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-RESEARCH ARTICLE-

DEVELOPMENT OF eMOBILITY MOBILE APP BASED ON GEOGRAPHIC INFORMATION SYSTEMS: INTEGRATIING PUBLIC TRANSPORTATION, REGIONAL GDP, REGIONAL GOVERNMENT BUDGET REVENUES AND EXPENDITURES (APBD) IN INDONESIA

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─Abstract─

The present study focuses on the conceptualization and development of the e-Mobility mobile application. This e-mobility application consists of 6 (six) main menus, including the airport, seaport, terminal, station, regional GDP and the info menu. Each menu will, of course, display different information according to the available data and information. The e-mobility application is designed in the responsive mode to make it easier for users to access from various mobile devices or computers that use different screen sizes. This e-mobility application, equipped with a geographic information system, uses a digital map service licensed by Google Maps. The development of facilities and infrastructure of a region cannot be separated from the importance of the Regional Government Budget

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Revenues and Expenditures (APBD). Infrastructure development results in an increase capital investment and regional income. The Regional Government Budget Revenues and Expenditures menu, often abbreviated as APBD, is useful to display all data and information related to the APBD. In the APBD menu, there are 5 (five) sub-menus consisting of the APBD Expenditures, APBD Goods & Services Expenditures, APBD Capital Expenditures, APBD for financing and APBD for regional investment. Naturally, each menu will have a different function and way of presentation of data. The theoretical and practical implications of the researchare presented in the concluding section of the paper.

Keyword: e-mobility, airport, seaport, terminal, station, regional GDP, Regional Government Budget Revenues and Expenditures (APBD)

1. INTRODUCTION

In today's digital era, smartphones and other mobile devices, such as tablets and smartwatches, power most e-tourism applications, but assistance for travellers predates the invention of the smartphone. The majority of these systems have been implemented in more specialised areas and controlled contexts, such as mobile guides for museums and other cultural institutions (Ncube et al., 2020). Navigation systems and shopping assistants are two key fields where early adaptive mobile guides have been used in the tourism industry. Specifically, when it comes to large and medium-sized metropolitan centres in the industrialised world, a well-built and maintained regional public transportation system is a crucial component of their infrastructure (Fumagalli et al., 2021). Having easy access to jobs and other requirements, while also reducing reliance on automobiles, helps to create livable communities, and contributes to the general economic vitality of a metropolitan area. Another important aspect of reducing fossil fuel consumption and the negative environmental impacts of automobiles, including greenhouse gas emissions and other contributors to climate change, is having an effective and well-utilized public transportation system. This is also important for improving public health and reducing traffic fatalities and injuries (Keuchel, 2020).

Due to the rapid advancement of mobile devices like smartphones, end consumers now have better access to mobile web sites as well as mobile apps. It is not only possible for users to demand similar interaction patterns, but it has also become simpler for developers to design and deploy their applications. This encompasses the concept of app stores as well as the recommendation of apps to clients, among other things. Contextual data regarding the user's environment, such as location, time, and other objects, is often collected by mobile applications (Castañeda et al., 2019). It is possible to define context as any information that can be utilised to characterise the circumstance in which an object finds itself. In computer science, an entity is defined as a person, a location, or an object that is deemed significant to the interaction between a user and an application, including both, the user and the application itself (Zheng et al., 2016). The ability to

understand the environment allows visitors to better grasp the circumstance they are in and to make more informed decisions. In order to accurately represent the entire travel experience and capture the dynamic process of travel decision-making, context modelling must be comprehensive (Zheng et al., 2016). According to several experts, the user's location is the most crucial contextual factor for mobile applications. The Global Positioning System (GPS) is primarily responsible for outside localisation (GPS). The Global Positioning System (GPS) is a satellite-based global navigation system that transmits location and time information to a GPS receiver. Most mobile devices are equipped with a built-in GPS receiver, allowing them to rely on precise positioning for providing location-based services (Liu et al., 2018). Tourists can use mobile applications to cover all aspects of travel planning and realisation, including: (1) selecting a destination; (2) locating interesting attractions and activities; (3) booking transportation, accommodations, and activities; (4) receiving on-site support while on the road; and (5) sharing travel experiences.

Therefore, the aim of this research is to study the process of mobile application related to e-mobility. The application of sustainable mobility or what is often called e-mobility uses information technology to develop public transportation based on geographic information systems to increase the competitiveness of regional development in East Java. This e-mobility application uses dual versions, namely a web-based version and an Android mobile-based version. For the web-based version, you can visit the URL page https://e-mobility.worldsdg.info/. This sustainable mobility or e-mobility application can also be downloaded on the Android Playstore with the status of freeware or free.

This e-mobility application offers several advantages, including: (1) Easy to develop: Because the system that is more in demand by the public in the digital era is easier to develop and search on Google play store by simply searching with the keyword e-mobility. Many web programming languages also support e-mobility applications: HTML, CSS, JSON, PHP, AJAX, JQuery, API (Application Programming Interface), and other programming languages; (2) Easy to update data: Markedly different from desktop-based applications, where when there is a data update, the user is required to download and install the application. Android-based mobile applications only need to be updated on the server computer, and then every user will get the same update. This method will save you a substantial aoung of time and money; (3) Easier access to information: Android-based mobile and web-based e-mobility applications can be accessed anywhere, anytime, simultaneously using various mobile devices of various brands; (4) Easier server setup: This e-mobility application is based online using the Android mobile programming language server-side, so any changes to the source code can be made in 1 (one) server only; (4) Information is easy to distribute: Suppose there is certain information you want to share with the user, you can do so by updating the server. In that case, all clients will immediately get that information anywhere and

anytime. We use data sources from the Central Statistics Agency (BPS) and G to use digital maps; (5) Flexible interface design (Responsive Mode): Another advantage of the application that should be considered is the interface design which is quite flexible when dealing with various screen sizes on mobile devices. When accessing mobile applications with a wider screen and greater power, the application can adjust to the needs. On the other hand, the app can also adapt to a narrow screen when accessed on a smaller device. That way, users will find it much easier to interact with Android-based mobile applications; (6) More secure: Because the application's source code is stored on the server, it can be upgraded if there is a security gap. On the client-side, the application has been stored on the Google Playstore, which has a very reliable level of security; (7) Multiuser accessible: Applications or information systems based on Android mobile do not have to be accessed personally using only one mobile device but can be done with mutiple mobile devices. Figure 1 presents the main display or home screen of the e-mobility application (Adler et al., 2019; Fumagalli et al., 2021; Ivanov et al., 2020; Keuchel, 2020; Muhammad Ikhsan Setiawan et al., 2021; Varghese et al., 2021)

Figure 1. the e-mobility application (https://emobility.worldsdg.info/)

2. LITERATURE REVIEW

Innovation scholarship shows the significance of thinking more creatively about what innovation may be, while also paying attention to spatial and temporal dynamics. While it is easy to get distracted by technologies (e.g. driverless cars, smart technologies) and futures and data, innovation can also mean ideas, policies, governance, and practises, or combinations of these, with little (if any) technological components (Haldorai et al., 2019). Moreover, the realm of sociotechnical transitions emphasises the intertwining of technological and social worlds (Taha et al., 2019). Tourism is typically positioned as 'different' from other industries and sectors due to the confluence of products, services, activities, and actor-groups. Tourism innovation at the destination-scale may contribute to national competitiveness (Castañeda et al., 2019), and vice versa. Eco-innovations have been proposed as a means to accelerate tourism sustainability transitions. Actors such as businesses, governments, intermediaries and non-human actors will need to act. Most tourism research focuses on individual modes e.g. air transport or aspects of the tourism assemblage, rather than system-wide transformation (Cai et al., 2018). Since the early 2000s, more focus has been placed on innovation as part of a sustainability transition (Taha et al., 2019). Frameworks like strategic niche management and transition management help think about how to protect, develop, and encourage (potentially) sustainable innovations to challenge the dominant (unsustainable) regime (Susur et al., 2019).

A systemic shift can occur when 'windows of opportunity' are identified, nourished, controlled or governed to allow for the emergence of 'niches', 'regimes' and 'sociotechnical landscapes'. While innovative scholarship has concentrated on societal areas such as energy, transportation, and waste systems, unsustainable tourism practises have received less attention (Fumagalli et al., 2021). This may be attributed to the diversity of tourism sectors, numerous spatial scales, and discrete element inclusion/exclusion (e.g. accommodation, transport, activities etc.). Tourism can jelp build positive discourse, overcome fears, and raise financing to encourage niche growth, all of which are crucial features of strategic niche management literatures. Hopkins (2020) use the multi-level perspective framework to analyse the tourism-transport nexus, distinguishing the dominant (unsustainable) system's human/non-human, material/immaterial features and the possible characteristics of a more sustainable system. Generally, a sociotechnical system approach helps to visualise the various actor-networks that support transportation (Jørgensen, 2019; Muhammad Ikhsan Setiawan et al., 2019; M. I. Setiawan, Sukoco, A., Halim, P., Hermanto, D., Bin Bon, A. T., Wan Ibrahim, M. H., Mohammad Razi, M. A., Othman, N. B., Bin Juki, M. I., Bin Mohd Ali, A. Z., & Utomo, W. M, 2019; Suyono et al., 2017) and which may (or may not) exist in various cities and nations worldwide. As a result, non-humans – such as animals – can be considered as "actants rather than objects of tourism" (Jørgensen, 2019), expanding the scope of study and the possibility area for sustainability. Transportation issues (e.g. transportation of tourism workers to resorts) will be experienced differently in different

cities, destinations, and countries (Ivanov et al., 2020; M. I. Setiawan et al., 2018; Muhammad Ikhsan Setiawan et al., 2020).

Moving people is generally the focus of tourism, transportation and tourism-transport research; how visitors move, how they travel, how to encourage less polluting modes, offsetting programmes, etc. Less has been said about immobility (Hopkins, 2020); how current transport/tourism systems may immobilise tourists, host communities, and other actors (including non-human). Immobilities analysis may highlight trans-temporal and trans-spatial politics, practises, policies, and infrastructures. This research could help us understand how tourism systems interact with everyday life. According to (Nord, 2020), new places and technologies promote the mobility of some people and places while increasing the immobility of others, especially as individuals strive to traverse borders (original emphasis). This has a significant impact on tourism mobilities, and how decarbonising the tourism sector might have uneven impacts. From a sociotechnical standpoint, an emphasis on im/mobilities would also call attention to varied tourism venues and sites, such as airports (Hopkins, 2020). Also, within airports, there are numerous locations that provide friction for some and fluidity for others, such as first-class lounges and priority boarding. Similar to climatic disasters, environmental crises (e.g. hurricanes) can temporarily immobilise, as most transport systems are significantly influenced by unfavourable climatic (e.g. volcanic eruptions) and environmental events. Extreme weather can damage infrastructure and interrupt services (Giddy et al., 2017), potentially immobilising tourists and other mobile tourism agents (e.g. food providers). Extreme occurrences are becoming more often as a result of climate change, posing new and/or increased dangers to tourism. It is possible to raise awareness of justice and sustainability transitions by focusing on tourism-transport im/mobilities.

Today's day and ae marks a time of significant transformation. Automated vehicles, electrification, and sharing practises are three transportation "revolutions" (Raju et al., 2018) that have received significant attention in transportation scholarship. They have the potential to reshape the tourism industry in a variety of ways, some of which may be unintended, sub-optimal, and/or exacerbating unsustainability (for example, automation). Novel inventions can easily captivate or beguile us into believing that they are the 'silver bullet' to today's problems, such as pollution, inequities, and emissions connected with present transportation systems (Nord, 2020). However, Stankov et al. (2019) remind us that technology advancements have significant rebound impacts on the economy. Rebound effects are the unplanned and unanticipated behavioural responses to technology advancements that appear to be long-term in nature. Suppose that, as a result of reduced trip time and reduced travel expenses, tourists (or other mobile-actors) are encouraged to travel more, compounding the environmental difficulties that the technology was designed to address in the first place. According to Nord (2020) and Hopkins (2020), rebound effects have been observed in both air and road transportation. This underscores the necessity of thinking beyond technology to consider the policies

and practises that promote sustainable mobility as well as the technologies themselves (Ikhsan Setiawan, Sukoco, et al., 2020). It is necessary to look more deeply into the social dynamics of technical developments and their role in the development of a sustainable tourism future. There has already been an emergence of automated passenger vehicles in a variety of tourism settings, both as stepping stones in the innovation process (off(public) road, fixed routes) and to serve as demonstrator projects. Because the routes between car parks and terminals or between terminals and aeroplanes are relatively fixed and standardised, airport terminals have emerged as primary sites for automation. However, using automated vehicles allows for some degree of change over time that would not be possible using light rail or other dedicated physical infrastructures. Further consideration and study are required to take into account the numerous ways that advancements, such as vehicle automation, may affect the tourism industry in both positive and harmful ways in the future. Cater (2019) describes tourism-transport as a time-space in which tourists can connect with host communities and non-tourists, but driverless vehicles have the potential to reorganise this interaction by increasing isolation between tourists and non-tourists (Ikhsan Setiawan, Durrotun Nasihien, et al., 2020; Ikhsan Setiawan, Sukoco, et al., 2020; Stankov et al., 2019).

In this context, the present study aims to introduce and present the process of e-Mobility mobile app. General explanation of the development of e-mobility applications using Android mobile or web-based: (1) Simplify the Process of Submission of Data & Information: This system was created to simplify the process of submitting data and information related to the needs of public transportation development; (2) Simplify Administration: With this system, it is hoped that it can accelerate creating an up-to-date information presentation; (3) Integrated Information System: The system is designed to be integrated so that this system has a high level of reliability and is designed based on Android mobile, which later can be accessed via the Internet on a wider scale; (4) Authorization and Multiple User Access: This system has a high level of security where users who use this system allow multiple users to access simultaneously; (5) Data Security (Backup and Restore): The system is reliable in managing all existing activities by using a software capable of handling data security problems. The data backup and restore system is carried out automatically. If there is a human error or hardware damage, the data will remain safe and be used again after the damage is repaired; (6) Android Mobile: The use of mobile applications will make it easier for users. Along with technological developments, mobile-based applications are considered the most well-known means by the public; (7) Network: Implementing a network allows a kind of server-client form that allows access on a wide scale; (8) Dynamic Data: Users are given ease of data entry. The data entered will automatically be converted into a part of an integrated system so that it is possible to develop in the long term without changing some of the related modules; (9) Security: There is security in accessing data and data restoration that is carried out in the event of human error or other obstacles such as hardware so that existing data will not be lost; (10) Easy Installation: Like other android

application installations, this android mobile-based e-mobility application is designed to be implemented easily to allow users to do the installation themselves. Users search Google Playstore and install the same as other Android applications in general; (11) Responsive Mode: The auto-rotate feature supports this android mobile-based e-mobility application, so it remains user-friendly when used because the display will follow the mobile screen size (Altounjy et al., 2020; Kaya, 2019; Kiliç, 2019; Ncube et al., 2020; Sezgin et al., 2019).

3. METHODOLOGY

To develop an android application for e-Mobility, the technique employed begins with secondary data collection, which is accomplished through literature studies. This stage aids in the collection of data and information regarding the findings of study in the fields of transportation and tourism, among other things. It is planned to enter all of the information gathered into an android-based data management system. In order to construct Android applications, the Java programming language was used in conjunction with Android Studio, which will serve as the official integrated development environment for Android application development. The following stage involves the creation of an information system based on an Android application developed utilising Rapid Application Development techniques (RAD). In the RAD approach, the following stages are completed: identification of the requirement plan, system design, implementation (coding), and testing of the application.

This e-mobility application consists of 6 (six) main menus, including the airport, seaport, terminal, station, regional GDP menu and the info menu. Each menu will, of course, display different information according to the available data and information. The e-mobility application is designed in the responsive mode to make it easier for users to access from various mobile devices or computers that use different screen sizes. The seaport menu is divided into several sub-menus of information: the number of units, GT number, arrivals, departures, national unloading, foreign unloading, and foreign loading. Of course, each of these menus will have a different display and presentation of information. The seaport menu will also be presented on a digital map, making it easier for users to access or search ports according to their geographical location. This e-mobility application, also equipped with a geographic information system, uses a digital map service licensed by Google Maps. It can be seen that when the hot spot point is clicked, information on the name and location of the port will appear, as in the example above, namely the Balikpapan port, East Kalimantan and the Sebuku port, South Kalimantan. The station menu is useful for displaying information on the location of train stations in various regions. The station menu will also be presented on a digital map, making it easier for users to access or search for train stations according to their geographical location. The terminal menu is useful for displaying information on the location of bus terminals in various regions. The terminal menu will also be presented in a digital map, making it easier for users to access or search for bus terminals according

to their geographical location. The Regional GDP menu is useful for displaying information on the Regional GDP of an area. Like the previous menu, the presentation of information is packaged in a table consisting of several columns, including the region's name, nominal in billions of Rupiah, airport, port, and the distance between the airport and the port. The development of facilities and infrastructure of a region cannot be separated from the importance of the Regional Government Budget Revenues and Expenditures (APBD). Infrastructure development leads to an increase in capital investment and regional income. The Regional Government Budget Revenues and Expenditures menu, often abbreviated as APBD, is useful for displaying all data and information related to the APBD. In the APBD menu, there are 5 (five) sub-menus consisting of the APBD Expenditures, APBD Goods & Services Expenditures, APBD Capital Expenditures, APBD for financing and APBD for regional investment. Naturally, each menu will have a different function and presentation of data.

4. RESULT AND DISCUSSION

The airport menu is divided into sub-menus displaying information on baggage, goods, passengers, aircraft, and postal packages. Of course, each of these menus will have a different display and presentation of information. The airport menu will also be presented on a digital map, making it easier for users to access or search for airports according to their geographical location. This e-mobility application, also equipped with a geographic information system, uses a digital map service licensed by Google Maps. In the digital map section, you can click on the name of the airport so that information about the airport's will appear. Users can click the zoom-in and zoom-out buttons to use the map freely as they wish. The baggage menu provides information on baggage prices per Kg unit in each region. There is a table consisting of the airport column and baggage prices. The information is presented in tabular form so that the user finds it easy to use. For example, in the table above, it can be seen that for Adi Sucipto airport, baggage per unit kg is 19,981,921.00. An item sub-menu on the airport menu is useful for displaying loading and unloading information for each region and price. There is a table consisting of the airport column and loading and unloading prices. For example, in the table above, it can be seen that for Juanda airport, located in Sidoarjo, loading and unloading goods is 25,109,098.00. Meanwhile, the loading conditions at Juanda Sidoarjo airport are 45,178,370.00. Likewise for Hasanuddin airport located in Makassar City for loading conditions of 26,822,611,00 and loading conditions of 26,091,874,00. The passenger menu is used to display departure, arrival, and transit information according to each airport. Each table is equipped with columns for departure, arrival, and transit. For example, in the table above, it can be seen that for Hang Nadim airport, which is located in the city of Batam, for departures, it is 2,313,380.00. Meanwhile, the arrival conditions at Batam's Hang Nadim airport are 2,489,168.00. For transit conditions at Batam's Hang Nadim airport, it is 161,301.00. Likewise, Semarang city has no transit for Ahmad Yani airport, so there are only departures and arrivals, 1,754,468.00 and 1,782,455.00,

respectively. The airplane menu is used to display departure and arrival information according to each airport, where each table is equipped with departure and arrival columns. For example, in the table above, it can be seen that for Kualanamu airport, which is located in the city of Medan, for departures, it is 25,554.00. Meanwhile, the arrival conditions at Medan Kualanamu airport are 23,804.00. Likewise, for Halim Perdanakusuma airport in East Jakarta for departures of 14,064.00 and arrivals of 13,683.00. For the postal menu, this package displays information about the condition of loading and unloading goods at each airport in kilograms. Presenting data in tabular form, the menu has information on loading and unloading columns in kg. For example, in the table above, it can be seen that for Sentani airport, which is located in Jayapura, the condition for loading and unloading goods reaches 120,898.00 kg. Meanwhile, the condition of loading goods at Sentani Jayapura airport is 117,321.00. Likewise, for Lasikin - Sinabang (Simeulue) airport, the loading and unloading of goods reached 96.00 and for loading conditions of 678.00 kg. The following Figure 2 displays the Juanda Airport performance and Regional GDP (PDRB) of non-CBD in Sidoarjo, Indonesia.

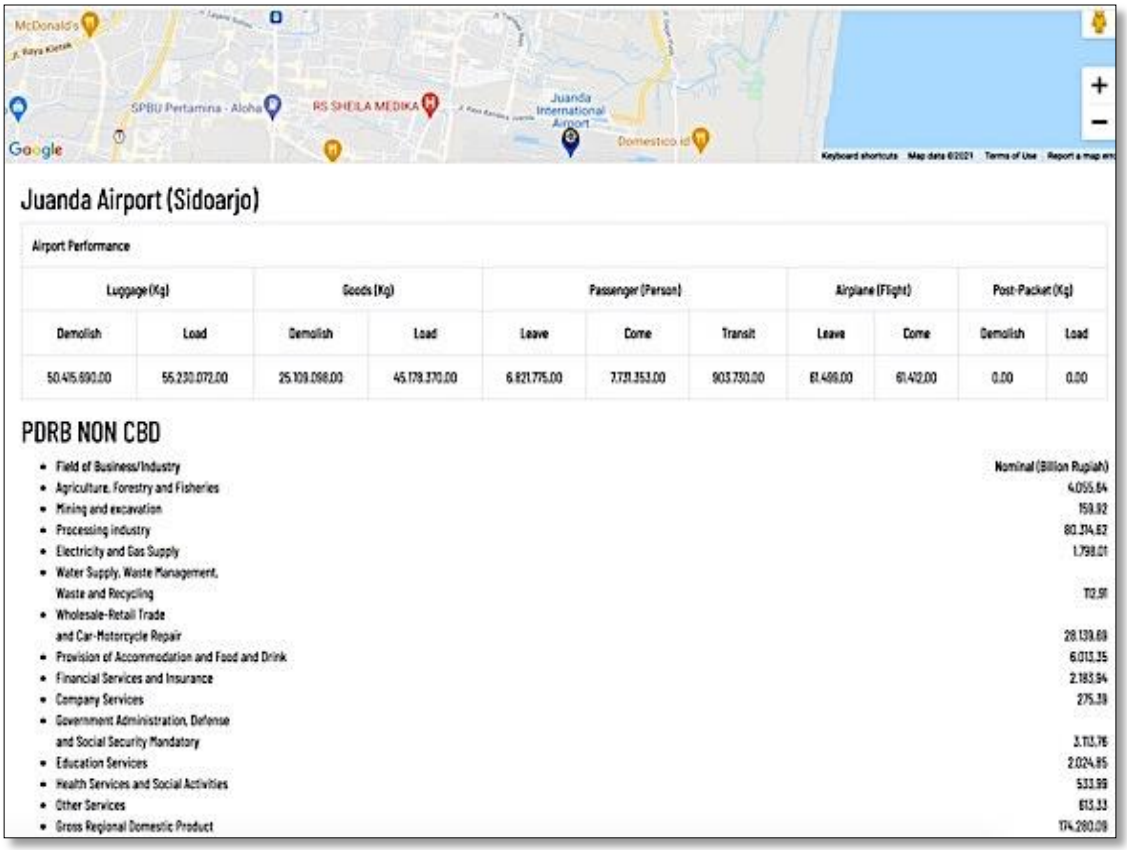


Figure 2. Juanda Airport performance and Regional GDP non-CBD in Sidoarjo, Indonesia (https://emobility.worldsdg.info/)

The number of units is used to display the number of units in each port or seaport according to the district/city area. In the menu, the number of units will be divided into (two) tables, namely the number of foreign units and the number of domestic units. For example, in the display above, the number of units at the Kintap - Sungai Puting port for domestic use is 24,715.00, while for foreign countries, it reaches the same average of 24,715.00. As another example, the Merak Port in Cilegon City for domestic purposes reached 7,328.00, while for foreign countries, it reached 2,095.00. The GT number is used to display information on the GT number in each port or seaport according to the district/city area. In the menu, the number of units will be divided into (two) tables, namely the number of GT units abroad and the number of GT units in the country. For example, in the above display, the total GT at the Kintap - Sungai Puting port for domestic use is 110,742,846.00, while it reaches the same average for foreign countries of 119,742,846.00. As another example, the Tanjung Perak port located in Surabaya for domestic purposes reached 50,244,751.00, while for foreign countries, it reached 44,064,427.00. While another example for the lowest number of GT is in the Majene/West Sulawesi region, with the name Sendana port reaching 47.00. This arrival page displays information on the number of arrivals in each port or seaport according to the district/city area. The seaport arrival menu is divided into (two) tables, namely the number of arrivals of foreign units and the number of domestic units. For example, in the display above, for domestic arrivals at Sekupang port, Batam is 518,847.00, while for foreign arrivals, the average is relatively the same, which is 500,607.00. As another example, the Tanjung Balai port in the city of Karimun for domestic purposes has reached 704,637.00, while for foreign countries, it has reached 315,825.00. While another example for the lowest arrivals in the Seruan Regency area with the port name Kuala Pembuang reached 4.00. This departure page is used to display information on the number of departures in each port or seaport according to the regency/city area. The seaport departure menu is divided into 2 (two) tables, namely the number of departures from domestic units and the number of departures from overseas units. For example, in the display above, for departures at the Sekupang port, Batam for domestic is 535,929.00 while for foreign countries it is 440,769.00.

As another example, the port of Tanjung Uban, located in the city of Lagoi, Tanjung Pinang, for domestic purposes reached 2,804.00, while for foreign countries, it reached 363,293.00. According to the district/city area, the national unloading page displays information on the number of national unloading in each port or seaport. The national unloading menu will be divided into (two) tables, namely the national unloading number of domestic units and the national unloading number of foreign units. For example, in the display above, the national unloading at the port of Banjarmasin for the domestic market is 78,710,592.00. In contrast, for the port of Galesong Takalar, the Takalar district for overseas reached 5,436.00. As another example, the Merak port located in the city of Cilegon for domestic purposes reached 35,008,461.00, while for overseas the port of Sungai Guntung, Indragiri Hilir Regency, Riau reached 2,811.00. According to

the regency/city area, the foreign unloading page displays information on the number of foreign unloading in each port or seaport. The foreign unloading menu is divided into (two) tables, namely the number of foreign unloading domestic units and the number of foreign unloading foreign units. For example, in the display above, for foreign unloading at the port of Raijua, Kab. Sabu Raijua, for domestic, is 396,740.00, while for the port of Merak Cilegon City for overseas, it reached 24,397,233.00. As another example, the port of Nunukan, located in the city of Nunukan for domestic purposes, reaches 25,697.00, while for overseas, the port of Tanjung Priok, North Jakarta, reaches 15,643,182.00. This national loading page is used to display information on the national loading amount of each port or seaport according to the district/city area. The national loading menu is divided into (two) tables, namely the number of national loadings of domestic units and the number of national loadings of foreign units. For example, in the display above, the national loading at the Tanjung Intan port, Cilacap Regency, for domestic purposes is 77,744,366.00, while the Pomalaa Kolaka port for overseas reached 92,997.00. As another example, the Sei Danau port located in the city or Tanah Bumbu Regency for domestic purposes reaches 53,402,777.00, while for overseas, the port of Sungai Guntung Kab. Indragiri Hilir, Riau reached 29,300.00. This foreign loading page displays information on the foreign loading of each port or seaport according to the regency/city area. The foreign loading menu is divided into (two) tables, namely the number of foreign loadings of domestic units and the number of foreign loadings of foreign units. The following is a display of the foreign loading seaport menu page. For example, in the display above, for foreign loading at the port of Banjarmasin overseas, it is 69,524,584.00, while for the port of Tanjung Laut Bontang for overseas, it reached 39,332,761,00. Figure 3 displays the Port Performance and Regional Government Budget Revenues and Expenditures (APBD) in Cilegon City which also has a Google Maps digital map feature.

Peacock Seaport

Domestic		Overseas	
Number of units	7.528	Unit	2.095
Total GT	26.805.036	GT	33.659.993
Arrival	0	Arrival	0
Departure	0	Departure	0
National Unloading	35.008.461	National Unloading	0
Foreign Unloading	0	Foreign Unloading	24.397.233
Load National	10.392.078	Load National	0
Load Foreign	0	Load Foreign	3.409.876

North Anyer Sea Port

Domestic		Overseas	
Number of units	194	Unit	0
Total GT	2.746	GT	0
Arrival	602	Arrival	0
Departure	267	Departure	0
National Unloading	1.297	National Unloading	0

Revenue Budget

Information	Nominal (Rupiah)
Income	1.708.838.034.894
PAD	852.084.328.148
Local tax	466.921.946.128
Regional Retribution	466.921.946.128
Results of separated regional wealth management	16.955.535.003
Other valid PADs	163.871.632.885
Balancing Fund	647.027.278.673
Tax revenue sharing/non-tax revenue sharing	116.724.836.053
General allocation fund	595.338.097.000
Special allocation fund	2.947.483.947
Other valid county income	209.732.488.872
Grant	0
Emergency fund	0
Tax revenue-sharing funds from other provinces and local governments	132.232.488.872
Special Autonomy and Adjustment Fund	7.500.000.000
Financial assistance from other provinces or local governments	70.000.000.000
Others	0

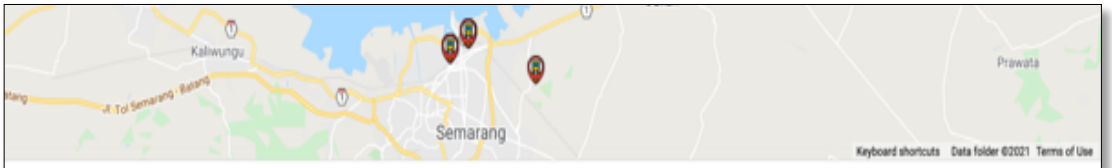
Expenditure Budget

Information	Nominal (Rupiah)
Shopping	1.758.156.075.282
Indirect Shopping	629.791.007.603
Indirect Employee Shopping	582.943.533.507
Flower Shopping	0
Subsidy Shopping	0
Grant Shopping	54.824.890.000
Shopping Social assistance	9.675.338.000
Expenditure Share the results to the Province / Regency / City and Pemdes	992.248.096
Expenditures on financial assistance to the Province/District/City and Pemdes	315.000.000
Unexpected shopping	0
Direct Shopping	1.129.364.065.659
Direct Employee Shopping	111.451.221.071
Shopping for goods and services	517.203.286.463
Capital Expenditure	500.709.558.125

Figure 3. Port performance and Regional Government Budget Revenues and Expenditures (APBD) in Cilegon, Indonesia (https://emobility.worldsdg.info/)

In the digital map section, you can click on the train station's name in each region so that information about the station's name will appear. Moreover, you can click on the name of the bus terminal in each region so that information about the name of the terminal will appear. This e-mobility application, equipped with a geographic information system, uses a digital map service licensed by Google Maps. Users can click the zoom-in and zoom-out buttons to use the map freely as they wish. The following Figure 4 illustrates

the station and the terminal menu which also has a Google Maps-based digital map feature.



Semarang Station

No.	District/City	Station Name	Distance to Airport		Distance To Port	
1	Semarang	Semarang Tawang Train Station	Ahmad Yani (Semarang)	5.91 Km.	Golden Cape	2.05 Km.
2	Semarang	Poncol Train Station	Ahmad Yani (Semarang)	4.29 Km.	Golden Cape	2.97 Km.
3	Semarang	Alastua Station	Ahmad Yani (Semarang)	10.99 Km.	Golden Cape	7.27 Km.
4	Semarang	Poncol Train Station	Ahmad Yani (Semarang)	4.29 Km.	Golden Cape	2.97 Km.
5	Semarang	Semarang Tawang Train Station	Ahmad Yani (Semarang)	5.91 Km.	Golden Cape	2.05 Km.

GRDP NON CBD

• Field of Business/Industry	Nominal (Billion Rupiah)
• Agriculture, Forestry and Fisheries	4,958.39
• Mining and excavation	116.70
• Processing industry	16,858.46
• Electricity and Gas Supply	45.18
• Water Supply, Waste Management, Waste and Recycling	27.74
• Wholesale-Retail Trade and Car-Motorcycle Repair	4,853.38
• Provision of Accommodation and Food and Drink	1,353.17
• Financial Services and Insurance	1,529.24
• Company Services	220.70
• Government Administration, Defense and Social Security Mandatory	1183.41
• Education Services	1,780.14
• Health Services and Social Activities	313.12

Figure 4. Station Performance and Regional GDP non-CBD in Semarang, Indonesia (https://emobility.worldsdg.info/)

The Regional GDP Google Maps digital map feature shows that the Semarang City area has a Regional GDP value of 161,245.91, with the name Achmad Yani airport and the port name Tanjung Emas with a distance between the two of 6.13 km. Another example is Makassar City, with a Regional GDP value of 143,128.68 and the name of the Hasanuddin airport and the name of the Makassar port, and the distance between the two

is 17.22 km. Cilacap Regency has a Regional GDP of 105,670.49 with the name of Tunggul Wulung airport and the name of Tanjung Intan port, and the distance between the two is 10.54 km. The data above shows that the lowest Regional GDP is Sabang City with a value of 1.27, with the name Maimun Saleh airport and the name Sabang - Balohan port, and the distance between the two is 5.46 km. Next is the transportation and warehousing menu, which is useful for displaying information on the Regional GDP from transportation and warehousing. For example, Medan has a Regional GDP value of transportation and warehousing of 12.84 (billion), with the name Kualanamu airport and the port of Belawan, both of which have a distance of 27.59 km. Another example is in South Sorong Regency, with a Regional GDP value of transportation and warehousing of 27.63 (billion) with Teminabuan Airport and Teminabuan port, both of which have a distance of 4.13 km. After analyzing the Gross Regional Domestic Product data for transportation and warehousing, it can be concluded that the highest value is the Tangerang City area with a nominal value of Rp. 46,694,070,000, while the lowest value is the Arfak mountainous district with a nominal value of Rp. 90,000,000. In the APBD menu for shopping needs, it is useful to display information on the APBD expenditures of each region. The same is the case with the previous menu for presenting information in a table consisting of several columns, including the regional column, nominal in Rupiah, airport, seaport, and the distance between the airport and seaport in kilometers. In some examples of APBD data, expenditures can be seen for some data, namely the city of Samarinda, which has a value of 8,224,601,146.420.00 with the name Temindung airport and the name of the port of Samarinda, both of which have a distance of 2.6 Km. After analyzing the data from the APBD, it can be concluded that the highest value is the Regency area. Karanganyar has a nominal value of 8,265,978,992,420.00, while the lowest value is the Kab. Sabu Raijua has a nominal value of 448,619,128,291.00. In the APBD menu, the need for goods and services expenditure is useful for displaying information on the APBD for goods and services for each region.

The same is the case with the previous menu for presenting information in a table consisting of several columns, including the regional column, nominal in Rupiah, airport, seaport, and the distance between the airport and seaport in kilometers. The example of data on the APBD for goods and services expenditure shows the city of Medan has a value of 1,657,809,777,120.00 with the name Kualanamu airport and the name Belawan port, both of which have a distance of 27.59 km. After analyzing the APBD data for the needs of goods and services, it can be concluded that Surabaya City has the highest value with a nominal value of 2,885,792,566,220.00. In contrast, the lowest value is recorded for the Kab. Tana Toraja has a nominal value of 7,765,915.24. The APBD menu is useful for displaying the capital expenditure for each region. The same is the case with the previous menu for presenting information in a table consisting of several columns, including the regional column, nominal in Rupiah, airport, seaport, and the distance between the airport and seaport in kilometers. Some examples of data on the APBD for capital expenditures show that the City of Semarang has nominal value

of 1,274,940,532,901,00 with Achmad Yani airport and the port name Tanjung Emas, both of which have a distance of 6.13 km. After analyzing the APBD data for capital expenditure needs, it can be concluded that the highest value is the Surabaya City area with a nominal value of 2,517,973,748,885.00. In contrast, the lowest value is the Biak Numfor regency with a nominal value of 45,531,533,345.00 with the port name Frans Kaisiepo (Biak Numfor) and the port name Biak, both of which have a distance of 3.51. The APBD menu is useful for displaying information about the financing needs for each region. The same is the case with the previous menu for presenting information in a table consisting of several columns, including the regional column, nominal in Rupiah, airport, seaport, and the distance between the airport and seaport in kilometers. Some examples of APBD data show the capital expenditure for several regions. Semarang has a value of 1,274,940,532,901,00, with the name Achmad Yani airport and the port name Tanjung Emas, both of which have a distance of 6.13 km. After analyzing the APBD data for capital expenditure needs, it can be concluded that the Surabaya City area has the highest value with a nominal value of 2,517,973,748,885.00. While the lowest value is recorded for the Biak Numfor Regency area with a nominal value of 45,531,533,345.00 with the port name Frans Kaisiepo (Biak Numfor) and the port name Biak, both of which have a distance of 3.51 between them. In the APBD menu for regional investment needs, it is useful to display information on the regional investment budget of each region. The same is the case with the previous menu for presenting information in a table consisting of several columns, including the regional column, nominal in Rupiah, airport, seaport, and the distance between the airport and seaport in kilometers.

5. CONCLUSION

This e-mobility app has six primary menus: airport, seaport, terminal, station, regional GDP, and info. Naturally, each menu will display different information based on the available data. The e-mobility application is responsively designed to allow users to access it from a variety of mobile devices and desktops. the number of units, GT number, arrivals, departures, national unloading and international loading. The seaport menu shows a digital map, making it easier for users to access or search ports. This e-mobility software employs a Google Maps digital map service. When the hot spot point is clicked, information about the port's name and location appears. The station menu shows the locations of train stations in various regions. The station menu will also be displayed on a digital map, making it easier for users to find train stations near them. The terminal menu shows the location of bus terminals in various locations. The terminal menu will also be provided in a digital map, making it easier for customers to find bus terminals near them. The Regional GDP menu displays information about a region's GDP. Like the preceding menu, the information is presented in a table with columns for the region name, nominal in billions of Rupiah, airport, port, and distance between them. The relevance of regional government budget revenues and expenditures cannot be

overlooked (APBD). Infrastructure development leads to a boost in regional revenue and investment. An overview of the Regional Government Budget Revenues and Expenditures, abbreviated as APBD, can be found here. The APBD menu has five sub-menus: APBD Expenditures, APBD Goods & Services, APBD Capital, APBD for finance, and APBD for regional investment. Naturally, each menu's purpose and data presentation will vary.

6. RESEARCH IMPLICATIONS

The present study has several research implications. The new e-Mobility mobile application will minimise the need for car travel, preventing unnecessary excursions, and reducing the distance travelled or time spent stuck in traffic both to and from destinations. Moreover, in order to address climate change implications of both utility and tourism-related travel, it is believed that travel behaviour reform should be a key policy priority. Evidence to date suggests that behavioural interventions to reduce the use of automobiles and the distance travelled for tourism are only partially successful in achieving their goals (Villa-González et al., 2018). As a result, mobile media presents an exciting new area of investigation. Ravi et al. (2019) identified personalised trip planning as the most effective policy for affecting behaviour change, and the e-Mobility android app is a useful tool for putting this policy into practice.

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