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Revolutionizing Regional Trade: Digital Logistics in Thailand's Eastern Economic Corridor (EEC)

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Abstract

The Eastern Economic Corridor (EEC) in Thailand is poised to revolutionize regional trade focusing on digital logistics. This paper delves into how the EEC, leveraging its prime location in Southeast Asia and integrating advanced technologies, transforms Thailand into a key logistics hub. The strategic importance of the EEC's location in the economic heart of Southeast Asia offers unmatched global connectivity. The paper explores the integration of emerging digital technologies such as cloud computing, the Internet of Things (IoT), and Artificial Intelligence (AI) in logistics. These technologies enhance operational efficiency, resource optimization, and decision-making, leading to a more efficient and resilient logistics system.

However, the challenges in maximizing the benefits of digital logistics are also addressed. Key among these is the need for robust infrastructure, including high-speed internet and data centers, essential for smooth data exchange and advanced logistics operations. The importance of public-private partnerships in driving infrastructure development and fostering innovation is highlighted. Addressing the talent gap through workforce development programs is crucial to ensure a skilled workforce capable of managing advanced logistics technologies. Modernizing regulations to support digital logistics businesses, attract foreign investment, and create a thriving ecosystem is also emphasized.

The paper concludes by underscoring the transformative impact of digital logistics on regional trade and economic growth in Southeast Asia, highlighting Thailand's potential to become a leader in the ASEAN economic landscape through the effective implementation of digital logistics strategies.

Keywords: Eastern Economic Corridor (EEC), Digital Logistics, Economic Development

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Introduction

The development of logistics systems in Thailand has been a critical focus for enhancing the efficiency and competitiveness of the country's economy. The logistics system encompasses a broad range of activities, including transportation, warehousing, inventory management, order processing, and distribution management, all of which play a vital role in the smooth operation of both domestic and international trade (Thai Logistics Association, 2021).

One of the key strategies for logistics development in Thailand has been the government's investment in infrastructure. The construction of new highways, expansion of ports, and upgrades to rail and air transport networks are aimed at reducing transportation costs and improving connectivity within the country and with its neighbors. This infrastructure development is supported by the Thailand 4.0 policy, which seeks to transform the country into a value-based economy with a strong focus on technology, innovation, and sustainability (Office of the National Economic and Social Development Council, 2020).

Moreover, Thailand is strategically positioned as a logistics hub in the ASEAN region, offering opportunities for the country to enhance its logistics and supply chain management systems further. The adoption of digital technology in logistics, such as the use of blockchain for tracking and tracing goods, artificial intelligence for inventory management, and the Internet of Things (IoT) for enhancing the efficiency of logistics operations, is increasingly becoming a priority (Department of International Trade Promotion, 2021).

The Thai government has also initiated several policies to support the logistics sector, including incentives for logistics service providers, the establishment of Special Economic Zones (SEZs) for logistics activities, and the promotion of Public-Private Partnerships (PPPs) in logistics infrastructure projects (Ministry of Commerce, 2021).

In conclusion, the development of the logistics system in Thailand is crucial for the country's economic growth and competitiveness. The continuous investment in infrastructure, adoption of digital technology, strategic geographic location, and supportive government policies are key factors driving the advancement of Thailand's logistics sector.

The logistics sector in Thailand in 2022 has demonstrated significant economic contributions and evolving cost dynamics, reflective of broader economic trends and global supply chain shifts. The value-added by the logistics business is estimated at approximately 517.5 billion baht in 2022, marking an increase of about 4.6%. This growth is in alignment with the expansion of the Gross Domestic Product (GDP) and the overall logistics cost implications. The logistics costs for the same year are projected to reach around 2,382.2 billion baht, accounting for 13.7% of the GDP. This represents a 5.8% increase from the previous year, largely influenced by sustained high transportation prices due to global supply chain adjustments.

For the year 2023, the logistics cost to GDP ratio is anticipated to slightly improve, ranging between 13.3% to 13.8%. This forecast is supported by the recovery of the service sector and tourism, alongside increased consumption and private sector investments. The breakdown of logistics costs reveals distinct components (Logistics Strategy Development Division, 2022):

- Transportation costs: Account for 6.6% of the GDP with a value of 1,152.4 billion baht, a 5.3% increase from 2021.
- Warehousing costs: Represent 6.1% of the GDP at 1,052.6 billion baht, rising by 6.39% from 2021.
- Management costs: Constitute 1.0% of the GDP, totaling 177.2 billion baht, up by 5.8% from 2021.

These figures underscore the logistical sector's critical role in Thailand's economy, highlighting the need for strategic planning and investment to optimize efficiency and support sustainable growth.

The Eastern Economic Corridor (EEC) serves as a pivotal component of the "Thailand 4.0" strategy, a development plan focusing on the eastern region of Thailand to significantly bolster economic and social advancements. The EEC extends the success of prior economic development plans in the Eastern region, setting objectives to foster economic growth through the development of five key industries: 1) modern automotive, 2) intelligent electronics, 3) health-oriented tourism, 4) aviation and logistics, and 5) digital industries.

In particular, the logistics business plays a vital role in efficiently linking and transporting goods and services from production sites to consumers. This sector not only helps in reducing costs and enhancing the competitiveness of Thai businesses and products in the global market but also significantly improves the efficiency of management and operations through the development of digital technologies. In an era of globalization and expanding free trade, having a modern and efficient logistics system becomes a critical factor in supporting the long-term growth of the Thai economy. Furthermore, the EEC's evolution into a significant economic nexus for the region and the world is substantially aided by these developments in the logistics sector.

The digital logistics business in the Eastern Economic Corridor (EEC) plays a crucial role in driving the economy within this region. This includes the transportation of goods and raw materials for various target industries, as well as cross-border transportation services within ASEAN countries. The adoption of digital technologies, such as the internet, artificial intelligence (AI), and blockchain, has greatly enhanced efficiency and reduced costs in logistics operations. Examples of digital technology applications in logistics include real-time tracking and monitoring of goods, warehouse management, and transportation management systems. These advancements significantly boost the competitiveness of target industries in the EEC by reducing costs, increasing efficiency, and rapidly responding to customer needs. Moreover, digital logistics businesses play a role in attracting foreign investments to the EEC. Having a modern and efficient logistics system is a key factor in driving the economy of special economic zones globally. Therefore, digital logistics is a primary strategy in promoting the economic development of Thailand through the EEC, forming a crucial part of the country's current development plan.

The competition of the digital logistics business in Thailand's EEC, especially when compared to other special economic zones in the ASEAN group, such as Malaysia's Iskandar and Vietnam's Quang Yen Special Economic Zone, is of great importance. Both of these zones have also been significantly promoted by their governments and have attracted substantial foreign investments. If Thailand cannot sufficiently strengthen its digital logistics business, it risks falling behind in the competition with other special economic zones in the region. This could lead to inefficiencies in attracting foreign investments to the EEC and may hinder the ability of the Thai economy to achieve its set goals.

When considering various factors affecting special economic zones (SEZs) in the ASEAN region, such as Thailand's Eastern Economic Corridor (EEC), Malaysia's Iskandar Special Economic Zone, and the Quang Yen Special Economic Zone, several key aspects should be taken into account.

In the following table, we provide a comprehensive comparison of three major special economic zones in the ASEAN region: Thailand's Eastern Economic Corridor (EEC), Malaysia's Iskandar Special Economic Zone, and Vietnam's Quang Yen Special Economic Zone. This

comparative analysis focuses on various critical aspects such as geographic advantages, infrastructure development, labor and technological readiness, and investment policies. The aim is to elucidate the unique strengths and potential challenges of each zone, offering a clear perspective on their roles in regional economic development and competitiveness (Eastern Economic Corridor (EEC), 2023; Socialist Republic of Vietnam, 2023; Kritsadathan, 2022; Kaewmanee, 2016).

Table 1 Comparative Analysis of Special Economic Zones in ASEAN: Thailand's EEC, Malaysia's Iskandar, and Vietnam's Quang Yen

Factor	EEC	Iskandar Special Economic Zone	Quang Yen Special Economic Zone
Geographic Location Factor	Located in three provinces, namely Chonburi, Rayong, and Chachoengsao, covering an area of 36,000 square kilometers, the Eastern Economic Corridor (EEC) is situated along the eastern coastline of Thailand, adjacent to the Gulf of Thailand. It is approximately 600 kilometers away from China and about 2,000 kilometers from Malaysia.	Located in the southern part of Johor state, Malaysia, the Iskandar Special Economic Zone covers an area of 2,217 square kilometers. It is situated along the western coastline of Malaysia, adjacent to the Strait of Malacca. The zone is approximately 30 kilometers away from Singapore and about 800 kilometers from Indonesia.	Located in the northern province of Quang Ninh, Vietnam, the area spans 2,060 square kilometers. It is approximately 150 kilometers northeast of Hanoi and 20 kilometers west of the coastal city of Hai Phong. It is situated along the eastern coastline of Vietnam, adjacent to the Gulf of Thailand. The zone is approximately 1,400 kilometers away from China and about 2,000 kilometers from South Korea.

Table 1 Comparative Analysis of Special Economic Zones in ASEAN: Thailand's EEC, Malaysia's Iskandar, and Vietnam's Quang Yen (Con.)

Factor	EEC	Iskandar Special Economic Zone	Quang Yen Special Economic Zone
Market Expansion Opportunities	The EEC possesses a high potential for market expansion in trade and investment due to its proximity to China, a large market with significant potential. Furthermore, The opportunities for market expansion and investment in the EEC include the manufacturing, service, and tourism industries.	The Iskandar Special Economic Zone (ISEZ) has significant potential for market expansion in trade and investment due to its proximity to Singapore, which is a key financial and logistics hub in the region. Additionally, ISEZ is located near Indonesia, a large market with high potential. The opportunities for market expansion and investment in the ISEZ include the manufacturing industry, service industry, and tourism industry.	The QYSZ has the potential to expand its market to countries in Southeast Asia, China, Japan, and South Korea. These markets are large and growing rapidly. The QYSZ can leverage its favorable geographic location to access these markets.

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Factor	EEC	Iskandar Special Economic Zone	Quang Yen Special Economic Zone
Infrastructure Factor in Transportation	The EEC possesses a well-developed transportation infrastructure, including Laem Chabang Port, Map Ta Phut Port, U-Tapao International Airport, Suvarnabhumi International Airport, and motorway networks. Additionally, plans include the development of a high-speed rail system that will connect three airports.	The Iskandar Special Economic Zone features a well-rounded transportation infrastructure, including the Tanjung Pelepas Port, Senai International Airport, and motorway networks. Future developments include a high-speed rail link between Singapore and Malaysia.	The QYSZ has a comprehensive and modern transportation infrastructure, including a deep-sea port, highways, and railways. The Dam Nha Mac deep-sea port is under construction and is expected to be operational in 2027. This port will be the second deep-sea port in Vietnam and will be a major trade gateway for the region. The highways and railways connecting to the QYSZ allow for the efficient and convenient transportation of goods and people. The QYSZ is approximately 150 kilometers from Noi Bai International Airport, which provides connectivity to cities around the world.

Table 1 Comparative Analysis of Special Economic Zones in ASEAN: Thailand's EEC, Malaysia's Iskandar, and Vietnam's Quang Yen (Con.)

Factor	EEC	Iskandar Special Economic Zone	Quang Yen Special Economic Zone
Labor and Technology Readiness Factor	The EEC exhibits moderate readiness in terms of labor and technology, with approximately 2.5 million highly skilled workers and ongoing development of new technologies.	The Iskandar Special Economic Zone demonstrates high readiness in labor and technology, with approximately 1.5 million highly skilled workers and substantial foreign investment in technology and innovation industries.	Vietnam has a skilled and affordable labor force. The QYSZ is located near the city of Hai Phong, which is a major city with many leading educational institutions. These institutions produce skilled workers with knowledge of modern technologies. The QYSZ can therefore attract skilled and technologically advanced workers to work in the special economic zone.
Government Policy Factor	The Thai government has policies in place to promote investment in the Eastern Economic Corridor (EEC) Special Economic Zone, offering benefits and incentives to investors, such as tax exemptions, fee reductions, and facilitation of import-export procedures.	The Malaysian government has policies to encourage investment in the Iskandar Special Economic Zone, providing benefits and incentives to investors, including tax exemptions, fee concessions, and facilitation of import-export activities.	The Vietnamese government has issued many policies to promote investment in the QYSZ. These policies include tax incentives, reduced import and export fees, and financial assistance.
Regulatory and Standards Factor	The Eastern Economic Corridor (EEC) adheres to relatively stringent regulations and standards that are in line with international norms.	The Iskandar Special Economic Zone maintains relatively stringent regulations and standards, aligning with international benchmarks.	The Quang Yen Special Economic Zone has relatively relaxed regulations and standards, which are not yet in full alignment with international norms.

Table 1 Comparative Analysis of Special Economic Zones in ASEAN: Thailand's EEC, Malaysia's Iskandar, and Vietnam's Quang Yen (Con.)

Factor	EEC	Iskandar Special Economic Zone	Quang Yen Special Economic Zone
Digital infrastructure readiness	Moderately prepared, with high-speed internet coverage across the entire area and investment promotion in technology and innovation industries such as Artificial Intelligence (AI) and the Internet of Things (IoT)	Highly prepared, with high-speed internet coverage across the entire area and investment promotion in technology and innovation industries such as AI and IoT	Underprepared, with high-speed internet coverage in only part of the area and no serious investment promotion in technology and innovation industries

Based on the above information, it can be concluded that special economic zones such as Thailand's EEC, the Iskandar Special Economic Zone, and the Quang Yen Special Economic Zone have significant potential in Southeast Asia. Each has distinct characteristics:

- Thailand's EEC is strategically located adjacent to the Gulf of Thailand, featuring comprehensive transportation infrastructure and policies promoting foreign investment. However, it faces challenges in high-skilled labor shortages, environmental issues, and corruption.
- The Iskandar Special Economic Zone has high potential in labor and technology readiness but may have limitations in some aspects of its transportation infrastructure.
- The Quang Yen Special Economic Zone is favorably situated geographically but may encounter challenges in labor and technology readiness.

Each zone has its unique strengths and challenges, with varying degrees of readiness in infrastructure, labor, technology, and regulatory environments, catering to different investment and business opportunities. The development of each special economic zone must consider and address specific challenges according to the needs and potential of each area to achieve the goal of becoming a leading economic zone in the region. Consequently, Thailand must accelerate the development of its digital logistics sector to compete with other SEZs in ASEAN. Potential strategies include developing digital infrastructure, supporting technological and innovative advancements, revising regulations and standards to favor business operations, and fostering public-private partnerships. These actions will enhance the competitiveness of Thailand's digital logistics business, attracting investments to effectively stimulate economic growth in the region. The development of the digital logistics business in Thailand is essential to effectively compete with other Special Economic Zones in the ASEAN countries. The advancement of digital infrastructure, such as high-speed internet networks, cloud computing systems, and various sensor systems, will enhance the operational efficiency of digital logistics businesses.

Supporting the development of technology and innovation, like real-time product tracking systems, automated warehouse management, and intelligent transportation management systems, will elevate the competitiveness of digital logistics enterprises. Improving regulations and standards, including safety, environmental, and product standards, will create a conducive environment for digital logistics operations.

Moreover, fostering collaboration between the public and private sectors, such as in developing digital logistics business plans, promoting investment, and research and development in technology and innovation, will further strengthen the potential of digital logistics businesses. These measures will enable Thailand to compete effectively with other ASEAN Special Economic Zones and drive the Thai economy towards its set goals. The development of a digital logistics business is thus a key strategy for maintaining Thailand's competitiveness in the ASEAN region and preserving its leadership in economic and innovative fields.

The Role of Digital Logistics in the Eastern Economic Corridor (EEC)

Digital logistics plays a vital role in driving the economy of Thailand's Eastern Economic Corridor (EEC). It is responsible for the transportation of goods and raw materials for various industries within the EEC, as well as offering cross-border transportation services to other ASEAN countries. The integration of digital technologies in logistics, such as the internet, Artificial Intelligence (AI), and blockchain, enhances efficiency and reduces operational costs. (Guerra, 2023) Examples of such technology applications include real-time tracking and monitoring of goods, warehouse management systems, and transportation management systems.

The Role of Digital Logistics in Thailand's Eastern Economic Corridor (EEC)

1. Driving Target Industries: Digital logistics in the EEC plays a crucial role in supporting and propelling various industries within the zone, particularly those with high transportation and goods management demands.

2. Enhancing Efficiency and Reducing Costs: The application of digital technologies in logistics operations, such as real-time tracking, warehouse management, and transport management, leads to more efficient processes and overall cost reduction.

3. Boosting Competitiveness: Digital logistics enhances the competitiveness of EEC's target industries by reducing transportation and handling times, increasing flexibility, and improving customer service.

4. Attracting Foreign Investment: A modern and efficient digital logistics system in the EEC attracts foreign investors, making it an appealing destination for investment in diverse industries.

5. Supporting Economic Growth: Digital logistics is a key driver of economic growth in the EEC, linking various industries and fostering cross-border trade.

Overall, digital logistics in the EEC plays a significant role in supporting and promoting regional economic growth and is a primary mechanism for enhancing Thailand's global competitiveness. The development of digital logistics in the EEC not only increases the competitiveness of its targeted industries but also attracts foreign investment, a critical factor in driving the economy of global special economic zones. Therefore, the development of digital logistics is a crucial strategy with a significant role in advancing Thailand's economy and global competitiveness in this sector.

Business Opportunities for Digital Logistics in the Eastern Economic Corridor (EEC)

Digital logistics in Thailand's Eastern Economic Corridor (EEC) shows high growth potential, as the EEC serves as a hub for various target industries including modern automotive, intelligent electronics, health-oriented tourism, aviation and logistics, and digital industries. All these sectors require a modern and efficient logistics system to support expansion and compete in the global market (Eastern Economic Corridor (EEC), 2023).

Strategically located in a key position in Southeast Asia, the EEC has the potential to become a global hub for the production and consumption of goods. This represents a golden opportunity for digital logistics businesses looking to expand their market reach in this region and globally. The business opportunities for digital logistics in Thailand's Eastern Economic Corridor (EEC) are multifaceted, reflecting the needs and growth of various industries in this region:

1. Supporting Target Industries in the EEC: Digital logistics can provide efficient transportation and goods management services for key industries in the EEC, such as automotive, electronics, health-oriented tourism, aviation and logistics, and the digital industry.

2. Expanding Markets to ASEAN Countries: Given the strategic location of the EEC in Southeast Asia, digital logistics has excellent opportunities to expand cross-border services to other ASEAN countries, enhancing international trade.

3. E-commerce Services: With the growth of e-commerce, digital logistics has opportunities to offer efficient, fast, and timely transportation and delivery services, meeting the rapidly expanding needs of the online market.

4. Innovative Technology Utilization: Opportunities exist to integrate digital technologies like AI, blockchain, and the Internet of Things (IoT) to improve and develop logistics processes, increasing precision and efficiency in goods and warehouse management.

5. Customized Solutions Creation: There is potential to develop customized logistics solutions to meet specific industry or customer needs, offering value-added services and creating market differentiation.

6. Promoting Sustainability: Opportunities to develop and provide sustainable logistics solutions, both in terms of reducing emissions and efficient resource utilization, are emerging.

7. Therefore, digital logistics businesses in the Eastern Economic Corridor (EEC) have significant potential to expand their market and strengthen their business through the use of digital technologies and innovations, as well as by creating solutions that accurately meet customer and market needs. Business opportunities for digital logistics in the EEC include:

• Transportation Services for Modern Automotive Manufacturers: Meeting the increasing demands of the automotive industry.

• Electronic Goods Transportation Services for Smart Electronics Manufacturers: Supporting the production and distribution of advanced electronic devices.

• Tourism Goods Transportation Services for Health-Oriented Tourism Operators: Transporting equipment and materials necessary for this industry.

• Air and Sea Freight Services for Aviation and Logistics Operators: Supporting the transportation of goods by air and sea.

• Express Delivery Services for E-commerce Operators: Catering to the need for rapid delivery of goods in the digital era.

• Digital logistics businesses looking to invest in the EEC should conduct detailed market research and analysis to develop strategies that address customer needs and remain competitive in a growing and highly competitive logistics market.

Technologies in Digital Logistics: An In-depth Examination within the EEC Context

The digital transformation in the logistics sector marks a pivotal development for the burgeoning landscape of online commerce, particularly within the Eastern Economic Corridor

(EEC). This evolution has catalyzed a significant influx of logistics entities, all endeavoring to satisfy the escalated consumer demands for timely, precise, and high-quality delivery services. Yet, the Thai logistics industry faces persistent challenges concerning labor quality and availability, compelling the adoption of cutting-edge technologies to enhance operational efficiency and reduce costs (Gesing & Peterson, 2018).

1. **Artificial and Augmented Intelligence: Transforming Logistics**

Within the logistics domain, Artificial Intelligence (AI) and augmented intelligence are playing a crucial role in transforming industry standards by automating complex processes and refining decision-making accuracy. Technologies such as image analysis, for example, have been deployed to conduct detailed inspections of packages and barcodes, tasks that traditionally required human expertise and experience (Gesing & Peterson, 2018). Additionally, AI-driven algorithms for optimizing delivery routes and scheduling have proven essential in saving time and resources (Allen, 2019). These implementations highlight AI's capability to overcome labor and quality challenges in logistics, providing scalable and efficient solutions.

2. **Robotics in Warehousing: Leading the Charge in the EEC**

In the context of the EEC, the integration of robotics in warehousing is setting new standards for automated storage and retrieval systems, mirroring global trends set by leading logistics innovators. These robotic systems significantly reduce the need for manual labor in locating, preparing, and inspecting goods for dispatch. The resulting decrease in operational expenses and human errors emphasizes the transformative role of warehouse robotics in enhancing the efficiency of warehousing operations and the supply chain at large (Allen, 2019).

3. **The Strategic Role of Consolidation Warehouses**

The strategy of employing consolidation warehouses stands out as a logistical innovation within the EEC, amalgamating goods from multiple sources for collective transportation. This approach maximizes the use of larger transport vehicles, extending delivery capabilities while substantially lowering the costs related to smaller-scale shipments (Manjeet & Ehsan, 2022). Such centralization underscores the significant economic and logistical advantages achievable through this methodology.

4. **Advancing Supply Chain Visibility for Real-Time Insights**

The evolution of Supply Chain Visibility (SCV) technology from a novel concept to an essential component of modern logistics underscores its importance in the EEC's logistics operations. Real-time access to data on the location, quantity, and movement of products allows companies to reduce operational losses and quickly adapt to customer demands. The capacity for immediate information access is vital for logistics firms aiming to stay competitive and meet increasing expectations for swift and dependable service delivery (Simchi-Levi & Timmermans, 2021).

5. **Autonomous Vehicles: Pioneering Future Transportation Solutions**

The advent of Autonomous Vehicles (AVs), such as self-driving cars, represents a significant technological leap with considerable implications for the EEC's logistics sector. Despite seeming futuristic, the rapid development of AV technology signals a new era of improved functionality and safety. Autonomous vehicles are set to address labor shortages and streamline logistics operations, challenging traditional transportation norms (Rahman & Thill, 2023).

In Conclusion: The amalgamation of advanced technologies such as AI, warehouse robotics, consolidation warehouses, SCV, and autonomous vehicles provides a transformative

outlook for the logistics industry within the EEC. These innovations not only address existing challenges but also propel the sector toward enhanced levels of efficiency, accuracy, and cost-effectiveness. As the digital logistics landscape continues to evolve, particularly within the Eastern Economic Corridor and beyond, adopting these technologies is crucial for businesses aiming to maintain a competitive edge in the dynamic global market.

Challenges of Digital Logistics Business in the Eastern Economic Corridor (EEC)

The digital logistics business in Thailand's Eastern Economic Corridor (EEC) faces several significant challenges, including:

1. Intense Competition: The digital logistics sector is highly competitive due to the entry of new players, both domestic and international. This heightened competition necessitates continuous development by businesses to maintain their market leadership.

2. Operational Costs: Digital logistics businesses require substantial investment in technology and innovation to enhance efficiency and reduce costs. High investment often leads to increased operational expenses.

3. Regulations and Standards: The changing landscape of regulations and standards related to digital logistics can be unclear or frequently altered, leading to uncertainty in business operations.

4. Skilled Labor: There is a demand for labor skilled in technology and digital fields, but the current labor market may not have enough skilled workers to meet this demand.

To address these challenges, digital logistics businesses looking to invest in the Eastern Economic Corridor (EEC) should consider the following approaches:

• Developing Innovation and Technology: Investing in developing new technologies that can enhance efficiency and reduce operational costs.

• Collaboration with Partners: Seeking business partners to share resources and knowledge, which can help achieve goals and mitigate risks.

• Keeping Up with Regulatory and Standard Changes: Staying updated and adapting to potential changes in regulations and standards.

• Workforce Skill Development: Investing in training and skill development of employees to align with market demands.

• If digital logistics businesses can effectively tackle these challenges, they have the potential to grow and succeed in the EEC.

Approaches to Develop Digital Logistics in the Eastern Economic Corridor (EEC)

To enable Thailand to compete effectively with other Special Economic Zones in the ASEAN group and support the growth of digital logistics in the Eastern Economic Corridor (EEC) (Jongwanich, 2022), Thailand needs to undertake several initiatives:

1. Advanced Digital Infrastructure Development: Spearheaded by enhancing the efficiency of high-speed internet networks, developing cloud computing systems, and installing sensors and other technologies like IoT. This modern and efficient infrastructure will bolster the operational capabilities of digital logistics businesses.

2. Support for Technology and Innovation Development: Focusing on developing technologies for real-time tracking and monitoring of goods, automated warehouse management systems, and intelligent transportation management systems to increase efficiency and competitiveness.

3. Facilitating Regulatory and Standard Improvements: Updating regulations related to safety, environment, and product standards to create a business environment conducive to operations and investment.

4. Public-Private Sector Collaboration: Driving joint projects in development planning, investment promotion, and research and development of technology and innovation, to enhance the potential of businesses.

Furthermore, Thailand should prioritize the development of technology and digital skills in the workforce to meet the demands of the digital logistics business requiring such skilled labor. Efficiently implementing these strategies will enable Thailand to robustly compete in the ASEAN group and attract foreign investment to the EEC effectively.

Discussion

The digital transformation within the logistics sector, especially in the EEC, is pivotal for enhancing operational efficiencies and reducing costs amid growing online commerce. This transformation is underpinned by the integration of advanced technologies such as AI, IoT, and autonomous vehicles, which address significant challenges including labor shortages and the need for operational cost reduction (Gesing & Peterson, 2018).

Challenges in Southeast Asia's Logistics Sector:

The logistics sector in Southeast Asia, including the EEC, faces several challenges. Space and freight rates present major issues due to high demand for warehousing near ports and infrastructure, reflecting the region's booming e-commerce market (GLG Insights, 2021). This growth has led to a shift towards purchasing a wider range of items online, including larger and heavier goods, straining last-mile logistics networks. Despite these challenges, there have been significant advances in last-mile delivery, highlighting the need for the mid-mile space to enhance its operations (GLG Insights, 2021).

Moreover, the logistics sector is witnessing a transformation driven by changing market demand, with a growing emphasis on last-mile delivery solutions. This change is fueled by factors such as urbanization, rising consumer incomes, and government investments in infrastructure (Truong, 2023). However, the logistics startups in Southeast Asia face challenges but have opportunities for growth during the pandemic, especially in B2C logistics and same-day deliveries (Khamila, 2020).

Opportunities and Strategic Approaches:

To capitalize on the opportunities within the EEC's logistics sector, there's a need for substantial investment in digital infrastructure, including high-speed internet, cloud computing, and IoT technologies. This would support the development of real-time tracking, automated warehouse management, and intelligent transportation systems, enhancing the efficiency and competitiveness of the logistics sector (Tenka, 2023).

Furthermore, addressing the challenges of digital logistics in the EEC requires a multifaceted approach. Strategies should include collaboration with business partners to share resources and knowledge, staying updated on regulatory changes, investing in workforce skill development, and focusing on innovation and technology development. By tackling these challenges effectively, digital logistics businesses can achieve growth and success in the EEC and beyond.

Conclusions

The conclusion of digital logistics in Thailand's Eastern Economic Corridor (EEC) emphasizes the need for Thailand to strengthen its digital logistics sector to compete effectively in the ASEAN region. Digital logistics is a key component of international trade today, with companies using digital technologies to improve supply chain efficiency, reduce costs, and enhance customer experience. Thailand is well-positioned for investment in digital logistics, with its convenient location in ASEAN and strong transportation infrastructure. However, Thailand must invest in digital infrastructure and develop skilled talent in digital logistics. The document proposes several strategies to achieve these goals, including:

• Developing digital infrastructure: This Involves investing in high-speed internet, cloud computing, and secure electronic payment systems.

• Supporting technological innovation: This involves funding digital logistics startups and promoting research and development of new technologies in this sector.

• Amending regulations to promote business operations: This involves streamlining legal processes and facilitating the movement of goods and information.

• Fostering public-private partnerships: This involves attracting private companies to invest in digital logistics projects and share risks and benefits.

• These measures are aimed at enhancing Thailand's competitive advantage in digital logistics, which is essential for attracting foreign investment and promoting long-term economic growth in the EEC and the broader ASEAN region. By addressing these challenges, Thailand can become a leader in digital logistics in ASEAN and promote economic growth in the future.

Additional Insights:

• The importance of digital logistics: Digital logistics is a critical component of international trade today. Companies are increasingly using digital technologies to improve the efficiency of their supply chains, reduce costs, and enhance customer experience. This is leading to a growing demand for digital logistics services, and companies that can provide these services effectively will be well-positioned to compete in the global market.

• Opportunities for Thailand: Thailand is well-positioned for investment in digital logistics. The country has a convenient location in ASEAN, with access to a large and growing market. Thailand also has a strong transportation infrastructure, which is essential for efficiently moving goods and information.

• Challenges for Thailand: Thailand faces some challenges in developing its digital logistics sector. The country needs to invest in digital infrastructure, such as high-speed internet and cloud computing. Thailand also needs to develop skilled talent in digital logistics. In addition, Thailand needs to amend regulations to promote business operations in the digital logistics sector.

By addressing the challenges it faces, Thailand can become a leader in digital logistics in ASEAN. This would be a significant achievement for the country, as it would help to attract foreign investment and promote economic growth.

Suggestions

Advancing Digital Logistics in Thailand's Eastern Economic Corridor: A Stakeholder Analysis

The Eastern Economic Corridor (EEC) of Thailand is poised for significant economic development and regional integration. Recognizing the transformative potential of digitalization,

stakeholders in the EEC are increasingly focusing on optimizing its logistics infrastructure through advanced technologies. This paper delves into the current state of digital logistics in the EEC, highlighting key challenges and formulating strategic recommendations for stakeholders.

Current Landscape and Challenges:

While the EEC boasts a robust physical infrastructure with modern ports, highways, and rail networks, its digital infrastructure requires further development to unlock its full potential. Limited investment in digital technologies and inadequate regulatory frameworks hinder the adoption of innovative solutions like smart logistics platforms and data-driven decision-making. Additionally, the absence of a skilled workforce equipped with the necessary digital literacy poses a significant challenge to the effective implementation and utilization of these technologies.

Strategic Recommendations:

For Businesses and Investors:

• Prioritize investments in cutting-edge digital technologies like cloud computing, IoT, and AI to optimize logistics operations.

• Develop intelligent warehousing systems, implement real-time tracking and tracing solutions, and facilitate seamless data exchange.

For Government Entities:

• Foster public-private partnerships (PPP) to accelerate digital infrastructure development, including high-speed internet connectivity and data centers.

• Revise regulations to create a conducive environment for digital logistics businesses.

• Streamline regulations, encourage open data sharing, and incentivize innovation through tax breaks and subsidies to attract foreign investment.

For Educational Institutions and Industry Experts:

• Prioritize workforce development programs to address the existing skill gap.

• Offer upskilling and reskilling initiatives to equip the workforce with the necessary digital literacy and technical expertise for advanced logistics technologies.

Long-Term Implications and Competitive Advantages:

By implementing these recommendations, stakeholders can strengthen Thailand's digital logistics capabilities within the EEC. This will lead to enhanced operational efficiency, increased competitiveness, foster the growth of related industries, and attract foreign investment. Moreover, a robust digital logistics ecosystem will contribute to Thailand's long-term economic progress by facilitating seamless trade and integration within the ASEAN region and beyond.

The digital transformation of logistics in the EEC presents an opportunity for Thailand to emerge as a regional leader in smart and sustainable logistics. By addressing existing challenges and proactively implementing strategic recommendations, stakeholders can unlock the full potential of digital technologies and contribute to Thailand's long-term economic success.

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