International Journal of Law, Social Science and Humanities (IJLSH)

Volume 2, Issue 1, 2025

E-ISSN: 3063-7554

https://doi.org/10.70193/ijlsh.v2i1.210

Air Traffic Law Segmentation in the Era of Industrial Revolution 4.0 Challenges and Solutions Based On Futuristic Legal Perspective

Ai Permanasari[1], Sirrinawati[1], Aep Sulaeman[1], Suarman Gulo[1] and Nugraha Pranadita[1*]

[1] Postgraduate Law Doctoral Study Program, Langlangbuana University, Bandung, Indonesia

Submitted: 12 February 2025 *Revised: 07 March 2025* *Published: 09 March 2025*

Abstract:

The Fourth Industrial Revolution (Industry 4.0) has significantly transformed various sectors, including air transportation. Technologies such as the Internet of Things (IoT), artificial intelligence (AI), big data, and automation have driven innovations like drones and flying cars. In Indonesia, the implementation of flying cars has begun testing in the New Capital (IKN) as part of a transformation towards smarter and environmentally friendly transportation. However, these developments also present challenges in air traffic regulations. Law No. 1 of 2009 on Aviation and its related regulations have not fully accommodated these new technologies. This study examines how air transportation law in the Industry 4.0 era can be analyzed from a futuristic legal perspective and the welfare state theory. The state plays a crucial role in ensuring adaptive regulations, including aspects of safety, privacy, and harmonization with international regulations. This research employs a normative juridical method, relying on literature studies and secondary data analysis. A qualitative descriptive approach is used to analyze regulations relevant to advanced air transportation technology. The research findings indicate that technological advancements such as drones and flying cars necessitate updates in air transportation law. Responsive regulations and adequate infrastructure are essential to ensure that innovations in air transportation can operate safely, efficiently, and inclusively.

Keywords: Air Transportation, Industry 4.0, Flying Cars, Futuristic Law, Drones

INTRODUCTION

Industry 4.0, also known as the fourth industrial revolution, marks the integration of digital, physical, and biological technologies in various sectors. This concept emphasizes the use of technologies such as the Internet of Things (IoT), artificial intelligence (AI), big data, and automation systems (Schwab, 2016). Industry 4.0 has the main goal of meeting human needs in the modern era which is marked by the acceleration of technological development. With a focus on efficiency, productivity, and sustainability, this revolution utilizes IoT, AI, big data, and automation technologies (Adam & Afrizal, 2025). Through this technology, the production process becomes faster, more cost-effective, and automatically integrated, providing better solutions to meet the changing market demands (Oktareza et al., 2024). The in-depth use of data analytics also enables companies to understand consumer behavior so that services and products can be personalized to individual needs (Insights, 2024).

In addition, Industry 4.0 contributes to addressing global challenges, such as urbanization, energy scarcity, and climate change. The resulting technologies, such as renewable energy systems and smart transportation, have created reliable and sustainable solutions. These innovations are not only

*Corresponding Author : Ai Permanasari, Postgraduate Law Doctoral Study Program, Langlangbuana University, Bandung, Indonesia, ORCID iD: 0009-0003-5395-0624, E-mail: aipermanasari@gmail.com

designed for economic efficiency but also to improve the quality of human life (McKinsey & Company, 2024). For example, in the transportation sector, innovations such as electric vehicles, drones, and flying cars offer faster and safer access to mobility, while reducing congestion and pollution (ICAO, 2022). With these various benefits, Industry 4.0 not only answers human needs for speed and convenience but also ensures that the solutions offered are inclusive, sustainable, and relevant to the challenges of the times. In this context, the goal of Industry 4.0 is not just about technology, but about creating added value for society in various aspects of life (World Economic Forum, 2019).

This 4.0 era brings significant changes in the way humans work and interact with technology, creating new opportunities and challenges in various fields, including air transportation (Herwantono, 2023). In the context of transportation, Industry 4.0, is a catalyst for innovation in creating faster, more efficient, and environmentally friendly modes of transportation, including in the air sector. Urbanization, economic growth, and the increasing mobility of modern society are triggering a demand for fast transportation. According to a World Bank report, urbanization in Indonesia is expected to reach more than 70% by 2045 (World Resources Institute, 2024). Air transport has become one of the main solutions due to its speed and coverage. However, constraints such as limited airport capacity, high operational costs, and environmental impacts drive technological innovation to create more flexible air transport alternatives.

Drones, or unmanned aerial vehicles (UAVs), are one of the leading products of Industry 4.0 in the air transportation sector. Initially used for military purposes, drones now play an important role in delivering goods, monitoring areas, and even in humanitarian missions. Flying cars and drones are designed with high automation technology and utilize environmentally friendly energy sources, such as electric batteries. Several prototypes, such as products from companies like AeroMobil and Terrafugia, have been tested and are projected to become part of the transportation ecosystem in the coming decades. The ease of operation and relatively low cost make drones increasingly popular, although their use raises new challenges in air traffic regulation, particularly regarding security, privacy, and airspace control. Flying cars add new complexities to air traffic law because of their nature of combining the aspects of land and air transportation. New issues exist in terms of operational permits, airspace boundaries, and integration with existing air traffic systems.

After drones, technological developments have continued to innovate in Urban Air Mobility (UAM) and flying cars. Flying cars are hybrid vehicles that can drive on land and fly in air. This technology is projected to reduce urban congestion and provide a fast and flexible mode of transportation. Several countries, including Indonesia, have shown interest in the implementation of flying cars with increasingly intensive trials and development (Kompas, 2023). Its first use in Indonesia will be attempted in the Indonesian Capital City (IKN). IKN and Hyundai Motor Group announced the success of the proof-of-concept (PoC) Advanced Air Mobility (AAM) flight test, or the IKN flying car, which was carried out at Aji Pangeran Tumenggung Pranoto Airport (APT Pranoto), Samarinda on Monday, July 29, 2024. The AAM PoC activity aims to assess the reliability and readiness of the flying car transportation mode as an intelligent and environment-friendly transportation transformation for the future in IKN (Liputan 6, 2023).

This development has major implications for the air traffic law in Indonesia. Law No. 1 of 2009 concerning aviation and its implementing regulations, such as the Regulation of the Minister of Transportation, which initially only regulated traditional aviation, must now adapt to new phenomena such as drones and flying cars. The challenges faced include infrastructure such as the construction of vertiports, the creation of new air routes, security and safety, and legal responsibility for manufacturers, operators, and vehicle owners. Similar to Integration with the Global System, considering that air transportation is cross-border, Indonesian law must be in line with international regulations such as International Civil Aviation Organization (International Civil Aviation Organization (ICAO), 2022).

This transformation shows that technology from Industry 4.0 not only presents opportunities but also presents major challenges in the development of adaptive and futuristic air traffic laws in Indonesia. A new, responsive, and adaptive traffic law is needed to anticipate technological developments in the era

of Industrial Revolution 4.0. This regulation must cover the aspects of safety, privacy, and ethics regarding the use of technology in air transportation. Based on the description above, the formulation of the research problem is as follows: How is the air transportation law in the Industrial Revolution 4.0 era from a futuristic legal perspective?

METHODS

This study uses normative legal research that focuses on norms, rules, legal principles, doctrines, and other legal sources (Sonata, 2018). This study then uses legal and case approaches. Data collection techniques were conducted through a literature study by gathering legislation, court decisions, legal theories, legal dictionaries, legal journals, and expert opinions (Nurhayati et al., 2021). This research focuses on the segmentation of air traffic law in the era of challenges and solutions of Industrial Revolution 4.0, based on a futuristic legal perspective.

RESULTS

The purpose of the industrial revolution 4.0 era is to provide convenience or welfare for humans, and the welfare state theory is used to analyze this research problem. Welfare State Theory emphasizes the active role of the state in ensuring the social and economic welfare of citizens (Kiswanto, 2005). The state is responsible for ensuring the welfare of its people through regulatory intervention in various strategic sectors, including air transportation (Esping-Andersen, 1990). In the era of Industrial Revolution 4.0, technology increasingly dominates the aviation system, so the state needs to implement futuristic laws, namely regulations that not only regulate current conditions but are also able to anticipate future technological developments. The state must be able to anticipate and manage technological change to ensure that its benefits are felt by all levels of society (Sawitri, 2019).

Industrial Revolution 4.0 aims to integrate advanced technologies, such as the Internet of Things (IoT), artificial intelligence (AI), big data, and automation, in various industrial sectors. The main goal is to increase efficiency, productivity, and innovation as well as create new solutions to existing challenges (Aryasatya & Wibawa, 2022). One of the outcomes of Industrial Revolution 4.0 is the development of drones and flying cars that offer faster and more flexible air mobility solutions. Within the framework of the welfare state theory, technologies from Industry 4.0, such as drones and flying cars, can contribute significantly to improving people's quality of life. The welfare state aims to improve the welfare of its citizens by providing more efficient services and equitable access to technology. For example, drones and flying cars can reduce congestion in urban areas and provide faster and more efficient transportation solutions. This is in line with the welfare state's goal of providing better public services and improving quality of life.

However, to ensure that the benefits of this technology can be felt at all levels of society, the state needs to take certain steps. First, the state must ensure that this new technology is accessible to everyone, not just to a selected group. This means that the government must regulate prices, provide subsidies, and ensure that the necessary infrastructure is available across the region. Furthermore, the state must develop regulations that ensure the safety and security of the use of new technologies such as drones and flying cars. These include operational standards, safety protocols, and strict supervision.

In addition, in Industry 4.0, technologies can help reduce social inequality by creating new job opportunities and increasing access to public services. For example, drones can be used for medical delivery in remote areas, whereas flying cars can reduce the travel time for workers. The welfare state must encourage sustainable and environmentally friendly innovations. Technologies such as flying cars that use electric energy can help reduce carbon emissions and support sustainable development goals.

The state plays a key role in ensuring a balance between technological innovation and public welfare. In the context of significant changes in air transport through technologies such as drones, flying cars, and Urban Air Mobility (UAM), the state is responsible for creating a regulatory framework that

supports this innovation without compromising safety, sustainability, or inclusiveness (Kementerian Pertahanan Republik Indonesia, 20231). Several things must be prepared, including infrastructure. Infrastructure development is the main responsibility of the state to ensure the accessibility and sustainability of air transportation based on new technology (Kementerian Perhubungan Republik Indonesia, 2019). The construction of vertiports, new air routes, and integration with modern air traffic systems must be prioritized to support the operation of flying cars and drones. In addition, the state must ensure that regulations are responsive to developments in the times, prioritizing the safety, security, and privacy of the community. Given the transnational nature of air transport, international standards such as those set by the International Civil Aviation Organization (ICAO) should also be adopted to ensure global compatibility.

Legal liability is an essential element in modern air transport regulations. States need to regulate the roles and responsibilities of manufacturers, operators, and vehicle owners to protect the public from risks, such as accidents or technological failures. In addition, public privacy must be maintained, especially when using drones that have the potential to violate individual privacy boundaries. The state must also implement a technology-based monitoring system to ensure compliance with regulations and strictly enforce the law against violations, such as the misuse of technology for illegal activities.

Increasing human resource capacity is essential for supporting the successful implementation of modern air transportation technologies. The government must provide training programs to operators and regulators to manage this new technology. In addition, educating the public about the benefits and risks of new technologies is essential for ensuring positive social acceptance. Through public campaigns and simulations of technology use, the public can understand the importance of this innovation in improving mobility and quality of life.

In welfare state theory, multisectoral collaboration is key to success in designing and implementing relevant regulations. The government must work together with industry players, academics, and the community to ensure that regulations are applicable and oriented towards public welfare. With responsive regulations, adequate infrastructure, and strict oversight, technologies such as drones, flying cars, and UAM can become inclusive, sustainable transportation solutions, and improve the welfare of the wider community in the era of Industry 4.0.

DISCUSSION

The implementation of emerging technologies, such as drones, flying cars, and Urban Air Mobility (UAM), in air transportation presents significant challenges to the legal and regulatory framework. The current legal framework in Indonesia, including Law No. 1 of 2009 on Aviation (hereinafter referred to as the Aviation Law) and its implementation regulations, has yet to fully accommodate these revolutionary technologies. The following are key provisions that pose challenges in air transportation regulation in the Industry 4.0, along with recommendations for revisions:

1. Aviation Safety and Security

Drones and flying cars operate with automation systems that differ from traditional aircraft. Safety standards must incorporate technologies such as artificial intelligence (AI), autopilot systems, and remote control operations. Under Article 308 of the Aviation Law, the Minister of Transportation is authorized to establish aviation safety standards. However, there are no specific provisions addressing new technologies such as drones and flying cars. Therefore, future regulations must include provisions that set technical standards for unmanned aerial vehicles (UAVs) and hybrid air vehicles, as well as reliability testing systems for AI-based automation technologies (Ahmed et al., 2020).

Similarly, Law No. 26 of 2007 on Spatial Planning mandates that spatial planning should ensure public safety and comfort. However, with the emergence of new technologies such as flying cars, low-altitude airspaces remain unregulated. This poses risks where the state must protect the public from potential hazards, such as collisions between air vehicles, privacy violations due to drone usage, and threats to critical infrastructure such as airports and high-rise buildings. Therefore, it is necessary

to establish a new category of low-altitude airspace specifically designated for technology-based aerial vehicles (drones and flying cars). In addition, the development of an Unmanned Traffic Management (UTM) system is essential for effectively monitoring and regulating the movement of low-altitude aerial vehicles (Dasom, 2022).

2. Airspace Regulation and Infrastructure

Currently, there are no specific regulations covering the allocation of airspace for autonomous aerial vehicles such as drones or flying cars. While Permenhub No. 63 of 2020 and 2021 provides guidelines for drone operations, they have not yet fully addressed evolving drone technology, particularly concerning Urban Air Mobility (UAM) and the potential use of drones for commercial passenger transport. The regulations also do not cover AI-based autonomous drone systems, which require new safety and operational standards.

In terms of infrastructure, coordination between local governments and the Ministry of Transportation is required to designate air zones that can be used for commercial drone operations. Furthermore, the operation of flying cars necessitates new infrastructure, such as vertiports (mini vertical airports) and dedicated air corridors, to prevent conflicts with conventional aviation (Amin, 2022). Currently, there is no policy regarding the development of vertiport infrastructure in urban areas to support Urban Air Mobility (UAM). The placement of vertiports and air corridors should also align with urban spatial planning, especially in densely populated metropolitan areas (European Union Aviation Safety Agency (EASA), 2021).

Existing regulations, such as Law No. 26 of 2007 on Spatial Planning, do not yet include spatial integration for flying car infrastructure. Regarding airspace management, the Minister of Transportation Regulation No. 90 of 2015 covers only conventional aviation, excluding UAM or flying cars. Therefore, revisions should focus on the following aspects (Sun, 2025):

a. Adding specific provisions to the Spatial Planning Law regarding low-altitude airspace mapping for drones and autonomous aerial vehicles.

b. Mandating the construction of vertiports as part of new urban planning strategies, particularly in areas with high urbanization levels.

c. Integrating drone airspace regulations with the national air traffic management system to prevent interference with commercial aircraft.

3. Privacy Protection and Personal Data Security

There are potential privacy and data security violations because drones and flying cars can be used to record data or monitor public activities, raising concerns about privacy breaches. Law No. 27 of 2022 on Personal Data Protection (PDP) provides a legal framework for privacy protection. However, its technical implementation remains unclear for drone and flying car technologies, and it does not explicitly regulate airspace privacy in residential areas. Meanwhile, drones often raise public concerns regarding surveillance and unauthorized data collection.

Air traffic monitoring for these vehicles requires new technological advancements such as specialized radar systems. The current radar surveillance systems are not designed to track a large number of low-altitude aerial vehicles. Additionally, existing regulations, such as telecommunications laws, do not yet include specific provisions regarding the use of radio frequencies and drones or flying car communication systems.

Regarding personal data protection, the increasing use of IoT and big data in air transportation services poses risks of data breaches and the misuse of passenger information. No clear mechanisms exist for monitoring data processing in AI-based and drone-operated transportation systems. Moreover, regulations regarding biometric usage for airport security and autonomous air transportation remain inadequate.

To address legal challenges related to privacy and personal data, the following measures are necessary (Huis, 2023):

a. Establishing technical regulations on the use of drones and flying cars to ensure that they do not violate public privacy, including designating restricted airspace zones over residential and public facilities.

b. Adding new frequency regulations for radio communication in next-generation aerial vehicles.

c. Strengthening regulations mandating air transportation service providers to protect passengers' personal data.

d. Requires encryption and anonymization technologies in all AI-based systems that process passenger information.

e. Introducing specific regulations on the use of facial recognition and biometric technology in the aviation sector to enhance security while safeguarding individual privacy rights.

4. Harmonization of International Regulations

All civil aviation activities must comply with safety and security standards established by national regulations and adhere to international aviation safety standards, as Indonesia is a member of the International Civil Aviation Organization (ICAO). Another key reason for regulatory alignment is that technologies, such as drones and flying cars, can operate across national borders, necessitating national laws to be consistent with international standards. ICAO has initiated efforts to formulate regulations for Urban Air Mobility (UAM) and drones; however, Indonesia has yet to develop regulations that explicitly refer to these standards. Therefore, harmonizing air transportation laws with global developments and accelerating the adoption of ICAO standards into domestic regulations is essential to ensure that unmanned aerial vehicles (UAVs) operate in compliance with international norms (Silitonga et al., 2022).

Legal harmonization must be approached with the awareness that developing regulations and operational standards for flying cars requires international collaboration to ensure global consistency and safety. Indonesia should study the regulatory frameworks of countries that have already advanced in UAM and drone legislation, and actively participate in relevant international forums. By implementing these practical solutions, Indonesia can better prepare for the adoption and regulation of flying car technology, ensuring operational safety and efficiency while maximizing benefits for society.

CONCLUSION

The Fourth Industrial Revolution has brought significant innovations to the air transportation sector, particularly with the emergence of drones and flying car technology. Although these technologies offer more efficient and sustainable mobility solutions, they also present major challenges in terms of regulation and law. Currently, Indonesia's regulatory framework has not fully accommodated these technological developments, particularly in terms of flight safety, airspace management, privacy protection, and harmonization with international regulations. Therefore, legal revisions that encompass these aspects are required to anticipate future technological advancements. The futuristic legal approach and welfare state theory are essential to ensure that these innovations can be utilized for greater benefits to society. With responsive regulations, supporting infrastructure, and collaboration among various stakeholders, technologies such as drones and flying cars can become a part of a safe, inclusive, and sustainable transportation system in Indonesia.

Conflict of Interest

All the authors declare that there are no conflicts of interest.

Funding

This study received no external funding.

How to Cite:

Permanasari, A., Sirrinawati, Sulaeman, A., Gulo, S., Pranadita, N. (2025). Air Traffic Law Segmentation In The Era Of Industrial Revolution 4.0 Challenges And Solutions Based On Futuristic Legal Perspective. *International Journal of Law, Social Science, and Humanities (IJLSH)*, *2*(1), 136–143. https://doi.org/10.70193/ijlsh.v2i1.210.

REFERENCES

Adam, B., & Afrizal, T. Y. (2025). Strengthening of State Company on Strategic Commodities in Indonesia for Food Security Interest Under WTO Rules. *Cendekia : Jurnal Hukum, Sosial Dan Humaniora*, *3*(1), 929–945. https://doi.org/https://doi.org/10.5281/zenodo.14619225

Ahmed, Shahriar, S., Hulme, K. F., Fountas, G., Eker, U., Benedyk, I., Still, S. E., & Ch, P. (2020). *The Flying Car Challenges and Strategies Toward Future Adoption*. Frontiers in Built Environment.

Amin, R. (2022). Aspek Hukum Pengoperasian Pesawat Udara Tanpa Awak Menurut Hukum Positif di Indonesia. *Krtha Bhayangkara*, *16*(1), 1–22.

Aryasatya, M. A., & Wibawa, A. P. (2022). Kesempatan serta Tantangan pada Industri 4.0 dan Society 5.0. *Jurnal Inovasi Teknik Dan Edukasi Teknologi*, *2*(2), 80–85.

Dasom, L. (2022). Safety and Privacy Regulations for Unmanned Aerial Vehicles: A Multiple Comparative Analysis. *Technology in Society*, *71*(12). https://doi.org/https://doi.org/10.1016/j.techsoc.2022.102079.

Esping-Andersen, G. (1990). *The Three Worlds of Welfare Capitalism*. Princeton University Press.

European Union Aviation Safety Agency (EASA). (2021). *Study on Societal Acceptance of Urban Air Mobility in Europe*. EASA.

Herwantono. (2023). Pengaruh Revolusi Industri 4.0 terhadap Sistem Hukum dan Kebijakan Penggunaan Dalam Teknologi di Indonesia. *Jurnal Hukum Dan HAM Wara Sains*, *2*(10), 973–982.

Huis, S. van. (2023). Urban Air Mobility as the Environmental-Friendly Transport of the future in Indonesia? *E3S Web of Conferences*, *426*, 203. https://doi.org/10.1051/e3sconf/202342601033.

ICAO. (2022). *Unmanned Aircraft Systems and Urban Air Mobility Framework*. Www.Icao.Int.

Insights, D. (2024). *The Industry 4.0 Paradox: Overcoming Disconnects on the Path to Digital Transformation.* Www2.Deloitte.Com. https://www2.deloitte.com/sg/en/pages/energy-and-resources/articles/the-industry-4-0-paradox.html.

International Civil Aviation Organization (ICAO). (2022). *Unmanned Aircraft Systems and Urban Air Mobility Framework*. International Civil Aviation Organization (ICAO).

Kementerian Perhubungan Republik Indonesia. (2019). *Menhub: Penggunaan Drone Perlu Didukung Regulasi Yang Baik*. Kemenhub RI.

Kementerian Pertahanan Republik Indonesia. (20231). *Revolusi Industri 4.0 dan Pengaruhnya bagi Industri di Indonesia*. Kemhan RI.

Kiswanto, E. (2005). Negara Kesejahteraan (Welfare State): Mengembalikan Peran Negara Dalam Pembangunan Kesejahteraan Sosial di Indonesia. *Jurnal Kebijakan Dan Administrasi Publik*,

9(2), 23.

Kompas. (2023). *Mobil Terbang: Teknologi Masa Depan atau atau dapat jadi nyata?* Www.Kompas.Com.

Liputan 6. (2023). *Mobil Terbang Lolos Uji Coba di Samarinda, Siap Jelajahi IKN*. Www.Liputan6.Com. https://www.liputan6.com/bisnis/read/5658257/mobil-terbang-lolos-uji-coba-di-samarinda-siap-jelajahi-ikn?page=4

McKinsey & Company. (2024). *The Future of Mobility in Cities: How Connected Transportation is Transforming Urban Life*. Www.Mckinsey.Com. https://www.mckinsey.com/capabilities/sustainability/our-insights/the-futures-of-mobility-how-cities-can-benefit

Nurhayati, Y., Ifrani, I., & Said, M. Y. (2021). Metodologi Normatif Dan Empiris Dalam Perspektif Ilmu Hukum. *Jurnal Penegakan Hukum Indonesia*, *2*(1), 1–20. https://doi.org/10.51749/jphi.v2i1.14

Oktareza, D., Noor, A., Saputra, E., & Yulianingrum, A. V. (2024). Transformasi Digital 4.0: Inovasi yang Menggerakkan Perubahan Global. *Cendekia : Jurnal Hukum, Sosial Dan Humaniora*, *2*(3), 661–672. https://doi.org/https://doi.org/10.5281/zenodo.12742216

Sawitri, D. (2019). Revolusi Industri 4.0 : Big Data Menjawab Tantangan Revolusi Industri 4.0. *Jurnal Ilmiah Maksitek*, *4*(3), 12.

Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.

Silitonga, T., Setiabudi Sumadinata, R., Sudirman, A., & Hidayat, T. (2022). Implementation of ICAO Standards for Civil Aviation Security in Indonesia. *Journal of Positive School Psychology*, *6*(5), 8193–8203.

Sonata, D. L. (2018). Metode Penelitian Normatif dan Empirik. *Fiat Justisia*, *8*(1), 15–20.

Sun, X. (2025). LAERACE: Taking the policy fast-track towards low-altitude economy. *Journal of the Air Transport Research Society*, *4*, 56. https://doi.org/https://doi.org/10.1016/j.jatrs.2025.100058.

World Economic Forum. (2019). *Shaping the Future of Advanced Manufacturing and Production*. Www.Weforum.Org. https://www.weforum.org/publications/global-future-council-on-advanced-manufacturing-and-production/

World Resources Institute. (2024). *Mengurai Kompleksitas Urbanisasi dan Pembangunan Kota Berkelanjutan: Mendorong Solusi untuk Indonesia*. Https://Wri-Indonesia.Org/Id. https://wri-indonesia.org/id/wawasan/mengurai-kompleksitas-urbanisasi-dan-pembangunan-kota-berkelanjutan-mendorong-solusi-unt