

Communication Towers in the Business and City Aesthetic Aspects to Face the VUCA Challenges

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Abstract

Communication towers are one of the important aspects that support business development in a city, while also considering aesthetic aspects. This research aims to see how the role of communication towers in facing VUCA challenges. Qualitative methods were used to collect various data developed in SWOT analysis. The results showed potential business aspects considered based on the strengths, weaknesses, opportunities, and threats of communication towers in addition to city aesthetics in facing VUCA challenges. The SWOT analysis of telecommunication towers and available land shows that the most successful strategies are the SO (Aggressive Supporting Strategy) and ST (Diversification Supporting Strategy) approaches. It is crucial to investigate accessible land and the contribution of the business to the community to determine the government's actual position. Four strategic options are generated from the SWOT approach presented in matrix form. The results of the SWOT analysis can be considered by stakeholders in utilizing the potential of this communication tower.

Keywords: *Communication towers, Business, Aesthetic Aspects*

INTRODUCTION

Communication towers play a significant role in both the business and city aesthetic aspects, especially in the face of VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) challenges (Millar et al., 2018). These challenges require adaptive social transformation and management innovation (Putri & Adnan, 2021). In terms of the business aspect, aesthetics play a crucial role in customers' intentions to purchase smartphones and other technology products (Toufani et al., 2017). The appreciation of the aesthetics of a product can influence purchase decisions (Toufani et al., 2017). Therefore, it is important to consider the aesthetic design of communication towers to attract customers and enhance the overall city aesthetic.

In the city context, communication towers can have ecological implications. Methane emissions in cities can be measured and modeled using direct and indirect methods (Lamb et

al., 2016). These measurements can inform the compilation of emission inventories for cities. For example, in Indianapolis, the methane emission inventory was estimated to be 29 Gg/yr, with contributions from various sources such as landfills, wastewater treatment, wetlands, natural gas usage, and other fossil fuel sources (Lamb et al., 2016). Understanding these emissions is crucial for managing environmental impacts and ensuring sustainable development in cities.

Additionally, communication towers can pose risks to birds due to collisions. Studies have shown that the frequency of avian collisions can be reduced by implementing certain measures, such as removing non-flashing/steady-burning red lights on towers (Gehring et al., 2009). This finding highlights the importance of considering the ecological impact of communication towers and implementing measures to mitigate potential harm to bird populations.

In the VUCA era, media startups face challenges in science communication but can also leverage the VUCA environment for adaptive social transformation (Putri & Adnan, 2021). This implies that communication towers can serve as platforms for science communication and innovation, contributing to the overall development of cities in the face of VUCA challenges.

In conclusion, communication towers have multifaceted implications in the business and city aesthetic aspects, as well as ecological and social dimensions. Considering the aesthetic design of communication towers can enhance their attractiveness and contribute to customers' purchase intentions. Moreover, understanding and managing the ecological impacts of communication towers, such as methane emissions and bird collisions, are crucial for sustainable development. In the VUCA era, communication towers can serve as platforms for science communication and adaptive social transformation. Overall, a comprehensive approach is needed to address the challenges and opportunities associated with communication towers in the face of VUCA challenges.

The rapid development of telecommunications services in Indonesia since the enactment of Law No. 36/1999 on Telecommunications has led to an increase in the proportion of cellular phones versus landlines. This has encouraged the emergence of various business opportunities in the telecommunications sector, especially the telecommunications tower construction industry. However, the tower construction can have a negative impact on the aesthetic value of the area. Therefore, tower development should go through an evaluation process to improve the safety, comfort and aesthetics of the city. The main focus of this issue is to evaluate telecommunication tower development strategies in terms of technical feasibility, economic and financial potential, political support, and administrative support from the government, business actors, and the community.

METHOD

Evaluation and planning of tower needs begins with a literature study of telecommunication towers, population data and topographic conditions of South Tangerang City. After the literature study, the calculation of the number of towers needed in South Tangerang City was carried out. In this study, two methods were used to calculate the number of telecommunication tower requirements, namely calculation based on traffic requirements and calculation based on area.

Network planning in this study aims to optimize the 4G LTE network in South Tangerang City, planning is done based on traffic needs and area. 4G LTE network planning in South Tangerang City begins with collecting existing network data by conducting a drive test in the South Tangerang City area, then analyzing the results of the drive test to determine whether re-planning needs to be done. SWOT analysis is used in analyzing data obtained in the field and the results of literature studies to show potential business aspects considered based on the strengths, weaknesses, opportunities, and threats of communication towers in addition to city aesthetics in facing VUCA challenges.

RESULTS AND DISCUSSION

The era of digital society in Indonesia is reflected in the rapid development of information and communication technology (ICT), particularly in the telecommunications industry. It is recorded that 90.75% of households in Indonesia have/had at least one cell phone number in 2020. at least one cell phone number in 2020.

The information and communication industry is a supporting industry of GRDP, and its growth rate is relatively large. its growth rate is relatively large. According to BPS of South Tangerang City, the contribution of the information and communication sector increases almost every year. If looking at GDRP sectorally, the information and communication business sector contributed 10.30% in 2019, which means that it is included in the GDRP sector. sector contributed 10.30% in 2019, which means that it is included in the top 5 largest contributing sectors to the formation of GDRP in South Tangerang (BPS Kota Tangerang Selatan, 2019). the top 5 largest contributing sectors to the formation of GRDP in South Tangerang (BPS South Tangerang City: 2022) . This number increased to 11.16% in 2021.

SWOT Analysis of Telecommunication Towers

a) Strengths

- Clearer regulations on the existence of shared towers
- Regions have the authority to grant tower construction permits in the territorial scope of the region
- It is a business with a high income level, long last, and high demand
- There is an existing tower that has been built and can be used as a shared tower.

b) Weaknesses

- No strong guidance from the central government to the regions

- There is no fixed regulation between central and local government on telecommunication tower construction.
- Need specialized and trained labor to handle tower operations
- Difficult to clean up when the tower is no longer in use
- Permit processing is difficult for entrepreneurs

c) Opportunities

- Advanced Telecommunication Industry in the Region
- Increase the source of local revenue / PAD
- Increased need for 5G networks
- Widespread need for digital technology

d) Threats

- Limited land owned by the local government
- Damage to City Aesthetics
- Radiation
- Entry of Telecommunications from abroad such as Singapore and Malaysia.
- Tight competition among Tower Providers encourages the demand for speed of service from the operator as a customer in terms of information presentation and data accuracy.

SWOT Analysis of Available Land

a) Strengths

- Increasingly clear regulations on land allocation
- Increasingly stringent provisions and requirements on land ownership by the government.

b) Weaknesses

- Each provider already owns its own land and city land is increasingly limited.
- The central and local governments are not yet in line regarding land management in the city of South Tangerang.

c) Opportunities

- Controlled land management in South Tangerang city
- Clearer and more precise land allocation

d) Threats

- Limited land owned by the local government
- There will be a lot of idle land that is not utilized

The SWOT matrix is a tool used to organize a company's strategic considerations. This matrix explains how a company's external opportunities and dangers are modified according to its strengths and weaknesses. This matrix can generate four different strategic options, namely:

A. SO Approach (Support Aggressive Strategy)

The government in this position faces a range of environmental opportunities and has a number of assets that can support the utilization of these opportunities. A growth

strategy is the best course of action in such a situation. A matrix strategy allows the government to maximize the benefits of opportunities by using its strengths while simultaneously trying to eliminate or reduce the negative effects of certain weaknesses.

B. ST Approach (Supports Diversification Strategy)

The government can respond to various unfavorable external situations thanks to various internal strengths. If in this situation, a diversification strategy i.e., a government strategy that utilizes its strengths to create long-term opportunities is the most sensible path to take.

C. WO Strategy (Support Strategy with a U-turn Orientation)

This strategy describes the government's position which on the one hand has tremendous prospects but is constrained by its limited capacity. Under these circumstances, it is reasonable for the government to take action to address internal problems so that opportunities can be taken advantage of.

D. WT Strategy (Supporting Survival Strategy)

This shows the unfavorable conditions as a result of having to deal with significant environmental obstacles while also experiencing a number of severe internal deficiencies. This matrix shows that the SO Strategy (Aggressive Supporting Strategy) and ST Strategy are the most successful strategies used in the Communication and Informatics Office of South Tangerang City (Diversification Supporting Strategy).

It is important to remember that, because it allows the government to take advantage of various possibilities while trying to neutralize threats, the main problem of SWOT analysis comes in determining the government's actual position. There may be various strengths as well as weaknesses to the business. Therefore, it is crucial to realize that the importance of SWOT analysis to look at options that have been thoroughly investigated in terms of accessible land and the contribution of the business to the community.

CONCLUSION

The telecommunications industry in Indonesia is rapidly growing, with 90.75% of households having at least one cell phone number in 2020. The information and communication industry is a significant contributor to the Gross Regional Domestic Product (GRDP), with the information and communication business sector contributing 10.30% in 2019. The SWOT analysis of telecommunication towers and available land shows that the most successful strategies are the SO (Aggressive Supporting Strategy) and ST (Diversification Supporting Strategy) approaches. It is crucial to investigate accessible land and the contribution of the business to the community to determine the government's actual position.

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