180,000 to 490,000 per year. This oversupply phenomenon can be caused by various factors, including economic conditions and the potential of the office market in the next few years. However, it does not rule out the possibility of changes in the characteristics of office building users. Previously, many office buildings were rented by users or companies by conventional methods, with general office rental requirements where renting within a certain area. But in line with the development or change in business character, there is also a change in the user's business character.

Colliers International in the 2019 third quarter report mention that despite the current high supply in the trade and manufacturing sector, vacant office space was replenished by companies from the technology industry and flexible work space. According to several offices from several companies in Indonesia, such as Gojek and Google's office mentioned that the application of a flexible workspace in their office can give employees the freedom to use space, have a variety of facilities in it, and design that can adjust to make the office with a flexible concept more in demand.

One of the flexible work spaces is the Co-Working Space which has helped drive the office market amid the slowdown in other industries. The development of flexible office enthusiasts or one example is the rapidly growing co-working space in the Central Business District Area as a priority to fill office and commercial property. The existence of co-working space increases the level of occupancy of property in a common rental office building. This can increase occupancy rates that are declining and the sale value of property in areas that have high land prices, because it can utilize the space in office buildings to be useful.

In addition, the procurement of facilities is very necessary in the design of office buildings. One of them is retail. Nearly 90% of leading property developers are still active in developing retail concepts that are connected to offices that can become public spaces. Provision of space in the informal sector is also needed in the provision of office space as stated in local regulations. This encourages to be able to create a complex of buildings that in addition to creating office space, co-working space, and retails, can also provide supporting facilities that provide space for the informal sector in the environment around the location.

This study is a case study of designing an office in the Mega Kuningan area. According to the conditions, the design of office space should consider changing the user condition without forgetting the design rules of the office building. Because every Office Building function has the need for space, circulation and function integration.

More than that, changes in user characteristics would require adjustments to the office facilities provided, in order to meet the office users. In the planning process, the important thing is to know the demands of space and facilities as desired by the user. Procurement of office space that has an ideal composition and supporting facilities with aspects of good design in accordance with the target market in the business area can achieve the objectives of Office Building planning that can utilize land well with office space that can follow supply and demand in urban context. Therefore, the necessary information and data through market research and analysis as well as other supporting data were then analyzed on the basis of considerations Office Building that can compete with competitors in Mega Kuningan.

2. The methodology

2.1 Location

The location is in South Jakarta and is part of the Golden Triangle which stretches from Central Jakarta to South Jakarta, one of the location is Mega Kuningan. The location is a strategic area and close to the Mega Kuningan ring, the following information:
This study is to determine the need for office space. The location of the site will influence the office building planning which will discuss the suitability of the target market, one of them is because it requires a strategic location in the Mega Kuningan Central Business District. The need for planning this office building that can be built at this location is ± 51,000 and KB as many as 24 floors.

2. 2. The flow of research methods

1) Preparation: At this stage a data search will be conducted relating to issues regarding supply and demand office and co-working space in the CBD (Central Business District) area by conducting observations and interviews. Then each is classified using a comparison table.

2) Initial data
   a) Market Research: Classifying data by selected methods with several related variables, such as determining: prices, products, marketing tools, distribution, and consumers.
   b) Market Analysis: Using the chosen method associated with collecting market analysis data that can determine:
      - Supply by recording the location, number of units, size, and class of office space and rental conditions.
      - Demand by listing the location, facilities, types of tenants and types of users.
   a. Percentage analysis of space requirements: To find out what percentage of each room is in Conventional Office and Co-Working as data and information to analyze office supply planning the extent of the right type of office space and can be flexibly designed to stabilize Supply and Demand against office space

3) Data Analysis
   a) Analysis of supply and demand office building plans: Analyze with reference data from Colliers International in the last quarter, namely the fourth quarter of 2019 to find out good supply and demand for building an office building.
   b) Analysis of the composition of office space: A critical component of analyzing an office building to be designed is to determine the composition of office space conventional and examples of flexible office space, which is a co-working space using data from the office building which has occupancy in the space of conventional office and co-high working space.

4) Output (Conclusion): Provide conclusions about the analysis data in the form of the final results of the values that have been given regarding the supply and demand of office building plans and their spatial composition.

3. Result and Discussion

3.1. Market Research
Market Research useful to identify the potency and problems. Market Research aims to find data and analyze market structure, size, latest trends, consumer needs, preferences, buying behavior and supporting facilities to facilitate office building planning that can keep up with supply and demand in the central business district. In the market research process, using precedents as research objects by collecting data variables as follows:

1. Price: Provides information regarding unit sales price, estimated price for every sqm and the value of the rental price to measure consumer purchasing power opportunities.
2. Product: Provides information about the product which includes facilities, unit type, unit price, percentage, unit area and level of product use to the tenant.
3. Marketing tools: Provides information about what marketing tools are used.
4. Distribution: Provides information on how to distribute payments or how to market products to consumers.
5. Consumer: Gives information about users from any group and their needs.
Object used is 2 condition of the building on the precedent studied and have occupancy tow i, apply the supply chamber flexible working, and being around the Mega Kuningan. Here is the analysis and discussion:

### 3.1.1 Conventional Office

| MARKET RESEARCH | AGRO PLAZA | MENARA RAJAWALI |
|----------------|------------|-----------------|
| **Location**   | Jl. Haji R. Rasuna Said, No.Kav2-1, RT.7/RW.4, Kuningan Timur, Setiabudi, South Jakarta | Jl. DR. Ide Anak Agung Gde Agung, Mega Kuningan, South Jakarta |
| **Facilities** | Alarm, Security, Telephone & International direct dialing, Retail, Food court, Mushiolla, Internet Broadband, ATM, Bank, Coffee Shop, Assembly hall, Office boy service | Alarm, Security, Telephone, Mushiolla, Retail, Internet Broadband, Food court, ATM, Minimarket, Bank, Coffee Shop, Restaurant, Office boy service |
| **Size (for leasing)** | Around 200 - 1,906 sqm | Around 150 - 1,200 sqm |
| **Condition for leasing** | Loss & Bare Condition | Loss & Bare Condition |
| **Occupancy**   | Around 85% | Around 90% |
| **Price**       | 140,000 - 180,000/sqm/month | 180,000 - 200,000/sqm/month |
| **Service charge** | 80,000/sqm/month | 90,000/sqm/month |
| **Marketing**   | Property Agent | Property Agent |
| **Payment**     | Quarterly Payments | Quarterly Payments |
| **User**        | Co Working, BUMN, Finance, Another Company | Co Working, Embassy, Finance, Lawfirm, Another Company |

**Figure 1**. Market Research Agro Plaza and Menara Rajawali

Source: author analysis

Office building in the area of Central Business District Mega Kuningan still has their own advantages because one of it is located strategic location and economic center and business district. Each office building has almost the same facilities to support its users, such as prayer rooms, food courts, coffee shops, ATMs, and some retails. The average area for rent is 150 sqm up to above the typical floor of each Office Building, because each office rents space almost in accordance with the typical building area. According to the percentage results, apart from the location and facilities, the occupancy of the office building can be caused by one of the conditions of the space being rented. Office buildings that have loss or no boundaries have a greater percentage of tenants (Fig 1).

The service charge is 80,000 – 90,000 / sqm / month, depending on the rental fee and the location of the office building. Marketing office rentals are often found on websites with several property agents that have collaborations with each office building. For payments, the majority of office building leases pay in the initial 3 months and in accordance with the agreement. Office building users in the Mega Kuningan Central Business District are on average companies, financial services, law firms, Fintech, Mining, Governments, Co-Working Space and professional business workers.
3.1.2 Market Research Office and Co-Working Space

The majority of the Co-Working Space in the Conventional Office has facilities within the room to provide a comfortable workspace, fully furnished conditions and also use the facilities of the building, such as: security, office boy services, and supporting rooms.

In addition to having a complete location and facilities, the Co-Working which has more private offices of various sizes and flexible, has a higher percentage of occupancy, as in CoHive, which has quite extensive Co-Working and 5 floors with more than 100 the room but has a high occupancy value, which is above 50%, seeing the number of floors that are also many, which is 5 floors and as an anchor tenant (Figure 2).

Conventional Office and Co-Working Space have supporting facilities in the form of meeting rooms and event space. In addition to using websites and property agents, Office and Co-Working Space use a more modern marketing method which is using social media. Payment done by transfer, debit or by any other method which is easier in accordance with the agreement. Average users are freelancers, start-ups, young entrepreneurs, companies, students, and professionals.

3.2 Market Analysis

Market Analysis is useful for studying the opportunity to identify information that determine the supply and demand of office of some of the objects selected that has been studied.
3.2.1 Market Analysis Conventional Office and Co-Working space

| MARKET ANALYSIS | AGRO PLAZA Supply | MENARA RAJAWALI Supply |
|------------------|-------------------|------------------------|
| Location         | Jl. Haji R. Rasuna Said, East Kuningan, South Jakarta | Jl. DR. Ide Anak Gede Agung, Mega Kuningan, South Jakarta |
| Number of Unit   | Loss or 1 - 8 unit/floor (estimate) | Loss or 1 - 8 unit/floor (estimate) |
| Total Office Area| 15,000 sqm         | 53,600 sqm              |
| Building Class   | Class D            | Class A                 |
| Rental Terms     | Net Lease          | Net Lease               |
| Location and Facilities | Strategic location around Kuningan | Strategic location around Kuningan |
| Facilities       | Alarm, Security, Telefon & International direct dialing, Retail, Food court, Musholla, Internet broadband, ATM, Bank, Coffee Shop, Assembly hall, Office boy service | Alarm, Security, Telefon, Musholla, Retail, Internet broadband, Food court, ATM, Minimarket, Bank, Coffee Shop, Restaurant, Office |
| Type of Tenant   | Business services, Government, Financial services | Business services, Government, Financial services, Law |
| Type of User     | Non-local and local market activities | Local market activities |

Figure 3. Market Analysis Agro Plaza and Menara Rajawali
Source : Author Analysis

| MARKET ANALYSIS | COHIVE Supply |
|-----------------|---------------|
| Location        | Jl. DR. Ide Anak Gede Agung, Lingkar Kuningan, Jakarta selatan |
| Number of Unit  | Office Lounge / Facilities |
| Co-Working area (Daily, Flexible, Dedicated) | Meeting Room = 12 room |
| Private Office  | Above 100 room |
| Total Office Area | 6,000 sqm (1.296 sqm / floor) |
| Building Class  | Class A |
| Rental Terms    | Percentage Lease |
| Location and Facilities | Strategic location around Kuningan |
| Facilities      | Wireless, Cozy Workspace, Public area, Mailing address, Free flow coffee, Pantry, Phone Booth |
| Type of Tenant  | Business services, Creative industries |
| Type of User    | Non-local and local market activities |

Figure 4. Market Analysis CoHive
Source : Author Analysis

Figure 3 and Figure 4 show the comparison of supply at Conventional Office and Co-Working at the same location and building has different number of units.

The amount of space in the Conventional Office can be more demanding if the conditions of the room rented are more flexible and loss or not sealed, as in Agro Plaza and Menara Rajawali. The amount of space in the Co-Working space has a large but flexible supply of office space because the supporting space supply is also available and can be used by office tenants and daily tenants.

At the Conventional Office, the determination of rent usually uses Net Lease, or there are payments for taxes, insurance and service charges. Whereas in Co-Working, the determination of the lease is in the form of percentage leases, or the usual rental method as needed.

In the conventional office demand there is a strategic location and is located in office support facilities, such as ATMs, food courts, minimarkets, banks, and is required for leased floors to be flexible in accordance with the wishes of the tenants. Types of tenants in conventional offices are business services and originate from non-local markets such as regional offices of large companies or financial service companies and local companies such as accountants, lawyers, government, and real estate companies.
In Co-Working demand, besides being located in a strategic area, Co-Working also provides supporting facilities that can only be used by Co-Working and special rental spaces such as meeting rooms and event rooms. In addition, creating space in accordance with the needs of prospective users is also one of the attractions to increase the percentage of occupancy in Co-Working. The types of tenants in Co-Working are business services, creative industries originating from non-local markets and creative businesses.

3.3. Analyze the percentage of space requirements

Comparative analysis and use of space has the aim to find out how much percentage of each room in the Coventional Office and Co-Working as data and information to analyze office supply in the Central Business District Mega Kuningan at this time. In addition, this data can also be considered in planning the extent of the right type of office space and can be designed flexibly to stabilize the Supply and Demand of office space in the Central Business District Mega Kuningan.

| ANALYSIS | AGRO PLAZA | MENARA RAJAWALI |
|----------|------------|-----------------|
| Area used for space | | |
| Lobby area (ground floor) | Net (saleable) = 1,314 sqm | Net (saleable) = 3,300 sqm |
| Gross | = 1,839 sqm | = 3,000 sqm |
| Typical floor area (offices) = 8 - 18 | = 1,908 sqm x 10 floor | Typical floor area (offices) = 6 - 27 | = 1,200 sqm x 20 floor |
| Net (saleable) | = 15,400 sqm | Net (saleable) | = 19,200 sqm |
| Gross | = 19,060 sqm | Gross | = 24,000 sqm |
| Parking floor area (2th - 7th) | = 9,400 sqm | Parking floor area (offices) = 2 - 5 | = 2,400 sqm x 4 floor |
| Total Building Area (Include Parking) | = 30,308 sqm | Total Building Area (Include Parking) | = 39,000 sqm |
| Total Building Area (Exclude Parking) | = 20,899 sqm | Total Building Area (Exclude Parking) | = 36,600 sqm |
| Percentage of saleable area with total building area (Include Parking) | = 55.11% | Percentage of saleable area with total building area (Include Parking) | = 75.6% |
| Percentage of saleable area with total building area (Exclude Parking) | = 80% | Percentage of saleable area with total building area (Exclude Parking) | = 80.6% |

**Figure 5.** Percentage analysis of space requirements for Agro Plaza and Menara Rajawali

Source: Author Analysis

| ANALYSIS | MENARA PRIMA | COHIVE |
|----------|--------------|--------|
| Area used for space | | Percentage and Area used for space |
| Lobby area (ground floor) | Net (saleable) = 665 sqm | Office Lounge / Facilities (5th - 9th Floor) |
| Gross | = 1,322 sqm | = 259.2 sqm |
| Typical floor area (offices) = 1.296 sqm x 27 floor | Net (saleable) = 27,994 sqm | Area of Co-Working Area (5th & 9th Floor) |
| Gross | = 34,994 sqm | = 712.8 sqm |
| Parking floor area | = 10,250 sqm | Meeting Room Size (5th, 7th, 8th, 9th Floor) |
| Total Building Area (Include Parking) | = 55,564 sqm | = 453.6 sqm |
| Total Building Area (Exclude Parking) | = 36,314 sqm | = 7% |
| Percentage of saleable area with total building area (Include Parking) | = 51.6% | Private Office Area (Floor 5 - 9) |
| Percentage of saleable area with total building area (Exclude Parking) | = 78.9% | = 5,054.4 sqm |
| | | = 78% |
| | | Overall area COHIVE = 1,296 sqm x 5 lantai |
| | | = 6,480 sqm |
| | | = 100% |
| | | Percentage of CoHive area comparison with Menara Prima = 17.8% |

**Figure 6.** Percentage analysis of CoHive (Menara Prima) space requirements

Source: Author Analysis

In the Coventional Office studied, the percentage between office space rented and the overall building area is over 50% for include parking calculation and over 75% for exclude parking calculation.
In Co-Working Space, the largest average area available is the private office. The existence of Co-Working Space does not reach 20% of the rent of the building. However, for example in one Office Building above, Co-Working became an anchor tenant and was noted to have an occupancy of more than 50% based on market research. The large number of private office supplies in the Co-Working area due to their flexible nature and ease of tenancy. Then proceed with the Co-Working area which also provides convenience while working. In addition, many facilities that can be enjoyed by private office and Co-Working users.

3.4. Supply and demand analysis of office building plans

After collecting data with Market Research and analysis, the data will be re-analyzed quantitatively which refers to Colliers International data in the last quarter, namely the fourth quarter of 2019 to find out good supply and demand for building an office building. The data will be analyzed based on:

1. Data supply and demand in one year
2. Office space assumptions that will be held are based on the city plan information from the predetermined site
3. The highest office occupancy is based on the object studied

Referring to the development of the office property market in Jakarta, namely in the quarter final or fourth in the year 2019, the following is an analysis of supply and demand when planning the construction of office:

According the analysis above, the assumption of office space used is 85% of the total building area. The calculation shows that office space supply is 43,350 sqm or 9% of office supply throughout 2019. While office space demand is 39,015 sqm or 9.5% of office demand throughout 2019. It is noted that the difference in the percentage increase in demand for supply is a construction of the office building in the location and requirements determined is by 0.5% (the difference between the percentage of the office can be changed in accordance with the location and requirements).

The analysis is based on the assumption that 85% is used for office space and the rest is supporting facilities. Value Occupancy used is the maximum value of occupancy office building with flexible room design is based on the object that has been in researched.
Designing office buildings by maximizing the demand for office space that is happening, such as strategic location, adequate facilities, flexible office space, and the type of tenant will maximize the occupancy of office space.

Designing office buildings that are always in accordance with needs so as to get high demand values, will be able to increase the average demand per year. Even though office building has a high supply, by designing in accordance with the demands of the market, the demand will increase. So that the average value between supply and demand in the future will be more stable along the development of office building in the Central Business District.

Table 11. Office space supply and demand analysis (assuming maximum value)

| SUPPLY AND DEMAND OFFICE SPACE |
|--------------------------------|
| KLB (Building Area Coefficient) Maximal : ± 51,000 sqm |
| Space used for offices = 85% from KLB |
| = 85% x 51,000 sqm |
| = 43,350 sqm |

Supply |

(43,350 / 483,334) x 100 = 8.97%  100% (occupancy assumption)
9%

Demand |

43,350 x 100 %  43,350 sqm
(43,350 / 411,484) x 100 = 10.5%

Difference in percentage increase on demand for supply = 1.5 %

Figure 8. Office space supply and demand analysis (assuming maximum value)
Source: Author Analysis

The table above shows the maximum assumption of occupancy obtained. With this analysis it can be seen that the higher the office building design is in accordance with the needs, the higher the occupancy that will be obtained. Thus, the average demand for a year will rise and can be stable with its supply.

3.5. Analysis of office space composition plans
The composition of office space that will be applied is to provide space for co-working. The addition of composition as a co-working space because in a developing economy must have formed many start-ups with flexible work areas. In addition, co-working is in high demand in the past few years.

Figure 9. Analysis of office space composition plans
Source: Author Analysis
Analysis of the composition of space used to build one example of flexible office space in a leased office, namely co-working space is CoHive at Menara Prima. The co-working space itself was chosen because according to the data it has a high level of tenant supply.

The analysis uses a simple comparison with the assumption value that maximizes KB (Building Coefficient) that has been determined, which is 24 floors. The analysis states, if the office building design is maximized to 24 floors, the procurement of Co-working Space that is still in a good supply level is 4 to 5 floors.

4. Conclusion

- Office buildings in the Mega Kuningan area must be built in accordance with the characteristics and user needs.
- Applying the rental building model with the flexibility demands on aspects: procurement of space with a rental floor that is loss or without insulation to facilitate the widening of space and increase space requirements in the future and provide co-working space with facilities that can adjust to the needs of its users will be more desirable for start-up and demand circles that are developing.
- Flexibility will be seen in the area of rental space that can accommodate changes that will occur in the next few years while still optimizing that the workspace still supports these changes. Such as: proper circulation, appropriate open workspace design, and several design principals that can answer flexibility in an office space.
- Facility that can adapt to the needs of the user should be more desirable. Such as: the function of shared spaces (public spaces), some basic facilities (food courts, places of worship, retails, etc.), multipurpose rooms. In addition, a strategic location that has a lot of space and can adjust needs is also a consideration for the number of people who rent.

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