

Digital Transformation & Innovation: Efforts to Unlock Prosperity in The Riau Islands

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Abstract. The Riau Islands Province, characterized by its island geography and rich natural resources, faces geographical challenges and climate change vulnerabilities. This study examines the progress of digital transformation and innovation, focusing on governance and public services changes. This study used qualitative methods with library research techniques. The integration of digital transformation and regional innovation plays a crucial role in improving the quality of life for island communities, developing resources, and creating economic opportunities and prosperity. This is evident in the dynamics of the Digital Competitiveness Index and Regional Innovation Index, which serve as performance indicators for the Provincial Government's commitment to achieving inclusive and sustainable development. The Provincial Government of Riau Islands has made significant efforts in developing digital infrastructure, with several regencies and municipalities receiving Innovative Government Awards for their accomplishments in the border region category. In conclusion, despite various challenges, digital transformation and regional innovation are of great significance for the progress of the Riau Islands Province, particularly when managed collaboratively across sectors, professionally, transparently, accountably, and responsibly for the benefit of the island communities.

Keywords: Digital Transformations, Regional Innovation, Prosperity, IGA, and Riau Islands Province

1 Introduction

Islands and archipelagos often face unique challenges in efforts to increase the prosperity of their communities. Limited access and resources, as well as vulnerability to climate change, are problems that are often faced.[1] There are five main problems which are also experienced by the Riau Islands Province, namely poverty, underdevelopment, dependency, underdevelopment and isolation. The Riau Islands Province, an archipelagic region rich in cultural heritage and natural resources, faces various challenges, such as geographic isolation, limited economic opportunities, and vulnerability to natural disasters. Riau Islands Province is one of 8 (eight) provinces with an archipelagic character. Based on the Decree of the Minister of Home Affairs Number 100.1.1-6117 of 2022 concerning Providing and Updating Codes, Data on Government Administrative Areas and Islands, it is stated that in the government administrative area of the Riau Islands Province there are 2,028 islands (Page 15 – Attachment).

The existence of these 2,028 islands represents strategic potential. However, accessibility and geographical challenges have become obstacles to developing the regional potential of the Riau Islands.

Riau Islands Province actively applies digital technology and encourages innovation to overcome its development challenges. Even though efforts have been initiated to modernize information technology, increase connectivity and create innovation, a deeper understanding of the importance of equitable progress is still needed to achieve sustainable development goals and ensure maximum benefits for society and the environment. Therefore, this research aims to determine the development of digital transformation and innovation in the Riau Islands.

The Riau Islands, with their unique characteristics in the form of frontiers between countries, vast seas, and a series of large and small islands, result in additional challenges in economic development, improving community welfare, and preserving the natural environment. Apart from that, the Riau Islands Province still faces various challenges to economic development, including limited access to resources, infrastructure and markets. These challenges are exacerbated by the archipelagic character, which creates logistical challenges due to the long distances between islands and between regions. It should be acknowledged that the existence of the Riau Islands Province in the border area between countries means that several of its islands are far from the provincial capital or district/city, so they tend to be isolated and remote. The vast dominance of maritime areas also results in limited economic opportunities, which contributes to poverty.

After the COVID-19 pandemic, digital transformation and regional innovation have become strategic aspects. Economic and social development through technology, innovation and investment are important elements that revive the business sector and reduce its negative impacts.[2] On the other hand, the quality of regional development planning (PPD), which is supported by the availability of data/information that is accurate, complete, up-to-date and based on digital technology and innovation, makes it easier to measure regional government performance as in the Regional Government Information System (SIPD).[3] There are various advances in digital transformation and regional innovation that can open up prosperity for the people of the Riau Islands. Even though the creation of structures and strategies in digital transformation and innovation efforts has gone well, the development of systems and networks based on multi-actor development still faces obstacles and difficulties, especially in optimal coordination, synergy and sharing roles between actors.[4]

Technological intervention provides a strong foundation for the program to improve the economic construct of local communities in the Riau Islands Province.[5] This means that the use of digital technology for tourism-based regional development can be done through product marketing for the branding process of local areas (islands and archipelagos) for visitors to tourist attractions in the Riau Islands province. Bank Indonesia (2019) emphasized that digital innovation drives economic democratization increases efficiency through wider access to information, and creates new business and industrial models as a source of economic growth. The integration of digital technology and regional innovation spurs business efficiency, increases productivity, expands global market access, and supports inclusive development, opening up better economic opportunities for all people in the region.

Apart from economic growth, digital technological transformation combined with regional innovation impacts social development in the Riau Islands Province. This means that digital

technologies influence access to education, changes in lifestyle and social relationships in island communities. Setiawan (2017) states that the development of the contemporary Indonesian digital generation has a great influence on social change. Currently, the younger generation who are becoming "digital natives" are facing major changes in the way they think, interact and form social relationships.[6] However, excessive exposure to technology also risks trapping them in cyberspace and losing touch with reality. In this context, provincial government, educational institutions, and especially families are expected to provide comprehensive guidance to the younger generation, help face digital challenges wisely, and promote a critical attitude in responding to social change in the digital era.

Digital transformation, supported by technology and innovation, is the main driver of change in various contexts, including in business, and influences all aspects of human life through the use of technology and digitalization.[7] Technology and innovation are seen as tools that can overcome several challenges that may arise in island areas, such as problems with physical access and access to public services. Regional digital transformation and innovation efforts aim to achieve balanced sustainable development by paying attention to economic, social, cultural and environmental dimensions. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their needs.[8] This means that sustainable development has a crucial role in the long-term welfare of the island region and the environment. Sustainable development seeks to improve the welfare of society and meet the needs of current and future generations. The focus is on equal distribution of development benefits, preservation of natural resources, sustainable and inclusive economic growth, quality of life between generations, and an integrative approach.

Innovation and technology play a role in changing society and the economy in the island region. Through collaboration, harmony and solidarity in society, technological innovations emerge that change the economy and create revolutionary new business products.[9] This is driven by social intelligence and creativity which is able to create new product innovations in society.

Digitalization requires the availability of digital infrastructure and skills in various economic sectors to achieve sustainable development. The focus is on the benefits of unique assets in the Riau Islands. In this context, developing community capacity is the key to increasing public digital skills. Community capacity development is a process where communities work together to identify and fulfil their needs and aspirations in accordance with advances in digital technology.

Theoretically, innovation and technology encourage the role of digital technology and regional innovation in changing society and the economy in the Riau Islands Province. Digitalization is a key element in improving business efficiency, market access and public services. Digitalization, which includes improving digital infrastructure, accessibility and digital literacy, is oriented towards solutions to challenges in economic, social, cultural and other aspects through strengthening digital infrastructure and skills. So, it is hoped that digital transformation will increasingly penetrate the government bureaucracy collaboratively with the business sector and society in the Riau Islands Province.

The importance of collaboration and community participation in the development process (Riyanto & Kovalenko, 2023). Here, public participation is key to achieving a welfare state but faces challenges such as lack of engagement, differing views, and limited resources. For this

reason, the Government is obliged to strengthen cooperation with the community ensure transparency and accountability in resource management while encouraging public awareness of the importance of an active role in realizing shared prosperity.

Practically, the application of digital technology and regional innovation has gone well in the Riau Islands Province. The Riau Islands Provincial Government is increasingly improving its value proposition to attract international investment and achieve sustainable development targets, even though it needs to overcome the challenges of digitalization and regional development. This study examines key issues relevant to digital transformation and innovation in the Riau Islands, namely how digital transformation and regional innovation result in changes to government governance and public services. This is because the Riau Islands Province is unique, such as its abundant natural resources and strategic location as Indonesia's maritime gateway. However, it still has to overcome obstacles to digitalization and regional development. As illustrated in the study on Bintan Island, digital transformation and regional innovation are important instruments for managing natural resources and the environment in a sustainable manner (Irawan, 2013). This further enhances the region's value proposition and attracts investment in the right sectors, helping to address the problem. Will digital transformation and regional innovation have a great opportunity to overcome these challenges and unlock prosperity?

2 Methods

This study uses a qualitative approach with data collection techniques focused on library research. This is done by reading and examining references and collecting data through a number of articles, documentation, books, reports and publications that are relevant to digital transformation and regional innovation dynamics in the Riau Islands Province. Data needs include Digital Literacy, the Regional Innovation Index (IID), and the Innovative Government Award (IGA) in the Riau Islands Province within a period of 5 (five) years (2018-2022). Apart from that, it also explores the challenges and opportunities of digitalization, the role of digital technology in improving government administration and social welfare, and the policies and initiatives needed to support digital transformation and regional innovation.

In the data analysis process, Content Analysis Techniques are used, namely efforts to discuss in depth the contents of reports, the substance of documents, and the main points of discussion in scientific journal articles and reference books. This analysis focuses on identifying key themes and trends regarding digital transformation and regional innovation dynamics to provide insight to stakeholders and recommendations for policymakers, namely the Regional Government of Riau Islands Province.

3 Results and Discussion

The Riau Islands are an archipelagic area with unique and natural development problems and challenges. The vast dominance of the sea is illustrated in the Riau Islands Provincial Government Administrative Area Map in Figure 1, juxtaposed with the NKRI Map (Figure 2). This is intended as literacy and education on territorial aspects in the Riau Islands region. Based

on the 2017 NKRI map update, the zone in the northern part of the Natuna Sea is now called the North Natuna Sea.

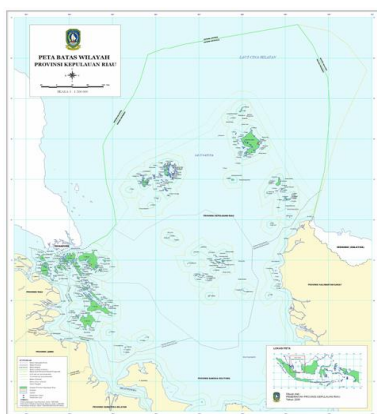


Figure 1.

Map of Riau Islands Province

<https://ppid.kepriprov.go.id/resources/informasi publik/1/LPPIJ Provinsi Kepulauan Riau Tahun 2021 .pdf>



Figure 2.

Latest Map of the Unitary State of the Republic of Indonesia (NKRI).

<https://katadata.co.id/anshar/infografik/5e9a562fa824f/peta-baru-nkri>

Territorially, the geographical conditions of the land are distributed over 2,028 islands. This situation is certainly the cause of limited accessibility. This is where digital transformation and innovation are the main keys to creating new opportunities that can improve people's quality of life, optimize the use of natural resources, overcome challenges by creating new economic centres, and develop other valuable potential.

Digital transformation in the context of efforts to unlock prosperity is further highlighted by the digital competitiveness index, abbreviated as DCI and published by East Ventures (EV) since 2020. In particular, the dynamics of regional innovation will be examined through 2 (two) activities, namely: 1) Measurement of the Regional Innovation Index (IID) and 2) Innovative Government Award (IGA) assessment. These two activities have been held regularly by the Ministry of Home Affairs since 2018.

2.1 Empirical Conditions of Regencies/Cities in the Riau Islands Province

The Riau Islands Province was formed based on Law Number 25 of 2002 concerning the Establishment of the Riau Islands Province - 32nd Province on September 24 2002. Empirically, it is an archipelagic region located in the Northern Maritime Border Area of Indonesia, where it borders Vietnam and Cambodia, Malaysia and Singapore, which, of course, have varying levels of accessibility. This emphasizes how digital transformation is necessary if regional governments want to accelerate the increase in inter-island and inter-regional connectivity. The massive use of digital technology will facilitate more efficient, effective and economical communication and transportation, especially in the mobility of people and the delivery of goods/services to/from remote islands in the region.

The regional existence of the Riau Islands Province along with its Regencies and Cities was presented in Table 1.

Table 1. Description of the Archipelago Region in the Riau Archipelago Province

Regions	Area (Km ²)	Percentage (%)	Total				
			District	Sub-District	Rural	Island	Population ^{*)}
Bintan Regency	1.317,149	15,93	10	15	36	263	169.447
Karimun Regency	930,453	11,25	14	29	42	248	262.075
Natuna Regency	1.999,155	24,17	17	7	70	172	82.824
Lingga Regency	2.210,819	26,73	13	9	75	628	102.150
Anambas Islands Regency	627,027	7,58	10	2	52	239	48.084
Batam City	1.034,732	12,51	12	64	0	453	1.207.082
Tanjung Pinang City	150,373	1,82	4	18	0	8	229.553
Riau Islands Province	8.269,708	100,00	80	144	275	2.028	2.101.215

Source: Decree of the Minister of Home Affairs Number 100.1.1-6117 of 2022 concerning Providing and Updating Codes, Data on Government Administrative Areas, and Islands, Dated 9 November 2022, and Riau Islands Province in 2023– Statistics Indonesia of Riau Island Province, Data is processed. 2023.

*) Population figures come from the Directorate General of Population and Civil Registration, Ministry of Home Affairs (Population Data for Semester I, June 2022)

Table 1 informs the characteristics of the Riau Archipelago region, where ideally, the regional development planning process is more specific and oriented towards optimizing marine resources, developing water potential, and strengthening the function of the islands or archipelagos. In an effort to realize sustainable development in the archipelagic region, the use of the internet, Internet of Things (IoT), and digitalization are vital tools in optimizing natural resources, local wealth, and community participation. With an innovation-based approach, island regions can accelerate progress, create independence, increase competitiveness and improve community welfare [10].

In line with establishing autonomous regions, the role of innovation and digital transformation is not only to bring efficiency but also to make archipelagic countries more prosperous through the use of local wisdom and natural resources, with comprehensive and sustainable community support and participation in various aspects of archipelagic regional development. Archipelagic development requires alignment with the digital transformation agenda and mapping the innovation needs of each district/city regional government in the administrative area of the Riau Islands Province. The aim is to achieve sustainable development and environmental sustainability to prevent disasters.

2.2 Digital Competitiveness of the Riau Islands Province

Based on the 2020 Insight Report East Ventures Digital Competitiveness Index (EV-DCI), research and mapping of digital competitiveness was carried out at the provincial, district and city levels. EV-DCI at the city and district level calculates digital competitiveness in 157 cities and districts. Specifically, the results of measuring the digital competitiveness index for the Riau Islands Province in the period 2020-2023 are shown in Table 2 below.

Table 2. East Ventures Ranking – Digital Competitiveness Index for Riau Islands Province

Regions	Ranking and (Digital Competitiveness Index Score) by Year						Description
	2018	2019	2020	2021	2022	2023	
	Bintan Regency	-	-	-	-	-	
Karimun Regency	-	-	-	-	-	-	-
Natuna Regency	-	-	-	-	-	-	-
Lingga Regency	-	-	-	-	-	-	-
Anambas Islands Regency	-	-	-	-	-	-	-
Batam City	-	-	28 (41,9)	25 (51,5)	-	-	Batam City is the City of Choice out of 24 Cities and 157 Districts/Locus Measurement Cities
Tanjung Pinang City	-	-	-	-	-	63 (32,7)	Selected Cities to Be Measured in 2023
Riau Islands Province	-	-	10 (35,9)	7 (43,0)	8 (40,8)	8 (45,9)	Measurements throughout the Province periodically since 2020.

Source: East Ventures – Digital Competitiveness Index from 2020-2023. Data Processed. 2023.

East Ventures analysis results [11] as the data presented in Table 2 shows that since 2020, the Riau Islands Province has actively carried out digital infrastructure development and achieved significant progress. The position of the Riau Islands Province, which is ranked 8th, shows the stability of its position as in the previous year (2022) in measuring the performance of digital transformation and regional innovation. This achievement was driven by the pillar of information and communication technology (ICT), which contributed the most to the assessment. The Riau Islands Provincial Government has also taken strategic steps to overcome connectivity challenges in its region, namely adding 77 BTS (Base Transceiver Station) through the BAKTI program of the Ministry of Communication and Information and collaborating with the private sector to expand the internet network.

At the same time, to accelerate digital transformation, the Riau Islands Provincial Government has also inaugurated various applications that support digitalization initiatives and public services. The Trading Together with the Creative Economy (Gema Ekraf) application was released to help market MSMEs and creative economy players. The Riau Islands Province Communication and Informatics Service (Diskominfo) also launched several applications, including "JapriGub". An application that functions as a complaint channel and a means for the community to convey their aspirations to the Governor. These efforts reflect the Riau Islands Provincial Government's commitment to utilizing digital technology and regional innovation to improve public services, expand access and facilitate connectivity, as well as support economic growth in the Riau Islands region.

Through the right approach, digital technology can be optimized to unlock economic potential, develop human resources, increase access to important services, and improve the quality of life for island communities. In the context of archipelagic regional development, blue economy principles encourage innovation, community participation, optimization of local resources, and sustainable local wisdom-based technology (Saksono, 2013). Technology that utilizes natural resources and even waste is directed at the creativity and economic benefits that are environmentally friendly and meet local needs. In essence, this is a representation of digital competitiveness. The higher digital competitiveness of a region has the potential to unlock prosperity by increasing its regional value proposition, overcoming the challenges of digitalization and regional development, and taking advantage of sustainable development opportunities while accommodating cultural diversity in existing systems and norms. This perspective emphasizes the need for coordination and collaboration between regional governments, regional government associations and other related institutions in regional management, especially in areas with island characteristics. This means that with the right approach, good strategy, and the right time, digital technology and innovation can be used to accelerate economic growth, increase access to education, and improve the quality of life of people in the Riau Islands Province.

The development of e-government in Indonesia has not been maximized, with Indonesia's performance in the E-Government Development Index (EGDI) tending to lag behind other ASEAN countries. The main obstacles to e-government implementation include weak leadership, limited human resources, digital divide, lack of coordination, and inadequate regulations. Unsupportive leadership factors and work culture are often the main obstacles to adopting e-government at the local level [1].

In 2023, the Riau Islands Province will be ranked 8th with a score of 45.9 in the Digital Competitiveness Index (EV-DCI). Even though it is not at the top, its existence is worth considering because it has the potential for digital competitiveness in Indonesia. In line with this, from an urban perspective, Batam City also shows its existence as a city with significant digital activity. Economic development, infrastructure conditions and more adequate investment in digital technology may be the triggering factors. This differs from the situation in other districts/cities, which have not been chosen as a locus for assessing digital competitiveness, so they do not have a ranking in the EV-DCI. However, it is hoped that this can be carried out in the next assessment so that a reference can be provided for developing regional government administration in terms of digital transformation in the islands.

2.3 Regional Innovation Index (IID) and Innovative Government Award (IGA)

A year after the enactment of Government Regulation (PP) Number 38 of 2017 concerning Regional Innovation, on December 7, 2018, the Government promulgated Minister of Home Affairs Regulation No. 104 2018 concerning Assessment and Providing Awards and/or Regional Innovation Incentives. This policy has succeeded in motivating regional innovation initiators, thus triggering the growth rate of regional innovation in each regional Government. When viewed from its geographical location and regional characteristics, the district/city governments in the Riau Islands Province are innovative. This can be proven from the Regional Innovative Index for all districts/cities in the Riau Islands region, including the Regional Government of Riau Islands Province, as shown in Table 3 below.

Table 3. Basis for Implementation and Determination of IID and IGA

No.	Year	Measurement of the Regional Innovation Index (IID)	Assessment of Innovative Government Awards (IGA)
1.	2022	Minister of Home Affairs Decree No. 400.10.11-6301 of 2022 Concerning. 2022 Provincial, Regency and City Regional Innovation Index, dated December 21, 2022	Minister of Home Affairs Decree No. 400.10.11-6302.A of 2022 concerning Recipients of the 2022 Innovative Government Award, Dated December 21, 2021
2.	2021	Minister of Home Affairs Decree No. 002.6-5848 of 2021 Concerning. 2021 Provincial, Regency and City Regional Innovation Index, dated 23 December 2021	Minister of Home Affairs Decree No. 002.06-5846 of 2021 concerning Recipients of the 2021 Innovative Government Award, Dated December 23, 2021
3.	2020	Minister of Home Affairs Decree No. 100-4672 of 2020 Concerning. 2020 Provincial, Regency and City Regional Innovation Index, dated December 16, 2020	Minister of Home Affairs Decree No. 002.06-6871 of 2020 concerning Recipients of the 2020 Innovative Government Award, Dated December 16, 2020
4.	2019	Minister of Home Affairs Decree No. 002.6-115 of 2019 concerning Preparation of Regional Innovation Index Measurement Results at the Regional Innovation Research and Development Center of the Research and Development Agency of the Ministry of Home Affairs for the 2019 Fiscal Year, dated November 20, 2019	Minister of Home Affairs Decree No. 002.06-5315 of 2019 concerning Determination of the Ranking of the 2019 Innovative Government Award Winners, Dated (No Date)
5.	2019	Letter from the Head of the Research and Development Agency of the Ministry of Home Affairs Number 002.6/3445/LITBANG, Dated August 22, 2019, Regarding the Results of the 2018 Regional Innovation Index	-

No.	Year	Measurement of the Regional Innovation Index (IID)	Assessment of Innovative Government Awards (IGA)
6.	2018	Minister of Home Affairs Regulation Number 104 of 2018 concerning Assessment and Awarding of Awards and/or Regional Innovation Incentives, Dated November 7, 2018	
7.	2017	Government Regulation (PP) Number 38 of 2017 concerning Regional Innovation, Dated September 14, 2017	
8.	2016	Minister of Home Affairs Regulation Number 17 of 2016 concerning Guidelines for Research and Development within the Ministry of Home Affairs and Regional Government, Dated April 1, 2016	
9.	2014	Law Number 32 of 2014 concerning Regional Government, Dated October 17, 2014	
10.	2012	Joint Regulation of the Minister of State for Research and Technology and the Minister of Home Affairs Number 03 of 2012 and Number 36 of 2012 concerning Strengthening Regional Innovation Systems; Becoming the forerunner of regional innovation and known as SiDa, dated April 25 2012	
11.	2011	= Minister of Home Affairs Regulation Number 20 of 2011 concerning Guidelines for Organizing Research and Development within the Ministry of Home Affairs and Regional Government, Dated 11 May 2011.	

Source: Various sources. Data Processed. 2023.

Looking at Table 3, a number of regulations/policies have been issued at the national level aimed at stimulating the creation of innovation, growing regional innovation ecosystems, and opening public innovative spaces that support regional innovation. However, in contrast, the ranking and statutes of highly innovative regions as measured by the Regional Innovation Index (IID) do not meet the expectations of each region.

IID and IGA data highlight local government innovation throughout Indonesia. Because innovation is a key element in digital transformation and sustainable development, this means that regional innovation and its replication can encourage the implementation of proper governance, overcome various challenges while improving public services and administrative efficiency of regional government administration, and create regional competitiveness within the framework of regional autonomy goals. The dynamics of IID throughout 5 (five) years that occurred in the Riau Islands Province are shown in Table 4.

Table 4. Dynamics of the Regional Innovation Index (IID) of Riau Islands Province

Regions	Ranking and Status of Local Government Innovation by Year				
	2018 ^{a)}	2019	2020	2021	2022
Bintan	203	279	20	45	87
Regency	Not yet Filled in Data	Not yet Filled in Data	Very Innovative	Innovative	Innovative

Karimun Regency	- No Available	Data Not yet Filled in Data	280 Not yet Filled in Data	230 Less Innovative	243 Innovative	182 Innovative
Natuna Regency	191 Not yet Filled in Data	283 Not yet Filled in Data	73 Very Innovative	106 Innovative	267 Innovative	
Lingga Regency	- No Availabel	Data Not yet Filled in Data	282 Not yet Filled in Data	345 Less Innovative	294 Less Inovative	219 Innovative
Anambas Islands Regency	148 Not yet Filled in Data	281 Not yet Filled in Data	302 Less Innovative	208 Innovative	295 Less Innovative	
Batam City	22 Very Innovative	77 Very Innovative	26 Very Innovative	63 Innovative	61 Innovative	
Tanjung Pinang City	- No Available	Data Not yet Filled in Data	278 Not yet Filled in Data	74 Less Innovative	39 Less Innovative	65 Innovative
Riau Islands Province	20 Less Innovative	24 Less Innovative	14 Very Innovative	22 Innovative	30 Innovative	

Source: Decree of the Minister of Home Affairs regarding the Regional Innovation Index from 2019 to. 2022. Data Processed. 2023.

*) Letter from the Head of the Research and Development Agency of the Ministry of Home Affairs Number 002.6/3445/LITBANG, Dated August 22, 2019, Regarding the Results of the 2018 Regional Innovation Index.

Table 4 presents years' records that are benchmarks for the level of regional innovation in the Riau Islands Province. This measurement helps assess the extent to which a region has developed in 7 (seven) areas of regional innovation, namely: 1) Administrative Innovation, 2) Management Innovation, 3) Policy Innovation, 4) Social Innovation, 5) Technological Innovation; 6) Frugal Innovation; and 7) Micro Innovation. This situation shows that in one lustrum (5 years), there has been significant progress in the IID of all Regency/City Regional Governments in the Riau Islands region, including that experienced by the Regional Government of the Riau Islands Province.

Realistically, IID indicates how regional governments have succeeded in creating innovations, replicating, and/or adopting regional innovations into their regional government services and administration. Through the IID ranking, it can also be seen the commitment of the Regional Government to encourage innovation in the Riau Islands Province because IID is a measurement and reward reference that can motivate the development of initiatives and

innovations by the five regional innovation initiators. In essence, this will encourage the creation of a conducive climate that supports the growth of the regional innovation ecosystem and encourages progress that can open up prosperity in regions with an archipelagic character.

The data also proves that there has been a change in the status of innovation in each regional government. This makes it possible to see the developments and efforts made by LGUs in increasing their level of innovation. For example, several local governments have progressed from "Less Innovative" to "Innovative" status, even "Very Innovative" or vice versa. The IGA assessment refers to awards for regional governments that perform superiorly in terms of regional innovation. IGA results reflect the extent to which regional governments have successfully implemented regional innovations in governance, public services, and other forms of innovation. The dynamics of IGA in the Riau Islands Province for the period 2019-2022 are shown in Table 5.

Table 5. Dynamics of the Innovative Government Award (IGA) of the Riau Islands Province

Regional Government	Local Government Rankings by Year					Description
	2018	2019	2020*	2021*	2022*)	
Bintan Regency	-	-	1	2	1	The Most Innovative Border Area Category Awarder 2020, 2021, 2022
Karimun Regency	-	-	-	-	5	The Most Innovative Border Area Category Awarder 2022
Natuna Regency	-	-	3	-	-	The Most Innovative Border Area Category Awarder 2020
Lingga Regency	-	-	-	-	-	-
Anambas Islands Regency	-	-	-	-	-	-
Batam City	-	-	-	-	4	The Most Innovative Border Area Category Awarder 2022
Tanjung Pinang City	-	-	-	-	-	-
Riau Islands Province	-	-	-	-	-	-

Source: Decree of the Minister of Home Affairs regarding Determining the Ranking of Innovative Regional Government Award Winners from 2019 to 2022. Data processed. 2023.

The IGA award recognizes the innovative efforts and digital transformation that the Regional Government has carried out to date. Therefore, success in achieving IGA proves the strong commitment and concern of the Regional Government in efforts to improve the quality of public services, administrative efficiency, and increase public capacity in living life in the digital era. Even though the Riau Islands Province has not succeeded in winning the award, several Regency/City Governments in the Riau Islands Province have won the IGA Award in

the "The Most Innovative Border Area" category. Of course, IGA has become very prestigious for several reasons, namely: 1) expressing strong commitment and leadership; 2) becoming a symbol of established thinking, inspiration, imagination, and innovation; 3) a manifestation of persistence in concern for breaking through space and time through innovation; 4) cohesiveness and interaction between regional governments to synergize and collaborate to open up space and opportunities for innovation; 5) establishing a collaborative climate between the Regional Government and the Public to create innovation and realize it in regional government governance; 6) the degree of progress of the Regional Government, especially its readiness and resilience to manage the challenges of economic development and improving community welfare; and 7) strengthening the existence of regional identity and role identity, especially areas with archipelagic character which are located on the front porch of the NKRI Border Area (frontliner).

The series of data in Table 5 emphasizes the importance of the Riau Islands Provincial Government to immediately grow a regional innovation ecosystem supported by place-based policies and evidence-based policies as well as research-based planning. Research-based planning is a crucial foundation in improving the effectiveness of regional government administration, ensuring development programs meet community needs, and encouraging the achievement of regional government visions and missions that are welfare-oriented, sustainable development, and inclusive [13].

Digital transformation is important in helping the Riau Islands Province overcome challenges and unlock its potential. Digital technology combined with innovation will play an important role in the transformation of the development of the Riau Islands Province and unlock new economic potential, educational progress, and community empowerment in the Riau Islands region, thereby encouraging the growth of new economic centers which are very meaningful, especially for the regions islands whose geographic location is in the Inter-State Border Area. The regional innovation ecosystem is realized in the form of an "Innovation Hub" (I-Hub), which, in its operation, functions as a forum that connects researchers, innovators, policymakers, regional leaders, industry players, and beneficiary communities. Activities can take place both online and offline, facilitating collaboration between various parties without the obstacles of bureaucratic hierarchy, creating an environment that stimulates creativity and innovation [14].

I-Hub is the starting point for strengthening the innovation platform, which is focused on using digital technology to develop the potential for maritime and island wealth and excellence. Digital technology has great potential to digitize prosperity and accelerate development in the archipelago region. It has the potential to unlock prosperity through increasing the value proposition of the Riau Islands Province, overcoming the challenges of digitalization and regional development, and taking advantage of sustainable development opportunities. In this way, inclusive and sustainable development will increasingly be realized, accompanied by digitalization, an important principle for developing the Riau Islands Province.

In the end, although digital transformation and regional innovation have been well initiated and executed since 2018, challenges are still found in adopting digital technology and specific innovations, especially issues of accessibility and digital literacy. Digital technology in this context is not a manufacturing industry that is massive and capable of absorbing a large capacity workforce. This means that without professionalism, creativity, and innovation, digital

technology is not fully capable of producing various commercial goods/services to improve people's welfare. This perspective emphasizes the need for guidance from the Central Government with island-based policies. This is because digital transformation requires a large budget due to the high cost of infrastructure, so it requires policy support so that it can be implemented in island areas. It is feared that uneven infrastructure development and digital transformation will trigger information gaps, social jealousy, and uncontrolled conditions in the islands.

4 Conclusions and Recommendations

4.1 Conclusions

Digital transformation and regional innovation are important in advancing island regions and optimizing community potential as long as they are managed professionally, transparently, accountably, responsibly, and sustainably. Integrating digital transformation and regional innovation is the key to change that can overcome challenges and open development opportunities toward prosperity in the Riau Islands Province. Collaboration between the Government, Regional Government, Regional Government associations, the private sector, and other entities is necessary to manage the potential of the Riau Islands region inclusively and sustainably.

The Riau Islands Provincial Government continues to carry out digital transformation and innovation because both have a central role in managing challenges and increasing the potential for prosperity in the Riau Islands Province. Digital transformation and regional innovation are seen as capable of overcoming the problems of poverty, underdevelopment, dependency, backwardness, and isolation of archipelagic regions in border areas between countries more effectively and inclusively. These advances further expand access to public services, grow the economy, and reduce the technology gap, as well as create local solutions that suit the needs of local communities. The integration of digital transformation and regional innovation has led the Riau Islands Province to broader and more sustainable prosperity.

4.2 Recommendations

In an effort to accelerate the achievement of digital transformation and regional innovation, steps are needed to promote digital literacy, develop digital infrastructure, and support the implementation of innovation in island regions. In addition, policymakers and stakeholders in the Riau Islands Provincial Government can synergize and strengthen collaboration to develop and implement a comprehensive legal framework for digitalization and sustainable development in the Riau Islands Province that can guide resource, infrastructure, and market management.

The legal framework for digitalization and sustainable development in the Riau Islands Province must be based on the principles of sustainable development and digitalization and accommodate the diversity of legal systems and norms. The legal framework for digitalization and sustainable development in the Riau Islands Province must support the long-term well-being of local communities and the environment and must emphasize promoting digital literacy, developing digital infrastructure, and supporting innovation in the Riau Islands Province.

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