

"The Impact of AI on Sustainable Business Practices in Emerging Markets: A Systematic Review of ESG Implementation in Thailand"

Rapeerat Thanyawatpornkul

Abstract

The implementation of Artificial Intelligence (AI) in the business schemes has seen a re-designing decision of the business operations where it is used in streamlining the process, in outcome improvement and solutions innovations in sustainability. AI has adopted predictive analytics, which is a technology that allows environmental sustainability through the promotion of the right resources management. Additionally, AI-based technologies assure ethical supply chain monitoring and the first in line is the concept of sustainable business which lays an emphasis on environmental, social, and governance (ESG) aspects.

In Thailand, AI implementation cross borders and invades the systems of agriculture, manufacturing, and water management together which help Thailand to make the sustainability of industry and to preserve the environment become possible. However, the positive results are yet limited due to the egalitarian distribution of AI technologies, privacy protected data as well as the immediate comprehensive AI transformations.

This research shows us how AI and sustainability as well as emerging market in the Thailand economy intersect. These are areas that we can improve and also develop further business practices that are sustainable by using AI, as well as please remain due to the problems of data privacy and algorithmic biases. Methodologically the study is guided by the systematic review of literature and scholarly works by analyzing them to get insights on the role of AI in environment preservation. Lastly, the research purpose is to make sure that all the stakeholders have enough knowledge and can maximize AI transformative power, but with responsibility and promoting sustainability among business operators in Thailand.

Keywords: AI, Sustainability, business, environment, Innovation

Table of Contents

Abstract.....	1
1. Introduction.....	3
1.1 Problem Statement.....	6
1.2 Research Objectives.....	7
1.3 Significance of the Study.....	8
2. Theoretical Framework.....	9
A. Overview of AI in Business:.....	9
B. Concepts of Sustainable Business Practices:.....	9
C. Understanding ESG (Environmental, Social, and Governance) Criteria:.....	9
D. Relevance of AI to ESG Implementation:.....	9
E. Theoretical Perspectives on AI and Sustainable Business Practices: This.....	10
3. Methodology.....	10
A. Research Design:.....	10
B. Search Strategy:.....	10
C. Inclusion and Exclusion Criteria:.....	10
D. Data Collection Process:.....	11
E. Data Analysis Methods:.....	11
F. Quality Assessment Criteria:.....	11
G. Ethical Considerations:.....	11
Prisma Flow Chart: Self Made/Assessed.....	12
3. Literature Review.....	12
I. AI And Academic Adoption in Emerging Markets.....	12
II. The Sustainability Movement.....	13
IV. The Relationship Between Ai And ESG in The Thai Economy Looks Like.....	16
V. AI Use in Environmental, Social, and Governance (ESG) Attendances Face Challenges and Opportunities.....	17
4. Synthesis of Findings.....	19
Inclusion Criteria:.....	19
Exclusion Criteria:.....	19
A. Patterns and Themes Identified.....	20
B. Main Ideas Derived From The Literature.....	20
C. Gaps and Contradictions.....	21
D. Implications for Theory and Practice.....	22
5. Discussion.....	23

A. Amalgamation of the Results in Regard to the Research Questions	23
B. Theoretical Contributions	23
C. Practical Implications	24
D. Advice for Subsequent Investigations	24
E. Conclusion	24
6. Conclusion	25
References.....	26

1. Introduction

AI is a development of next generation approach to systems and technology and it involves advanced algorithms and analytics-style data management. The AI is a range of technologies which includes machine learning, computer vision and natural language processing allowing machines to perform tasks requiring a human intellect that used to exist, as articulated in 2020 by the authors [1]. This capacity to make changes within an industry gives the world a new direction that is tied to sustainability and this, therefore, becomes another ramification of the third industrial revolution. AI can help implementing processes more efficiently, improving the positive outcomes and producing innovative solutions which will motivate humans to find solutions for complicated sustainability issues [2]. Resorting to predictive analytics nowadays helps companies optimize resource utilization thereby contributing to effective utilization of resources. Also, the wastage of outputs may be eliminated by using it and hence these companies may be environmentally friendly. Besides, artificially-intelligence powered technologies go hand in hand with the monitoring of supply chains so as to perform tracking to stay credible for compliance to social responsibilities. AI systems are often perceived to produce ethical and security risks while using technologies in business contexts, algorithms are biased, data privacy is more threatened and humans may be less valued. Therefore, AI has a great deal of potential in push it forward but the degree to which it achieves this depends on serious attempt to address the aforesaid challenges.

Sustainable business practices represent a holistic approach to corporate strategy and integration of environmental, social, and governance (ESG) considerations taking place in the decision-making process [4]. Businesses with sustainability as a guiding principle have begun to understand that their decisions extend beyond the parameters of a company setting, so they strive to on lessen their ecological footprints, give a hand in social equity, and build ethical approaches within their value chains. This entails moving to renewable energy sources to lessen

the use of fossil fuels and mitigate the amount of greenhouse gas emissions. Furthermore, Bogomolova et al. (2019) [5] believe that number of eco-friendly practices deals with minimizing waste production through proper use of resources and inventive waste recycling schemes. Implementing fair labor practices is also another crucial area, relating to proper wages, safe conditions, and chances for workers to develop themselves and improve. Likewise, building community engagement is necessary; they may work together with local stakeholders to respond to the community needs, development of the economy, and building of confidence [6]. Thus, the implementation of sustainable business practices involves a set of proactive and integrated actions exceeding the legal requirements, focusing on the creation of long-term value for business and society in the context of tackling the burning environmental and social issues.

The influence of AI on sustainable business models is especially important in developing economies, which witness high rates of urbanisation, resource scarcity and socio-economic divides [7]. AI-dominated areas portray the cutting-edge of the transformative change. This is where AI-driven solutions hold the greatest promise to solve the most-pressing challenges and bring about sustainable development. A report by PwC states that AI is expected to generate up to 15.7% of global GDP, which can be attained by 2030, and the emerging economies are going to take the center stage this growth [8]. Consequently, it reaffirms the ability of AI to be a driver in the economic development, which in turn enables the industry to overcome the environmental and social problems. On the other hand, [9] stated that, utilisation of AI technologies will help emerging market economies to overcome traditional barriers to growth, e.g. lack of access to capital, deficiencies in infrastructure, and inefficient utilization of resources. AI is a means by which enterprises can optimize their procedures, promote productivity, and eventually, unlock innovation and new opportunities for value creation. Furthermore, the AI contributes to more accurate decision-making, as companies are now able to foresee market trends, reduce risks, and discover new opportunities in a dynamic and increasingly globalised world [10]. This transformative potential is not only limited to economic growth but also electricity, social equality and sustainable development. Through AI exploitation, emerging markets can make the way to a better prosperity, equality, and sustainability drawing up a new perspective of development and growth in all aspects and areas.

In Thailand, a country where both a technologically advanced economy and rapidly advancing market emerge, the AI implementation is evident across different business aspects [11]. In agriculture, AI-powered technologies provide farmers the ability to raise productivity while ensuring low environmental impact. The study by [12] proposed to farmers that by using AI-

enabled precision agriculture techniques, farmers could achieve optimized crop yields by precisely monitoring soil conditions, weather patterns, and crop health. This not only leads to indicated more resource efficiency but also could replace synthetic materials with natural materials, which is more environmentally friendly and sustainable. Additionally, AI assists in water management through predictive modeling that helps farmers make irrigation schedules as they save water resources under the influence of climate change [13]. In the manufacturing sector, AI-based automation has proven to be a critical implement for sustainable industrial development. As manufacturers take advantage of AI algorithms for process optimization and predictive maintenance, they can optimize operational efficiency, lower energy consumption and minimize the generation of waste [14][15]. This confirms with the country's national development goals for sustainable industrialization which is in accordance with policies such as Thailand 4.0. This policy encourages adoption of embrace of digital technologies to stimulate economic growth and environmental conservation. On the other hand, despite these recent innovations being made, there remains an issue of equitable access to AI technologies, data privacy, and collaboration among actors concerned to realize the full potential of AI on sustainable business practice in Thailand.

Furthermore, AI will act as the primary driver in the transformation process toward a circular economy in Thailand through the utilization of notable technologies, including the Internet of Things (IoT) [16;17]. The country makes use of the data analysis and automation to identify, minimize and eliminate waste at all stages in the product lifecycle through artificial intelligence based programs. In this context, AI-based waste management systems utilize real-time IoT sensors' data to optimize the routes for collecting, identify the chances of recycling and the materials, which could be prevented from landfill [18]. This also cuts down on environmental pollution while boosting economic development because of the recovery of precious materials. Moreover, AI-driven reverse logistics facilities accelerate the remanufacturing of products and reuse, lengthening the lifespan and lowering the demand for new materials. AI provides the application of tracking products lifecycle from production to disposal, which enhances transparency and accountability thus allow the stakeholders to make informed choices that encourage the use of sustainable patterns. Nevertheless, issues like data privacy, interoperability, and scalability have to be dealt with to take full advantage of AI to support circular economy in Thailand. Collaborative measures from the government, industry and civil society sector is a must requirement to tackle the hurdles and pave the way for innovation towards a green future [19].

One of the challenges faced in relation to AI's widespread adoption is its usage in Thailand and other emerging markets needs critical further analysis to guarantee its responsible deployment and the realization of its potential as an instrument to promote businesses' sustainability. Primarily, the problems with data privacy, cyber security, and legislation are the sources for the issues [20]. Provided that the AI technologies extensively depend on large volumes of data, the issue of information protection is mainly important, including security breaches prevention. Furthermore, [21] outlined that the main risk of regulations lacking robust frameworks lies in the issues of accountability, transparency, and ethical use of AI systems.

On the other hand, the digital divides not only widen existing gaps in AI technologies but also deepen their inequality, with underserved communities being hindered the most and they have not to utilize AI-driven solutions [22]. Overcoming these obstacles and thereby achieving the environmental sustainability goals is possible given the existence of joint efforts to bridge the digital gap, improve the data governance policies and lastly, formulate inclusive policies that discriminate between AI being used for ethical issues. In addition to this, it is imperative for the development of an enabling environment for innovation and collaboration of the stakeholders where they can utilize the transformation power of AI for sustainable development in Thailand.

1.1 Problem Statement

The adaption of AI gives Thai market in transition both chances and difficulties in terms of green business practice. In line with the accelerating global AI applications in different sectors, the future implications on the sustainability programs in Thailand will become more apparent [23]. Thailand, which is facing economic rapid advancement and increasing emphasis on sustainability, has a chance to utilize the emerging AI technologies, to face the environmental and social challenges while at the same time, growth its economy. On the one side, AI-based solutions may provide a great number of benefits, but at the same time, their implementation is accompanied by a number of complex issues from ethical aspects to practical obstacles that need to be resolved.

In the field of sustainable business practices, the effective integration of AI represents a major challenge. AI has the capacity to realize operational excellence and reduce negative impacts on the environment, but controversies are still abundant, such as algorithmic bias and data privacy issues, raising the need of suitability and fairness to attain even outcomes. The utilization of AI technologies across decision-making procedures carries the possibility of worsening

prejudice already existing in the data, which can intensify disparities and, consequently, nullify the actualization of equity goals. Also, the gathering and use of large amount of data bring about the ethical issues connected to privacy rights and data ownership that make the application of ethical guidelines and regulations necessary for AI development and implementation in the context of sustainability.

Additionally, the shift to a circular economy model is the vital aspect of AI-directed sustainability initiatives in Thailand. Thailand is striving to derive maximum benefits leveraging IoT and data analytics to optimize resource utilization and lessening wastage. However, tackling issues of data security and scalability is an essential step in that AI is being used for achieving the larger circular economy goals. The interdependent characteristics of global supply chains and the fast growth of IoT (internet of things) devices call for powerful cybersecurity system to protect them from data breaches or cyber-attacks, thus the ability to reinforce trust in AI systems as well as facilitating progress towards sustainable development goals. Moreover, guaranteeing the scalability and interoperability of the AI-driven solutions is critical for their broad use and sustainability in the long term and need collaborative effort from different sectors [25].

As a result, the appropriate employment of AI technologies in Thailand involves thorough requirements and inclusive policies [26]. Data privacy, cyber security, and accountability pose as the threats that reinforce the use of all architecture frameworks that are aimed at avoiding risks and maintaining ethics in AI application. In view of the fact that the implementations of AI applications are growing in different sectors and industries, the duty of the government is to find the right balance between the protection of the people's rights and the development of AI. Open and participatory decision-making processes, in which multi-stakeholder partnerships and contributions are utilized, are fundamental for creating trust in AI technologies and setting them on a path that all people and elements of sustainable development can benefit from.

1.2 Research Objectives

1. Evaluate the potential of AI technologies in enhancing sustainable business practices across diverse sectors in Thailand's emerging market economy.
2. Assess the challenges and opportunities associated with the integration of AI into sustainability initiatives, including issues related to data privacy, algorithmic bias and equitable access to technology.

3. Investigate the role of AI in advancing Thailand's transition towards a circular economy model, focusing on its impact on resource utilization, waste minimization, and sustainable consumption patterns.

1.3 Significance of the Study

The AI technology development and its effects on the application of the mentioned methods in different industries that propel Thailand's growing economy lies on this significant research [27]. The study is conducted into the ways that Artificial intelligence applications can improve the environment and the society as well as foster efficiency in industry, agriculture, tourism and financial sectors [28]. As Thai economy is developing, looking at the AI applicability in different industries is a must for the purpose of innovation and strategic advancement.

Moreover, AI applications such as data privacy and algorithmic prejudice as well as several tech inclusivity concerns that are tied with AI integration are also scrutinized[29]. The ethical and socially-inclusive aspects of technology-driven efforts to sustainability should be effectively and properly ensured to help tackle environmental and social problems. The report discusses those obstacles and the opportunities to make governments, businesses, and other stakeholders be empowered to take more advantages of AI and be less harmed by its negative aspects [30].

The research additionally focus on the influence AI has over Thailand's circular production systems surrounding resource utilization, waste minimisation, and sustainable consumption [31]. The representation of the circular economic model is supportive of sustainability agenda and it is possible that it can solve resource scarcity and environmental degradation allowing sustainability issues to become much more important [32][33]. This research describes a process of transitioning towards a circular economy, utilizing AI technologies to this transition, and details circular economy objectives while containing foreign and local policy and business recommendations for sustainability practices .

The "AI in sustainable business in Thailand's market economy" study has a key point that is revealing in AI's influence on the improving environmentally friendly business practices of the rising Bangkok. The investigation is aimed to be a basis for governmental decisions, accessible solution by entrepreneurs, creation of efficient strategies on local and global levels.

2. Theoretical Framework

A. Overview of AI in Business: AI weaves around various applications from machine learning, NLP, and robots, which have already been assessed to have significantly enhanced the effective allocation of resources, intelligent decision making and a greater rate of innovation across different industry sectors [34]. AI gives enormous opportunities to increase work efficiency and competitiveness through applications of types e.g. predictive analytics, sentiment analysis and robots collaborating automation. However, if alongside the advantages, there comes the problem of moral issues and labour up-skilling [35],[36]. By efficiently addressing AI compatibility issues, the firms will be able to create a future in which technology adoption is accompanied with business sustainability.

B. Concepts of Sustainable Business Practices: In this paper, the concept and principles of sustainability are the core elements of conduct business in an environmentally friendly way. In this context, a text emphasized the need to follow the triple bottom line concept, which implies a balance between economic growth, environmental stewardship and the social equity for the society [37]. Furthermore, it deals with the key concepts that are considered a must, such as CSR (Corporate Social Responsibility), the SDGs (Sustainable Developmental Goals), and the circular economy, giving a great grip of the subject in the context of business.

C. Understanding ESG (Environmental, Social, and Governance) Criteria: An introduction is provided about ESG review component and why it is identified as essential for understanding the methods in which a company is assessed with regard to its environmental, justice, and management scores [38]. The article analyze the use of Environmental, Social and Governance (ESG-factor) as essential tools in measuring the corporate performance of a company in sustainability and ethics. These parameters provide very important insights for the choices of investments and also highly influence the opinion of external stakeholders on the company [39].

D. Relevance of AI to ESG Implementation: This part assessed the capability of AI technology to lead and facilitate ESG practices in organizations within this framework, going beyond the discussions made before this [40]. This piece analyzed AI-driven data gathering, predictive modelling, and automation application which helps corporations in: implementing ESG performance standards, discovering sustainability risks and opportunities, and becoming more transparent and accountable in reporting.

E. Theoretical Perspectives on AI and Sustainable Business Practices: This paper considers the general theories of AI as well as the appropriate ideological glasses to examine the way AI and sustainability practice in business interrelate. In fact, it introduces concepts as techno-determinism, socio- technical systems theory and stakeholder theory [41]. Such as provision of the theoretical mechanisms through which technological innovation, organizational behavior and societal impact are interrelated within the scope of sustainable.

At the end, this theoretical framework, once elaborated, can be considered strong for the purpose of analysis and discussion of study aims. It specifically shaped the direction in which the study conducted research regarding the contribution of AI in building sustainable business practices amidst growing economy in Thailand [42].

3. Methodology

The methodology section of the study is designed in such a way that carefully outlines the exact procedural approach aimed at accomplishing these research aims [43] while also performing an in-depth study of the influence of AI on sustainable business models in the expanding economy of Thailand.

A. Research Design: Through this part used research design: an SLR method is chosen [44]. The use of the SLR method helps to systemically identify, select, and in essence to pool all relevant scholarly literature that are worthy of in depth and comprehensive study of the research subject.

B. Search Strategy: In this paper, the authors adopt a systematic approach to collect relevant articles, reports, and other academic sources through the process of selection and screening, which include exclusion and inclusion of pertinent research material [45]. This process includes using satisfactory databases with corresponding search terms and employing filters directly to the extracted information to make it comprehensive and relevant.

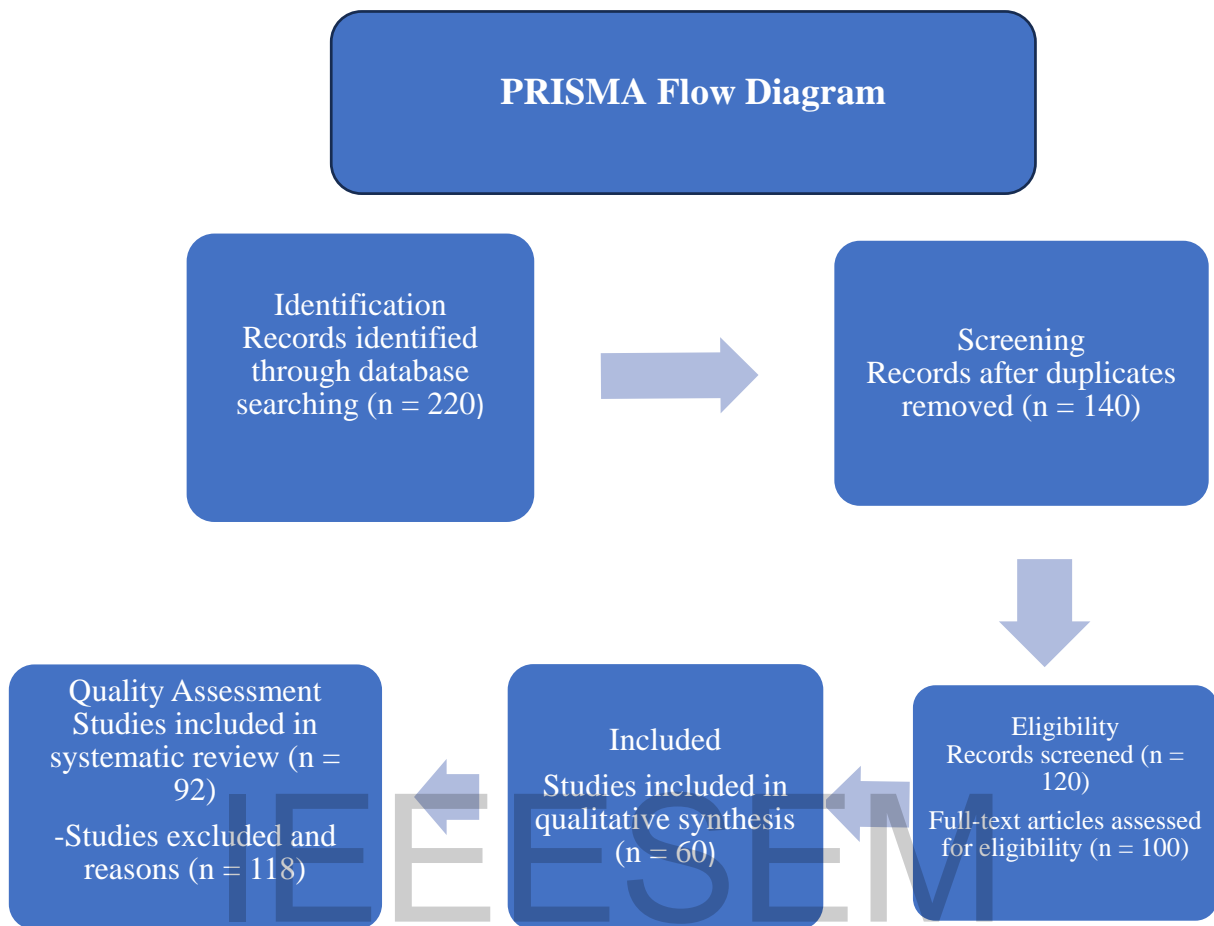
C. Inclusion and Exclusion Criteria: The study lays out all the essential criteria applied to evaluate the worthiness of literature for placement in the review [46]. The date of publication, language, geographical focus (let's not forget about Thailand), and the relevancy to the research questions and aims are all part of the scope of the literature review. Moreover, the types of sources to be included can be defined and the exclusion of sources that do not satisfy a certain quality standard or relevance can be set.

D. Data Collection Process: This section discusses the frequency and the way of systematically collecting data from the targeted most-relevant literature sources [47]. It can be mentioned in the document some techniques used for the extraction of data, the procedures carried out for the management of the data while the tools or software used for the collection of specific data is indicated. Besides that, the investigation estimated the approaches used in offering the high confidence and accuracy of data collected [48].

E. Data Analysis Methods: Under this research, the researcher showed examples of how they analyzed data that were extracted from selected sources [49]. This could involuntarily relate textual analysis, content analysis or other qualitative and quantitative techniques to detect important matters which are related to the main purpose of research.

F. Quality Assessment Criteria: The paper cross-checks the standards used for categorizing trustworthy and reliable resources to be discussed in the review [50]. Evaluating the validity of research as well as consist in verifying the appropriateness of research methodologies, the authority of authors and sources, the value of findings to the research subject, and the precision of findings reporting.

G. Ethical Considerations: The article focused on the besides the ethical aspects as the study deals with the collection of subjects' data and the way the process of research continues and its confidentiality. This can be done by obtaining necessary permissions , following ethical codes of conduct and criteria, and of course, making possible any apparent conflict of interest known. Investigating the efficacy of relevant interventions by thoroughly explaining the research methods can be done without violating the study's transparency, precision, and reliability.



Prisma Flow Chart: Self Made/Assessed

3. Literature Review

I. AI And Academic Adoption in Emerging Markets

Artificial Intelligence (AI) has great development in middle income countries and this situation is a result of technology progress and digitalization as well as the challenge of creating an efficient environment that might facilitate innovations and solutions [51]. While emerging economies such as Thailand are technology adopters in the area of AI, their business outcomes can be attributed to increased productivity, competitiveness and global economic development, which spans different sectors of the economy. Furthermore, the current studies showed that the adoption of the AI as a tool for both economic answerability and social and environmental issues is not less important for developing countries than it is for developed ones. Governments

and businesses frequently reiterate their perception of AI as a potentially healing technology which can transform their transactions into sustainable business practices [52]. The emergence of AI can therefore be viewed as an indispensable factor in sustainable development. AI-powered techniques are now being considered to solve the problems faced in emerging economies like Thailand as emphasis has been given to improvement of the use of resources, to decrease the environmental effects and to make ethical business practices [53]. AI becoming more widely used in developing countries is a crucial shift to sustainable ways for technological innovation and economic growth where the implications are not only confined to the economic aspects but also extend to societal and environmental realms.

II. The Sustainability Movement

The sustainable business model has undergone tremendous changes with the emergence of new cultural attitudes, the growth of environmental awareness, and the raising of social standards combined with the existing traditional economic approaches. The primary area that scholars have dealt with in this topic is the transition from a narrow profit maximization agenda to a more extended view on corporate responsibility that now covers environmental protection, social justice and concerns stakeholders [54]. Businesses have now started to realize the effectiveness of incorporating sustainability into the fundamental operations of the business and the long-term strategy so as to provide portfolio balance for their stakeholders [55].

Digital revolution aims at the carefully designed process of social and industrial reinvention supplemented with digital and disruptive technologies [56]. However, the energy provides motivation for economic development of the country. On the other hand ESG investment, prospering globally continues. With environmental, social, and corporate governance investments, investors have decided to add traditional investing, which just doesn't offer enough commitment environmentally and energy is heavily affected. The framework of digital transformation sustainability assessment is still narrow and to some extent argumentative, particularly in terms of the sector of energy. ESG, a classifier for industrial revolution, 4.0 changes economic situation in general. The exactness factor was identified with the help of the machine learning analysis of researchers papers and the publications in the World Economic Forum. The area of peak active account within the sustainable development and energy area was the part of our focus. For the scientifically sound development of model measurement, it is suggested to use confirmatory factor analysis (CFA). Pathway analysis with latent variables becomes a key element of SEM. For output of the simulation, researchers have the conceptual

model, the variables influencing the final result, and the particular relationships of to each other. Goodness of fit measurements in mind, authors meet the agreed requirement including smart and ESG issues for energy area that are the primary concerns.

This paper is intended to discuss the recent developments in the integrated reporting ratings of companies in Southeast Asian countries and exploring forces behind their evolution. Scoping reviews based on O'Malley and Akrsey's framework have been conducted [57]. The second step is to work with data from Sage, Wiley, Emerald, Taylor & Francis, Springer, and ProQuest. This is an analysis of the data from 2015 – 2023, including the ASEAN countries. The 37 articles revealed that there is a sustainability movement already in progress among Southeast Asian companies' annual reports. Usually, only public companies who are listed on a stock exchange are forced to conform to GRI standards. Meanwhile, other companies can opt out from such guidelines. The capacity of research of Cambodia, Myanmar, Laos are very limited and Indonesia has the largest position. Concluding that the area is governed by legitimacy and stakeholder theories dominated in the Southeast Asia's reporting, they impacted by 8 elements and 12 theories.

III. The Integration Of ESG Factors Into Thailand's Financial System

Sustainable development, ethical business functions and the concept of Social, Governance and Environmental success have risen up to the determination of Thailand's business communities as there have been increasing demands of environmental sustainability. As researcher [58] demonstrated how Thai businesses are the new supporters of ESG governance, this is driven by the desire to build their reputations and being the target of large investors plus reduce the consequences of the environment and social aspects. On the other hand, the government policies and regulatory system are no less vital as they are important in installing the ESG (Environmental, Social, and Governance) issues in the local business setting. This can be seen as an integral part of the company's commitment to sustainable growth and socially responsible governance [59]. This work sheds light on the fact that since knowledge level has grown, the number of sustainable development publications has also risen. When SDGs were introduced, companies put emphasis on the environment, people, and the planet, and therefore, ameliorated their business performance. It is forecasted that this change should give a push to financial accomplishments. As the scholars want to know about the nexus of green strategies and the profit generating capacity of businesses, they are thus involved in this research. This study has revealed common aspects and issues that were conjured in the previous studies on these two

statistically associated factors. The research study employed content analysis of 56 indexed by WoS and Scopus publications. Of 96% publications result showed only positive contribution to business from sustainable practices. Governments, and in particular the growing ones, also need to undertake such research to get to the bottom of sustainable practices, with a special focus on eventual impact on the financial performance.

Innovation investments has ever been seen as very vital to establishing as well as running a business successfully [60]. The media is replete with detailed records regarding these investments' significant contributions to business's relationship with the market. While adequate consideration towards the impacts of investments on the environment is relevant, corporations have not addressed the footprint, therefore, harming the environment. This study employs two theories, namely, Natural Resource-Based View (NRBV) and stakeholder theory of the organization, after which the way in which innovation affects environmental and financial performance of the organization is examined. Here authors conduct much deeper digging and recommend the application of more approachable, systematic innovation assessment mechanism. They can as well have an in depth focus of the three countries; from the investments of these economies in conventional and environmental technologies.

The study also focuses on a sustainable elements of strategies management accounting, which consists of social, environmental and economic pillars [61]. In later study, collection of 187 green manufacturing files is covered through questionnaire, which are certified by the Department of Industrial work as green industry certifications. The statistical program attended to the structural equation model execution. The result indicate that the causal model presents the accurate information. SMA (Strategic Management Accounting) enhance the economic, environmental and social performance in companies. Moreover, SMA and economic performance are tied to sustainability and social responsibility as well through its environmental and social dimension. Cause effects relationship can be also uncovered studying the data. Data gained via SMA tends to be employed for decision making which, in turn, makes business management more responsive and proactive. Insufficient evidence on the expand and incorporate policy makes SMA technique ineligible according to underdeveloped countries.

This research is to summarize the status of the 'C' in ESG – Corporate Sustainability Reporting in Southeast Asia, with focus on its driving and dictating factors [62]. Arksey and O'Malley's scoping review methodology is utilized with their methodology for this particular scoping review. The sample contained secondary data from Sage, Wiley, Emerald, Taylor & Francis,

Springer, and Proquest. Researchers used various articles, statistics, and quantitative data to come up with a study that provides a deeper understanding of consumer behavior.

Manufacturing factories emphasize more in producing responsibly as opposed to performing research on it. This research study of the responsible production for sustainability builds on what is already known for higher level understanding [63]. Using concept analysis, we compress four basic characteristics: transitioning to a sustainable world, preliminary actions, processes of management, and management setup. There is substantial evidence that suggests that the contextual factors and firm attributes would impact the production that ensures responsible production, which would in turn affect the interactivity of consumers, the behavioral trend of employees, and the performance of the business as a whole. Researcher used bibliometric approach to review 518 key articles in which they detected a raising trend of researchers in developing countries about the subject matter. They technically acknowledge the importance of understanding what impacts the profitability of responsible production business. Thus there is need for an assessment set up that involve a simpler assessment framework. Collaboration in research tends to arise commonly either within a group of authors or even on an international level to maximize the responsibilities in terms of sustainability. Cooperation is undisputably a factor involved in information creation and passage. Since there is a growing popularity in reliability of its profitability, we explain in a report a systemic methodology for agents in issue in order to hold responsible production and achievement of profitability. Thus, this review suggests a series of practical and strategic tips for sustainable manufacturing, and it improves the area of responsible research.

IV. The Relationship Between Ai And ESG in The Thai Economy Looks Like.

The intersection of artificial intelligence (AI) with the environmental, social, and governance (ESG) components which are regarded as the fundamental factors for the optimum functioning of the Thai commercial space has both positive and negative implications for businesses that are aiming to grow sustainably in the current Thai market [64]. Provided with numerous studies, it was revealed that AI such as smart algorithms, can not only improve the precision and effectiveness but also save time in the ESG data collection, examination, and reporting processes. As a result, transparency, accountability, and sound decision-making processes are also strengthened [65]. Likewise, there is a rhetorical question that pleads the artificial intelligence reasoning of adding to, not lowering, the disparities, making them adhere to biases, and causing employment biases [66]. Consequently, the critical step becomes to carefully

examine the moral, societal, and environmental influences of using technologies of AI in line with the ESG standards in Thailand.

V. AI Use in Environmental, Social, and Governance (ESG) Attendances Face Challenges and Opportunities.

The use of intelligent systems (AI) together with environmental, social, and governance (ESG) issues involves multiple challenges and possibilities for companies globally, including the Kingdom of Thailand [67]. Certain obstacles in AI for reaching sustainable development targets are data privacy challenges, algorithm biases, and necessitations of interdisciplinary collaboration and capacity building [68]. AI, on the contrary, can be applied to assessing and solving ESG problems through predictive analytics, automating ESG-relevant tasks, and developing new solutions to complex sustainable issues [69]. Additionally, the application of AI-created evaluations can help to organizations to explore occurring ESG risks and opportunities, integrate with stakeholders, and to establish continuous improvement in sustainability performance [70] [71].

Consequently, researcher conduct an ESG analysis in the context of the current boom of climate change issues to assemble reasonable proposals and achieve sustainable goals [72]. In reading the academic literature on environmental, social, and governance (ESG) regulatory frameworks of the rich and the poor nations, ESG practices in different countries were juxtaposed. The voluntary and the requirement of principles affected the governance and social disclosure of nations, but it was not enough to increase their ESG level. Both ESG performance and reporting in an integrated manner serve to enhance the practices with the goal of sustainability. If the country commitments to ecological conservation are approached well, new markets will easily handle information asymmetry and create successful corporate operations and reports. Their research is an embodiment of these methods and should hence find favor with all individuals. ESG policies encouraged by the research done by us can be used by the regulators, institutional investors, as well as the policymakers to learn and implement these rules in developed nations. Their discoveries can also do a favor to the undergraduate emerging ESG countries that are trying to follow suit and close the gap among unsuitable and suitable behaviors.

International organizations are contributing more intensively within the extent of ESG. Many research did not explore how this phenomenon shapes potential shoppers' perception and brand image, there is still a void for more relevant findings [73]. As for the customers of Thailand, ESG initiatives, brand trust, and customer engagement, which were examined in this research.

We ordered through digital means, and the respondents have been 175 (people), which already entered into data analysis. The experts had assisted model building technique based on partial least squares structural equation modeling which was facilitated by SMART PLS3. Being concerned with ESG meant that the brands' reputation has improved and that the client cooperation increased. The integrating variable that is the most dominant is the customer trust which mediates the causal relationship between three ESG attributes and the product engagement, that mediation analysis apparently has revealed. The environmental axes of ESG induces the factor of environmental concerns maximally (0.52). Second most factor of brand trust is found in social components and least in the aspect of governance. Social pillar of ESG that deals with customer engagement possesses the largest impact, followed by its coefficients (B) being 0.594. It is not the governance that has the least effect with the value of 0.181, but the environments pillar with 0.513. ESG activities can also be a business-by-business factor that engages customers and impacts reputation. The research, therefore, intends to add `ESG scholarship` and provide marketing insights to organizations that are adopting the ESG practices.

Owing to such factors as AI and Big data breakthroughs, this research focuses on how they are all shaping sustainable investment worldwide [74]. Finance is about to "run into against wall" because the most modern analyzing tools like AI and machine learning make it possible to study big data sets and to understand deeper what companies are. In this context, the chapter also discusses the influence of the enterprising fast-growing information not related to finance on the investors and corporations. On the other hand, a crucial element of the analysis concerns the remaining impediments to corporate sustainability data utilization. Different sections talk about replacement of the shareholder capitalism with stakeholder capitalism, where stakeholders have a more significant role in explaining behavior of corporations.

Researcher [75] noted that the green manufacturing is among the factors that increase economic, social-economic and environmental performance. In addition, social performance plays a role as an important factor between consumption and environmental attitudes. As detailed study by [76], there is a link established between cost accounting and environmental and financial performance. Also, the analysis demonstrates that environmental capabilities are executed as a mediator between leadership and CSR engagement. Becoming a sustainable business is worthy considering the value of it. In spite of the fact that it is imperative and integral, the sustainability are mostly never being put the forefront. There is still research to

be done on what aspects are constituted efficiency as well as environmental, social, and economical.

That section is designed to provide you with the summary of the AI adoption prevalence and ESG endeavor in Thailand as well as the sustainable business practices applied in that country. It lays the groundwork for more in depth investigation into AI and ESG, it's barriers and opportunities in relation to their integration into ESG activities

4. Synthesis of Findings

The criteria for inclusion and exclusion in the systematic review of literature on "The Impact of AI on Sustainable Business Practices in Emerging Markets: In this systematic review entitled "ESG Implementation in Thailand: Bringing the Social, Environmental, and Governance Factors Into Practice", can be briefly describe the contents as follows according to the writing materials submitted.

Inclusion Criteria:

Relevance: Particularly, AI and its use in exploring sustainable business practices in the growing economies and (especially) Thailand should receive thorough research, focused on the possible consequences.

Publication Date: Coverage regarding the studies published might be from 2015 onwards, as research scientists and scholars continue to conduct these studies from time to time. It should be encompassed in the study also.

Language: For English studies, it is important to integrate them into proceedings so that the levels of understanding and uniformity of analysis are ensured.

Regional Focus: Using research that precisely talks about Thailand and offers information that relates well to the Thai market will be the channel that will use to make sure the findings of my research remain in line with the context of this study.

Methodological Rigor: The only academic papers to be taken into consideration under the mandate must be theirs to pass rigorous peer review process for the sake of the information's quality and reliability.

Exclusion Criteria:

Irrelevant Focus: For the research purpose, the articles that do not explicitly illustrate the relationship between AI and the sustainability of business operations was dismissed. Perhaps,

the researches that do not offer relevant implications to the emerging markets have to be set aside, in which case Thailand was obviously on priority.

Outdated Publications: The priority on this study was to append to the new researches and innovation in AI technology and sustainable business practices. Therefore excluding studies published previous to 2015.

Language Barrier: The non-English studies was deleted to explore the linguistic equality and achieve the whole picture.

Regional Irrelevance: The studies that do not provide usable knowledge and the points that cross the borders and markets apart from Thailand also excluded to make sure that the study accesses the Thai context.

Methodological Flaws: Unverified sources, subjective articles, and research without rigorous methodology was omitted to ensure the legitimacy and dependability of the literature review. Systematic analysis collected a relevant and comprehensive literature by using some criteria; reading of eligible record was taken through searches of databases and internet. Thus study yielded a big picture of effect of AI on eco business in progressing economy in Thailand.

A. Patterns and Themes Identified

The search for the most relevant articles generated by a systematic literature review showed that there were some major themes and trends concerning the impacts of AI on the sustainable development in Thai market economy. AI technology, in principle, has the capacity of efficiently utilising resources, increasing service availability, and breeding innovation in the different industry segments [77]. AI consistently performs in improving the openness, accountability, and common participation in environmentally friendly ventures. It is the essence of reporting which generates data for ESG and from which practical insights evolve to inform decision-making [78]. Moreover, the texts ardently encouraged the need to address the ethical and social factors of putting AI into place, such as algorithmic bias, privacy breaches, and fairness in access to technology. This is necessary to ensure that social justice and that AI systems intended for sustainability are morally unquestionable and inclusive [79].

B. Main Ideas Derived From The Literature

Put into words the known results synthesis of the literature gave several strong results. The future of AI in practice seems highly promising as regards sustainability. It makes possible to apply data-driven decision making, forecasts, and process automation. It achieved objectives like environmental, social, and governance by the use of proactive investment approach [80].

Moreover, the successful application of AI to supporting company actions and achieving sustainability goals can also face several challenges, such as providing high-quality and accessible data, dealing with legal obstacles, and cultivating the organisational culture that naturally support sustainability. The study makes clear that arenas of multi-stakeholders with adequate information is the direction that needs to be taken to attain the objective of AI through sustainable development. It is predominant with the coordination among sectors and capabilities investment that become essential for the country development [81].

The author singularises ESG mechanisms (environmental, social, and governance) which should have in focus because of the COVID-19 global pandemic that occurred. It accomplishes this by developing both voluntary and mandatory rules that can if desired by the global community permit to be accepted as the regulatory framework [82]. Additionally, vertical sustainability and integrated reporting are regarded as the essential steps moving forward leading to enhancing of ESG practices and streamlining of corporate operations, and environmental stewardship commitments at the national level are greatly emphasized in this regard. On the other hand the business to sustainability association is getting more in focus through a growing number of researchers manifest that companies more and more commonly practice sustainability which brings a positive outcome.

The literature has such a coverage of energy sources as well as of digital transformation and environment, social and governance investment that the whole world is under the dominion of these considerations and no parts of it are exception. However, the consequentiality of digitilization impacts or sutdies on the planet is not yet well-examined nor known to be under controversial topic. However, the inspection of this problem needs to be down through state-of-the-art multithreaded techniques. This is done through advanced method of analysis. Investments in innovations are also getting contemplation and that is because of great performance of market which is linked to environmental issues. Therefore, it is necessary to instigate research into the best method of appraising the concept of green innovation and to devise a concept that adds environmental components to the core practices of innovation.

C. Gaps and Contradictions

While AI and sustainable technology has received much attention, including the inconsistencies and uncertainties that occur in the subject, research confirms those. There is a deep omission of study about the specific system of artificial intelligence (AI) to be used in a widened scope for the country of Thailand, considering its transition to the circular economy

model. In the fields of resource utilization, waste elimination, and promotion of sustainable consumption practices, this approval has proven especially imperative [83]. Besides that, some of which focused on the responses of business on sustainability through the operationalized AI technologies, others alerted on the risks of blind dependency on technology and human needs as an overall consideration in formulating sustainability strategies.

ESG frameworks are being used more to address sustainability challenges, although their effectiveness in bridging unsustainable and sustainable behaviours is unclear. Integrated reporting and national promises to improve ESG standards are underlined in the literature, but their practicality is dubious. In the energy industry, where digital transformation, ESG investment, and sustainability converge, more detailed assessments are needed to explain anomalies and provide actionable insights. Better analytical methods and holistic approaches are needed to address limited and disputed findings on digital transformation's sustainability impact.

Innovation investments increase market success, but their environmental implications are unknown. Despite efforts to incorporate environmental factors into innovation initiatives, sustainable business practices need more comprehensive assessment methods. Strategic Management Accounting (SMA) may encourage proactive sustainability, depending on the economy. In developing nations with poor SMA integration data, empirical validation and customised remedies are needed. These literature gaps and discrepancies must be addressed to educate global sustainable development policies and practices.

D. Implications for Theory and Practice

Research integration can yield significant impacts in terms of not only enriching theories but also of practically employing the result throughout the society. Whereas research underlines the fact the synthesize of knowledge from AI, sustainability and organizational theory helps to get detailed perception how AI influences sustainable business processes [84]. The other important sharing are detecting gaps in the existing body of literature, which can lead to particular questions for further investigation and research. The researcher not only look at the ethical perspectives of AI, but also see how AI contributed to the social equity. Establishing the control systems to check the responsible approach of AI will be the other factor [85]. The practical insight gained from the articles examined and can help in designing proper strategy based on the potential of AI for positive social impact, as a prime trigger of sustainable development goals in Thailand and around the world [86].

The policymakers, regulators, and major institutional players are going to edit the research which integrated reporting and national commitments are driving ESG practises. Environmental awareness is supremely crucial for the discussion of Earth conservation because it has been proven to influence business results positively and this can offer guidelines to policymakers both in government and business as well as the solution envisaged by developing nations in search of socio-economic prosperity and management of natural resources. The conjunction of digital transformation, ESG investment, and sustainability demands more often innovative and many-faceted approaches as well as deep selections to assist for decision-making process, either in the energy industry or other related high-tier market. Undertaking relevant environmental innovation studies using methodologies and adding environmental issues to innovation initiatives will certainly improve environmental sustainability of businesses. The introduction of Strategic Management Accounting (SMA) approach in decision-making processes can catalyze sustainability efforts that are forward-looking, but techniques and empirical checks of the same need to be developed, especially in growing economies.

5. Discussion

A. Amalgamation of the Results in Regard to the Research Questions

The findings from this exhaustive review of published resources thus provide us with a lot of useful information on the extent to which AI technology can be used to improve sustainable business behaviors in different businesses that serve the growing Thai market. AI uses could significantly perform the tasks better. Operational efficiencies could be improved, resource allocations could be optimised, and environmental sustainability could be provided in the near futures [87]. Besides that, attention must be paid to problems arising during AI introduction, privacy of data protection, threat of algorithmic bias, and fairness in accessibility of technology [88], as well as other issues directly related to AI. The research study that tries to fetch empirical evidence on how AI is being implemented in sustainability programmes in Thailand can increase our understanding of subtle dynamics that determine AI usage in sustainability. It in fact helps us to pinpoint the areas that would be a focus for the research and policy.

B. Theoretical Contributions

Theoretical insights obtained from this review enhance our comprehension of the connection between AI and sustainable business practices within the frames of technological determinism and socio-technical systems theory [89]. The author of the cited work contends that AI

technologies have a dual role in promoting sustainable development by affecting organizational behaviour, decision-making processes, and societal results. Furthermore, the utilization of stakeholder theory offers a perspective to analyze the complex effects of AI on the interests of stakeholders and the wider socio-economic environment.

C. Practical Implications

Nevertheless, [90] advises that organisations must prioritise ethical issues, involve stakeholders, and focus on capacity-building activities to guarantee the appropriate and fair implementation of AI in sustainable business practices.

D. Advice for Subsequent Investigations

On the basis of the findings presented in this paper, there are several suggested fields that might be broadened in the future. It is crucial to conduct longitudinal analysis in order to do a comprehensive evaluation of sustainable development and organizational performance effects that have been resulted from AI technology implementation in the case of a rapidly developing market in Thailand [91]. Beyond that, intersecting similar assessments across different economies and countries can spotlight diverse difficulties and the scope to sustain the projects initiated by AI models. Besides, artificial intelligence, sustainability science, and development studies need to be weaved into multidisciplinary research to deepen our understanding of the economic repercussions of AI in developing countries [92]. In the end, proponents raise the fact that more empirical research is need in order to confirm efficacy of AI-driven interventions in making the Thai's change their consumer behavior as to reduce the carbon emissions, and rather make their society change into a circular economy model.

E. Conclusion

To conclude this evidence-based analysis as it unfolds, adoption of AI technology can be highly influential in boosting environmentally friendly business values of the Thai market economy that is progressing. This work provides a general overview of the joys and economic opportunities gained from the adoption of AI technology for sustainability, supported by actual data and theoretical knowledge obtained from various fields. Employing the capacity thesis of AI to accelerate sustainable development in Thailand is the responsibility of policy makers, entrepreneurs and scientists as they work together. Such agreement will guarantee that the technology would lead to a better future which is more fair, equal and is sustainably sustainable.

6. Conclusion

A. Recap of the Study: This systematic literature review presented exhaustive as well as in-depth insights into the integration of AI and Sustainable Development (SD) in foreign direct investment (FDI) in the fast-expanding market of Thai market in Thailand. By the collection of recent literature we got information of various industries' ability to utilize AI technologies and become eco-friendly regarding to the limitations and limits which AI have and vehicles by which AI drives the efforts of Thailand for adoption of a circular economy framework.

B. Summary of Key Findings: By looking into the application of AI, researcher was able to make a conclusion that for a more sustainable business practice, artificial intelligence generally has a high potential in Thailand. It is applicable for the purpose of efficient resource utilization, prevention pollution, ethical supplier chain development and internal / external stakeholders' engagement. The potential for AI in this sector is meaningful, however, the main challenge as far as data private issues, algorithmic bias, and disparities in technological availability are considered is how to make use AI in the best way possible. Additionally, author stressed the importance of looking into how to add ESG factors to AI algorithms which will make sure that sustainability related issues are always highly considered as well.

C. Contributions to the Field: This research piece is an original one, that is added into the growing list of work done on AI and sustainability that provides a consolidated and thorough analysis, and thus highlight the patterns, gaps and challenges that need to be addressed in the future. It is an important contribution to larger conversations on tech reasons and global concerns like climate change, resource depletion, and social injustice where AI is perceived as a tool for growing in emerging economies within Thailand in a sustainable manner.

D. Practical Implications and Recommendations: The outcomes of this analysis incorporate numerous practical implications for policy makers, businesses and other stakeholders through efforts that are geared toward enhancing development that transcends social and economic challenges in Thailand and other regions. Policy makers should first find the best compromises which favor innovation and facilitating the process for the AI implementation but also they should find a simplest way to limit the risks by creating proper regulatory frameworks. Likewise, organisations need to give importance to investments in AI which are consistent with strategy that includes both ESG (Environmental, Social, and Governance) objectives and has a commitment to the ethics and accountability of the sustainability measures. On one other hand, the crucial thing to be done is the creation of opportunities that will serve to upgrade people's

digital skills and strongly promoting the fair distribution of AI technology. Through doing so, it would guarantee that the benefits of AI namely sustainability-driven initiatives, are distributed fairly and equitably across all the sections of society.

E. Final Thoughts: Obviously, it is such aspect that AI usage will be more mainstream and would be a game-changer in shaping path to sustainable development in Thailand leading emerging countries. Through application of these new technologies, AI can be used in a manner that is both responsible and inclusive, hence helping bring good life for everyone on the planet. Full artificial intelligence potential for environmental, societal, and economic sustainability the development should be supported by continuous research, communication and innovative work of mind.

References

- [1] J. M. Górriz *et al.*, ‘Artificial intelligence within the interplay between natural and artificial computation: Advances in data science, trends and applications’, *Neurocomputing*, vol. 410, pp. 237–270, 2020.
- [2] R. Dwivedi, K. Prasad, N. Mandal, S. Singh, M. Vardhan, and D. Pamucar, ‘Performance evaluation of an insurance company using an integrated Balanced Scorecard (BSC) and Best-Worst Method (BWM)’, *Decision Making: Applications in Management and Engineering*, vol. 4, no. 1, pp. 33–50, 2021.
- [3] T.-P. Liang *et al.*, ‘Artificial intelligence and robots in individuals’ lives: how to align technological possibilities and ethical issues’, *Internet research*, vol. 31, no. 1, pp. 1–10, 2021.
- [4] M. Ziolo, B. Z. Filipiak, I. Bąk, and K. Cheba, ‘How to design more sustainable financial systems: The roles of environmental, social, and governance factors in the decision-making process’, *Sustainability*, vol. 11, no. 20, p. 5604, 2019.
- [5] I. P. Bogomolova, E. I. Krivenko, A. A. Larionova, O. V. Takhumova, V. I. Eroshenko, and N. A. Zaitseva, ‘The role and features of resource-saving processes in modern conditions of managing the national economy and the implementation of state strategic initiatives’, *Journal of Environmental Treatment Techniques*, vol. 7, no. 3, pp. 426–431, 2019.
- [6] M. Silberberg and V. Martinez-Bianchi, ‘Community and stakeholder engagement’, *Primary Care: Clinics in Office Practice*, vol. 46, no. 4, pp. 587–594, 2019.
- [7] D. Mhlanga, ‘Artificial intelligence in the industry 4.0, and its impact on poverty, innovation, infrastructure development, and the sustainable development goals: Lessons from emerging economies?’, *Sustainability*, vol. 13, no. 11, p. 5788, 2021.

- [8] S. BELKACEMI, 'Artificial Intelligence" AI" and its impact on global Economy.', *Journal of Financial, Accounting & Managerial Studies*, vol. 9, no. 2, 2022.
- [9] G. Anakpo, Z. Xhate, and S. Mishi, 'The Policies, Practices, and Challenges of Digital Financial Inclusion for Sustainable Development: The Case of the Developing Economy', *FinTech*, vol. 2, no. 2, pp. 327–343, 2023.
- [10] J. P. Bharadiya, 'Machine learning and AI in business intelligence: Trends and opportunities', *International Journal of Computer (IJC)*, vol. 48, no. 1, pp. 123–134, 2023.
- [11] N. Wailerdsak, *Business Groups and the Thailand Economy: Escaping the Middle-Income Trap*. Taylor & Francis, 2023.
- [12] T. A. Shaikh, T. Rasool, and F. R. Lone, 'Towards leveraging the role of machine learning and artificial intelligence in precision agriculture and smart farming', *Computers and Electronics in Agriculture*, vol. 198, p. 107119, 2022.
- [13] K. Nova, 'AI-enabled water management systems: an analysis of system components and interdependencies for water conservation', *Eigenpub Review of Science and Technology*, vol. 7, no. 1, pp. 105–124, 2023.
- [14] S. J. Plathottam, A. Rzonca, R. Lakhnori, and C. O. Iloeje, 'A review of artificial intelligence applications in manufacturing operations', *Journal of Advanced Manufacturing and Processing*, p. e10159, 2023.
- [15] J. Lee, J. Ni, J. Singh, B. Jiang, M. Azamfar, and J. Feng, 'Intelligent maintenance systems and predictive manufacturing', *Journal of Manufacturing Science and Engineering*, vol. 142, no. 11, p. 110805, 2020.
- [16] J. Nikam and K. Melati, 'Aiding Circular Business Transitions in Southeast Asian Small and Medium sized Enterprises (SMEs) Through Identifying Barriers and Enablers—a Case Study of Thailand based SMEs', *Circular Economy and Sustainability*, pp. 1–19, 2023.
- [17] W. Suksa-ngiam, 'Thailand's Digital Economy Transformation: Rectifying the Middle-Income Trap by Leveraging Digital Capabilities in the Agriculture Industry', The Claremont Graduate University, 2020.
- [18] R. Sharma, 'Leveraging AI and IoT for Sustainable Waste Management', in *International Conference on Sustainable Development through Machine Learning, AI and IoT*, Springer, 2023, pp. 136–150.
- [19] O. Imaz and A. Eizagirre, 'Responsible innovation for sustainable development goals in business: An agenda for cooperative firms', *Sustainability*, vol. 12, no. 17, p. 6948, 2020.
- [20] V. Wylde *et al.*, 'Cybersecurity, data privacy and blockchain: a review', *SN Computer Science*, vol. 3, no. 2, p. 127, 2022.

- [21] L. Floridi *et al.*, ‘An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations’, *Ethics, governance, and policies in artificial intelligence*, pp. 19–39, 2021.
- [22] K. N. Johnson and C. L. Reyes, ‘Exploring the implications of artificial intelligence’, *J. Int’l & Comp. L.*, vol. 8, p. 315, 2021.
- [23] K. Mongkol, ‘The Future of Artificial Intelligence in Southeast Asia: The Case of Thailand’, in *Handbook of Research on Artificial Intelligence and Knowledge Management in Asia’s Digital Economy*, IGI Global, 2023, pp. 12–35.
- [24] L. Cheng, K. R. Varshney, and H. Liu, ‘Socially responsible ai algorithms: Issues, purposes, and challenges’, *Journal of Artificial Intelligence Research*, vol. 71, pp. 1137–1181, 2021.
- [25] W. Badawy, ‘Data-driven framework for evaluating digitization and artificial intelligence risk: a comprehensive analysis’, *AI and Ethics*, pp. 1–26, 2023.
- [26] E. M. Abrenilla, C. Redido, C. F. Abendan, and O. K. Kilag, ‘The Next Chapter of ELT: Embracing AI-Infused Pedagogies and Evolving Educational Strategies in the Post-Pandemic Landscape’, *Excellencia: International Multi-disciplinary Journal of Education (2994-9521)*, vol. 1, no. 5, pp. 124–135, 2023.
- [29] V. Scatiggio, "Tackling the issue of bias in artificial intelligence to design AI-driven fair and inclusive service systems. How human biases are breaching into AI algorithms, with severe impacts on individuals and societies, and what designers can do to face this phenomenon and change for the better," 2022.
- [30] Y. K. Dwivedi *et al.*, "Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy," *International Journal of Information Management*, vol. 57, p. 101994, 2021.
- [31] S. Bag and J. H. C. Pretorius, "Relationships between industry 4.0, sustainable manufacturing and circular economy: proposal of a research framework," *International Journal of Organizational Analysis*, vol. 30, no. 4, pp. 864-898, 2022.
- [32] D. D'amato and J. Korhonen, "Integrating the green economy, circular economy and bioeconomy in a strategic sustainability framework," *Ecological Economics*, vol. 188, p. 107143, 2021.
- [33] L. J. Belmonte-Ureña *et al.*, "Circular economy, degrowth and green growth as pathways for research on sustainable development goals: A global analysis and future agenda," *Ecological Economics*, vol. 185, p. 107050, 2021.

- [34] R. R. Bond et al., "Human Centered Artificial Intelligence: Weaving UX into Algorithmic Decision Making," in *RoCHI*, 2019, pp. 2-9.
- [35] G. Dagnaw, "Artificial intelligence towards future industrial opportunities and challenges," 2020.
- [36] Y. K. Dwivedi et al., "Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy," *International Journal of Information Management*, vol. 57, p. 101994, 2021.
- [37] C. S. Goh et al., "Revisiting triple bottom line within the context of sustainable construction: A systematic review," *Journal of cleaner production*, vol. 252, p. 119884, 2020.
- [38] S. Banzhaf, L. Ma, and C. Timmins, "Environmental justice: The economics of race, place, and pollution," *Journal of Economic Perspectives*, vol. 33, no. 1, pp. 185-208, 2019.
- [39] R. Dubey et al., "Big data and predictive analytics and manufacturing performance: integrating institutional theory, resource-based view and big data culture," *British Journal of Management*, vol. 30, no. 2, pp. 341-361, 2019.
- [40] H. S. Sætra, "The AI ESG protocol: Evaluating and disclosing the environment, social, and governance implications of artificial intelligence capabilities, assets, and activities," *Sustainable development*, vol. 31, no. 2, pp. 1027-1037, 2023.
- [41] J. W. Selsky and O. N. Babüroglu, "Socio-technical systems thinking: Appraisal and prospects," *Journal of Systems Thinking*, pp. 1-13, 2023.
- [42] N. Tsolakakis et al., "Artificial intelligence and blockchain implementation in supply chains: a pathway to sustainability and data monetisation?," *Annals of Operations Research*, vol. 327, no. 1, pp. 157-210, 2023.
- [43] S. J. Tracy, *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. John Wiley & Sons, 2019.
- [44] R. Van Dinter, B. Tekinerdogan, and C. Catal, "Automation of systematic literature reviews: A systematic literature review," *Information and Software Technology*, vol. 136, p. 106589, 2021.
- [45] A. O'Mara-Eves et al., "Using text mining for study identification in systematic reviews: a systematic review of current approaches," *Systematic reviews*, vol. 4, pp. 1-22, 2015.
- [46] C. Cooper et al., "Defining the process to literature searching in systematic reviews: a literature review of guidance and supporting studies," *BMC medical research methodology*, vol. 18, pp. 1-14, 2018.
- [47] W. M. Bramer et al., "Optimal database combinations for literature searches in systematic reviews: a prospective exploratory study," *Systematic reviews*, vol. 6, pp. 1-12, 2017.

- [48] S. K. Sharma and M. Sharma, "Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation," *International Journal of Information Management*, vol. 44, pp. 65-75, 2019.
- [49] H. M. Levitt et al., "Recommendations for designing and reviewing qualitative research in psychology: Promoting methodological integrity," *Qualitative psychology*, vol. 4, no. 1, pp. 2, 2017.
- [50] A. Ampatzoglou et al., "Identifying, categorizing and mitigating threats to validity in software engineering secondary studies," *Information and Software Technology*, vol. 106, pp. 201-230, 2019.
- [51] C. Chauhan, V. Parida, and A. Dhir, "Linking circular economy and digitalisation technologies: A systematic literature review of past achievements and future promises," *Technological Forecasting and Social Change*, vol. 177, p. 121508, 2022.
- [52] S. L. Wamba-Taguimdje et al., "Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects," *Business Process Management Journal*, vol. 26, no. 7, pp. 1893-1924, 2020.
- [53] S. Chitturu et al., "Artificial intelligence and Southeast Asia's future," in *Singapore Summit*, 2017.
- [54] A. B. Carroll and J. A. Brown, "Corporate social responsibility: A review of current concepts, research, and issues," in *Corporate social responsibility*, 2018, pp. 39-69.
- [55] Z. Rezaee, "Business sustainability research: A theoretical and integrated perspective," *Journal of Accounting literature*, vol. 36, no. 1, pp. 48-64, 2016.
- [56] Nitlarp, T., & Kiattisin, S. (2022). The impact factors of industry 4.0 on ESG in the energy sector. *Sustainability*, 14(15), 9198.
- [57] Liu, F., Lai, K. H., & Cai, W. (2021). Responsible production for sustainability: Concept analysis and bibliometric review. *Sustainability*, 13(3), 1275.
- [58] I. Rahman, "Corporate sustainability performance of the readymade garments industry in Bangladesh: Impact of organisational pressures and sustainability management control system," Ph.D. dissertation, Aston University, 2019.
- [59] M. Rodriguez-Fernandez, "Social responsibility and financial performance: The role of good corporate governance," *BRQ Business research quarterly*, vol. 19, no. 2, pp. 137-151, 2016.
- [60] Khalil, M. A., Khalil, R., & Khalil, M. K. (2022). Environmental, social and governance (ESG)-augmented investments in innovation and firms' value: a fixed-effects panel regression of Asian economies. *China Finance Review International*, (ahead-of-print).

- [61] Puriwat, W., & Tripopsakul, S. (2022). From ESG to DESG: The impact of DESG (Digital Environmental, Social, and Governance) on customer attitudes and brand equity. *Sustainability*, 14(17), 10480.
- [62] Kono, V. R., Restuningdiah, N., & Juliardi, D. (2023). Corporate Sustainability Reporting in Southeast Asia: A Scoping Review. *Journal of Applied Business, Taxation and Economics Research*, 3(2), 182-199.
- [63] M. L. Tseng et al., "Sustainable agritourism in Thailand: Modeling business performance and environmental sustainability under uncertainty," *Sustainability*, vol. 11, no. 15, p. 4087, 2019.
- [64] R. Matheus, M. Janssen, and D. Maheshwari, "Data science empowering the public: Data-driven dashboards for transparent and accountable decision-making in smart cities," *Government Information Quarterly*, vol. 37, no. 3, p. 101284, 2020.
- [65] S. Sheikh, Ed., *Understanding the role of artificial intelligence and its future social impact*. IGI Global, 2020.
- [66] S. Tripopsakul and W. Puriwat, "Understanding the impact of ESG on brand trust and customer engagement," *Journal of Human, Earth, and Future*, vol. 3, no. 4, pp. 430-440, 2022.
- [67] S. Heng et al., "Understanding AI ecosystems in the Global South: The cases of Senegal and Cambodia," *International Journal of Information Management*, vol. 64, p. 102454, 2022.
- [68] P. Hassan, F. Passing, and J. M. Gómez, "ESG Fingerprint: How Big Data and Artificial Intelligence Can Support Investors, Companies, and Stakeholders?," in *Responsible Artificial Intelligence: Challenges for Sustainable Management*, Springer International Publishing, 2023, pp. 219-234.
- [69] C. Oprean-Stan et al., "Impact of sustainability reporting and inadequate management of ESG factors on corporate performance and sustainable growth," *Sustainability*, vol. 12, no. 20, p. 8536, 2020.
- [70] Z. Rezaee, "Corporate sustainability: Theoretical and integrated strategic imperative and pragmatic approach," *The Journal of Business Inquiry*, vol. 16, 2017.
- [71] S. L. Wamba-Taguimdje et al., "Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects," *Business Process Management Journal*, vol. 26, no. 7, pp. 1893-1924, 2020.
- [72] F. Ebinger and B. Omondi, "Leveraging digital approaches for transparency in sustainable supply chains: A conceptual paper," *Sustainability*, vol. 12, no. 15, p. 6129, 2020.
- [73] Y. L. Chang and J. Ke, "Socially responsible artificial intelligence empowered people analytics: a novel framework towards sustainability," *Human Resource Development Review*, vol. 23, no. 1, pp. 88-120, 2024.

- [74] N. Bachmann et al., "The contribution of data-driven technologies in achieving the sustainable development goals," *Sustainability*, vol. 14, no. 5, p. 2497, 2022.
- [75] Afum, E., Agyabeng-Mensah, Y., Sun, Z., Frimpong, B., Kusi, L. Y., & Acquah, I. S. K. (2020). Exploring the link between green manufacturing, operational competitiveness, firm reputation and sustainable performance dimensions: a mediated approach. *Journal of Manufacturing Technology Management*, 31(7), 1417-1438.
- [76] Oyewo, B. (2021). Do innovation attributes really drive the diffusion of management accounting innovations? Examination of factors determining usage intensity of strategic management accounting. *Journal of Applied Accounting Research*, 22(3), 507-538.
- [77] J. Zhao and B. Gómez Fariñas, "Artificial intelligence and sustainable decisions," *European Business Organization Law Review*, vol. 24, no. 1, pp. 1-39, 2023.
- [78] O. B. McIntosh et al., "The role of sustainability knowledge-action platforms in advancing multi-stakeholder engagement on sustainability," *Data & Policy*, vol. 5, p. e33, 2023.
- [79] Singhania, M., & Saini, N. (2023). Institutional framework of ESG disclosures: comparative analysis of developed and developing countries. *Journal of Sustainable Finance & Investment*, 13(1), 516-559.
- [80] Tripopsakul, S., & Puriwat, W. (2022). Understanding the impact of ESG on brand trust and customer engagement. *Journal of Human, Earth, and Future*, 3(4), 430-440.
- [81] Tzar, J., & Siregar, S. V. N. P. (2023). The Effect of ESG on ASEAN Public Companies' Green Innovation per 2021. *Indonesian Journal of Economics and Management*, 3(3), 509-521.
- [82] V. Blok et al., "From best practices to bridges for a more sustainable future: Advances and challenges in the transition to global sustainable production and consumption: Introduction to the ERSCP stream of the Special volume," *Journal of Cleaner Production*, vol. 108, pp. 19-30, 2015.
- [83] D. Mhlanga, "Human-centered artificial intelligence: The superlative approach to achieve sustainable development goals in the fourth industrial revolution," *Sustainability*, vol. 14, no. 13, p. 7804, 2022.
- [84] The research emphasises the importance of combining knowledge from AI, sustainability, and organisational theory to gain a thorough understanding of how AI affects sustainable business practices.
- [85] M. Ike et al., "The process of selecting and prioritising corporate sustainability issues: Insights for achieving the Sustainable Development Goals," *Journal of Cleaner Production*, vol. 236, p. 117661, 2019.

- [86] R. Nishant, M. Kennedy, and J. Corbett, "Artificial intelligence for sustainability: Challenges, opportunities, and a research agenda," *International Journal of Information Management*, vol. 53, p. 102104, 2020.
- [87] M. Javaid et al., "Understanding the adoption of Industry 4.0 technologies in improving environmental sustainability," *Sustainable Operations and Computers*, vol. 3, pp. 203-217, 2022.
- [88] P. Savaget et al., "The theoretical foundations of sociotechnical systems change for sustainability: A systematic literature review," *Journal of cleaner production*, vol. 206, pp. 878-892, 2019.
- [89] Y. K. Dwivedi et al., "Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy," *International Journal of Information Management*, vol. 57, p. 101994, 2021.
- [90] L. Galindo, K. Perset, and F. Sheeka, "An overview of national AI strategies and policies," 2021.
- [91] W. A. Srisathan, C. Ketkaew, and P. Naruetharadhol, "Assessing the effectiveness of open innovation implementation strategies in the promotion of ambidextrous innovation in Thai small and medium-sized enterprises," *Journal of Innovation & Knowledge*, vol. 8, no. 4, p. 100418, 2023.
- [92] J. E. Araña and C. J. León, "Are tourists animal spirits? Evidence from a field experiment exploring the use of non-market based interventions advocating sustainable tourism," *Journal of Sustainable Tourism*, vol. 24, no. 3, pp. 430-445, 2016.