

Preface

INTRODUCTION

The transition to a climate-neutral economy and society offers opportunities that can improve the well-being and health of citizens, create new jobs and boost the economy (Almunawar *et al.*, 2023; Ordóñez *et al.*, 2021, 2022; European Commission, 2023a). In the case of the European Union, the European Green Deal aims to transform the region “into a modern, resource-efficient and competitive economy, ensuring: no net emissions of greenhouse gases by 2050, economic growth decoupled from resource use and no person and no place left behind” (European Commission, 2023b).

What happens now in Asia regarding the green and digital transition? What are the main challenges and risks?

The book provides innovative conceptual frameworks and theories, case studies and empirical studies to understand how knowledge management and digital innovation can foster the transition towards more circular and climate-neutral economies as well as greener economies in Asia. Book chapters discuss how key and enabling digital tools and solutions and knowledge management can support the achievement of sustainable development goals (SDGs) by 2030. It drives lively discussion on challenges, opportunities, and trends in digital transformation in Asia among academics, researchers, industry players, policymakers and other relevant stakeholders. Finally, this book has a special focus on the ASEAN region and presents comparative regional studies on these topics. In conclusion the book explores how these key topics can help to accelerate and navigate the transition towards a greener and more sustainable economy.

OBJECTIVES

The book explores how knowledge management and advanced information technologies (artificial intelligence, IoT machine learning, etc) can create digital tools and solutions to build more resilient, climate neutral and green economies and societies. The chapters of the book will study how digital tools and solutions and knowledge management can impact the achievement of sustainable development goals (SDGs) in Asia. In the case of the EU, European Commission’s Horizon Europe Work Programme 2023-2024 promotes climate transition and digital transformation.

Thanks to its innovative topics (artificial intelligence, knowledge management, circular economy, green economy, climate neutral economy) and approaches, geographical focus (Asia) and methodologies (empirical studies, case studies), the book aims to be a reference for students (undergraduate and

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postgraduate), academics, experts on IT, CEOs, policymakers and other relevant stakeholders around the world.

The book aims to be an international platform to foster dialogue among academics, researchers, decision-makers, policymakers, and practitioners, sharing new theories and frameworks, research findings, and case studies, to enhance knowledge and scientific collaboration in artificial intelligence, business, digital innovation and knowledge management. The book will present ideas and solutions to boost circular, more sustainable and climate-neutral economies and societies.

Structure and contents of the book

The first section of the book *Perspectives on the Transition Toward Green and Climate Neutral Economies in Asia*, in section one “*SDGs & Digital Transformation*”, has a collection of 11 chapters.

Chapter 1 titled “Sustainable Finance - A Way Towards Climate Neutral Economies” (by Shweta Sharma and Sandeep Kumar) analyzes “how sustainable finance helps countries achieve their target of becoming a climate-neutral economy, specifically in the Asia Pacific region. First, we study greenhouse gas emissions worldwide and understand the need to mitigate the climate risk for the economic development of different countries in Asia. Different financial practices that exist under the domain of sustainable finance, like climate finance, green finance, ocean finance, digital green finance, impact investment, and socially responsible investment, are studied briefly to see how they help in achieving the carbon-neutral economy goal of countries. Further, a comprehensive study is conducted to understand the components of green financial systems. Different securities under green finance and the policy initiatives adopted in different Asian countries to strengthen the effects of green finance are studied. The study briefly describes the recent trends adopted by different Asian countries for achieving carbon-neutral goals”.

Chapter 2 titled “Digital Transformation: A Catalyst for Achieving Sustainable Development Goals (SDGs) in Malaysia” (by Chai Lee Goi) affirms that “digital transformation is a key driver for achieving sustainable development goals (SDGs) in Malaysia. This research explores the role of digital transformation in advancing the SDGs and promoting economic development, social progress, and environmental sustainability in the country. The integration of digital technologies across sectors offers unique opportunities to drive sustainable practices, mitigate environmental impacts, and foster a culture of innovation and collaboration. Malaysia’s commitment to the SDGs and its efforts in digital transformation creates a conducive environment for leveraging digital technologies to address social challenges and contribute to green and climate-neutral economies. The abstract highlights the current state of digital transformation in Malaysia, its contributions to economic development, and the implications for achieving the SDGs. It emphasizes the potential of digital transformation as a catalyst for driving sustainable development in Malaysia”.

Chapter 3 titled “Digital Transformation for Sustainability in Asia: Grab Case Study” (by Rossana Piccolo and Marianna Boero) states that “environmental sustainability represents one of the most topical and debated issues in recent decades, as the environment is at the center of many societies, in which digital transformation plays a key role, representing the new backbone. Through the exploitation and exploration of new knowledge, it increases the chances of survival in today’s dynamic marketplace, requiring a broader view of information technology and knowledge management that can also consider the semantic and symbolic aspects related to innovation. Cities are the engine of Southeast Asia’s economic growth, and thanks to the introduction of smart technologies, such as digital apps for citizens, several tangible results in terms of improved quality of life are being achieved. Grab, the first and most dominant super

in Asia, promotes initiatives aimed at environmental impact, achieving the Sustainable Development Goals. It also highlights how knowledge management, semiotics, and organizational sustainability seem to be interrelated, providing a sustainable competitive advantage in the marketplace”.

Chapter 4 titled “A Study on the Digital Transformation and Sustainable Development Goals in the Asia Pacific Region” (by Anusha Thakur) affirms that “the 2030 Agenda scripts an important milestone for worldwide cooperation wherein, different variables overlay which is otherwise, difficult to be addressed. The Sustainable Development Goals are thereby considered to be the revitalization of ideas of global expansion, a definition of a politically aware horizon, with the objectives of both quantitative and qualitative evolution. The concept also comprises of a new diplomatic negotiation structure which has been updated as per the latest requirements of multilateral negotiations by the UN diplomacy. From a technical point of sight, the forthcoming scenario of the Asia-Pacific region will entail a digital economy braced by a green industry ecosystem and the leading ICT solutions for innovation. Effective implementation of strategies, models, and goals are thereby expected to address the gap and cater to the complete transformation of the nations. This chapter emphasizes the need for digital transformation and sustainable goals, along with the different trends, and impacts of SDGs in the Asia Pacific region”.

Chapter 5 titled “E-Business Applications by Food, Agro and Marine Segment of Micro and Small Enterprises (MSEs)” (by Chandra Sekhar Patro) observes that “the contemporary business environment is moving towards the digital world as a result of the rapid changes in communication and technology. The MSEs must use e-business applications to explore trade opportunities in order to get out of this scenario. The chapter determines the perceptions of the Food, Agro and Marine segment of MSEs on e-business applications. Also, analyse the relationship among the factors influencing e-business applications and organisational performance. The results reveal that employee support, financial benefits, social influence, ease of use, management support, IT capability, security & privacy, and government support show a substantial association with organisational performance. The results will be helpful in understanding the state of e-business practises among MSEs as well as any gaps in e-business adoption. Determine how much e-business practises can be promoted and used in order to attain the best results”.

Chapter 6 titled “Digital Health, Post COVID-19 Pandemic, and a Public Policy Perspective” (by Muhammad Anshari, Mahani Hamdan, Emil Ali and Norainie Ahmad) recalls that “COVID-19 was a global pandemic that spread rapidly and caused public anxiety and concern. Various precautions have been attempted to reduce the intensity of the pandemic and its disruptive effects on society in response to the unexpected emergence of the COVID-19 pandemic. Digital health applications offer an innovative solution that is helpful for individuals, organisations, and health professionals while also, most significantly, assisting in the prevention of disease. There were many created to mark the shift to a digital healthcare system. Therefore, the purpose of this article is to assess the development of digital health during the COVID-19 pandemic from the perspective of public policy and administration provided by digitalized healthcare systems. The research revealed that the role of public policy in supporting the implementation of digital health is encouraging innovation and the development of high-quality digital health technology, setting clear standards and regulations regarding the use of digital health technology, and promoting digital health literacy to the public”.

Chapter 7 titled “Digital Marketing in Tourism Services in India” (by Chandra Sekhar Patro and Rama Mohana Rao Katta) notes that “tourism sector has grown substantially during the last two decades in many countries including India. The growth in income levels, increased work pressures, change in lifestyles, investments in the development of tourist destinations, expanded transport facilities and hospitality, and modern digital technologies are responsible for such an impressive performance of the

sector. This chapter analyses the growth of tourism in India, digital marketing initiatives and find the potential for digital applications in the marketing of tourism services. The study emphasizes the need for more digital applications to reach greater market segments in the domestic as well as international markets. The tourism sector is widely using information and communication technologies and other digital devices to create accessibility, information, expectations, and convenience to potential tourists and also to promote tourism in many new segments. This inquiry will be beneficial to the practitioners who play a pivotal role by adopting digital marketing practices in the tourism sector”.

Chapter 8 titled “Readiness of Digital Transformation in Private Sector: Brunei’s Case Study” (by Nadia Aji, Nurafiqah Norazmi, Mohamad Nur Farihin Abu Bakar, Yusrina Yakub, Nurul Wafaa’ Wajihah Jufri and Mohammad Almunawar) explores “the stage, readiness, barriers and drivers of digital transformation (DT) in the local private sector in Brunei. It also aims to analyse whether or not the private sector is ready to transition towards a green economy. The result shows that the readiness of DT in Brunei’s private sector is not affected by Digital Literacy and Information Use. The three most common barriers to DT are lack of employee rewards, lack of superior incentives in the adoption of digital transformation, and lack of leadership and control in digitalisation. It is found that the factors that drive DT include shifts in the competitive landscape and in policies, the shift of behaviour and expectations of customers and shifts toward digital transformation in the industry. In terms of the green economy, it is found that the Government of Brunei has yet to integrate its digital economy to be greener and sustainable as it can position Brunei at a disadvantage in the green economy”.

Chapter 9 titled “Smart Cities - Mapping the Market Analysis for Future” (by Anusha Thakur) states that “in today’s scenario, the development of smart cities is largely being powered, enabled, and integrated by increasing concepts of advanced data analytics and cloud technologies. Rising population and migration trends are essentially the factors expected to bolster the development of megacities across the world. This paper emphasizes the market trends, and opportunities empowering the future of smart cities. It contemplates the strategies adopted by the top smart cities to optimize the overall energy production and expansion of their markets. The paper focuses on different indicators for smart cities, and the factors driving the rise in the development of megacities. In addition to these, the need for the development of smart cities, along with the factors hindering the overall rise of these cities will also be the key areas of study. Further, the paper also discusses the market size and forecasts of smart cities in Asia for the period of 2021-2030”.

Chapter 10 titled “Usability Evaluation of Artificial Intelligence for Image Recognition Features in Online Shopping Applications Using the UTAUT Method” (by Dian Palupi Restuputri, Ilyas Masudin, Angie Andini, Dwi Handayani and Meddy Setiawan) aims to measure “the usability level of the Image Recognition feature on the Shopee and Lazada applications using the UTAUT method to measure the usability level. The variables used in this study are Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Usability Expectancy, and Use Behavior. Meanwhile, four moderate variables were involved: age, gender, experience, and voluntariness of use. This study performs Structural Equation Modeling (SEM) using Partial Least Square (PLS) to investigate the relationship between variables. Based on the R-square value, it can be concluded that the UTAUT method is better at evaluating the usability of the Image Recognition feature in Lazada than in the Shopee application. The reason is the R-square value of the dependent variable Usability Expectancy in the Lazada application has the highest R-square value of 0.957. This result means that the BI variable can be explained by the independent variables Performance Expectancy, Effort Expectancy, and Social Influence of 95.7%”.

Chapter 11 titled “Use of Python Modules in Ecological Research” (by Santhosh Kumar Rajamani and Radha Srinivasan Iyer) states that “Python is a popular programming language in the field of ecology and environmental research. Python is simple to use, has a sizable and active user community, and offers a plethora of libraries and frameworks that may be utilized for these types of Ecological studies. Python has many libraries for working with and analyzing large datasets, such as NumPy and pandas. It also has libraries for creating a wide range of visualizations, including Matplotlib and Seaborn. Python has a number of libraries for working with GIS data, including ArcPy (a library for working with ESRI’s ArcGIS software) and GDAL/OGR (a library for working with raster and vector data). Python has a number of libraries for implementing machine learning algorithms, including scikit-learn and TensorFlow. These can be used to build models for predicting species distributions, forecasting the impacts of environmental changes, and so on. Python has a number of libraries for scientific computing, including NumPy and SciPy, which can be used for tasks such as numerical optimization, integration, and interpolation”.

The section of the book, Section Two: “Green Economies & Case Studies” has a collection of 11 chapters too.

Chapter 12 titled “Green Spaces - A Transformational Change in the Asian Countries” (by Anusha Thakur) affirms that “ensuring ecological sustainability is one of the interlinked principles of the New Urban Agenda implemented, with respect to sustainable housing development. The strategic innovations empower the communities and governments to enhance the performance of the systems and make them resilient and adaptive. Urban areas are conventionally characterized by heavy construction and high population density to cater to commercial and residential amenities. Densification-prompted activities in the cities pose to be a challenging factor in cities, in terms of maintaining the ecological balance and well-being of the individuals. Cities in Asia are emphasizing on ways to make their environment livable by incorporating strategies and models for the improvement of land, water, and air. This chapter emphasizes the need for green spaces and infrastructure in the Asian countries. It caters to the different trends, impacts, and challenges, of green spaces in the different countries across Asia”.

Chapter 13 titled “Growth and Environment - The Asian Perspective: Growth and Environment” (by Subhanil Banerjee, Souren Koner and Jinty Dutta) notes that “the 1972 Stockholm convention initiated the debate over whether economic growth and environmental degradation are complementary or substitute. In 1983, the Brundtland commission began incorporating environmental considerations into conventional economics. Almost at the same time, the Environmental Kuznets Curve hypothesis gained popularity and behind the veil of the EKC hypothesis the developed countries started putting pressure on the developing and least developed countries to be pro-growth even at the cost of the environment so that they come at par of the developed nations. In this background, the present chapter considers 41 Asian countries over five years spanning from 2015 to 2019. It has taken per capita emission of CO₂ (metric-ton) as the dependent variable and growth of per capita income along with access to electricity as the independent variable. The result indicates that there is no statistically significant impact of per capita income growth on the emission of per capita CO₂ and the EKC hypothesis does not hold for the Asian continent”.

Chapter 14 titled “The Evolution of Waste Bank in Indonesia: An (Islamic) Local Wisdom based on Circular Economy towards A Climate Neutral Economy” (by Khairunnisa Musari) observes that “along with the call towards a climate-neutral economy, one solution that has recent years become popular is the circular economy. Indonesia has local wisdom which is a form of circular economy, namely ‘waste bank’. The waste bank is a best practice of social engineering that encourages people to sort waste from

its source so that it can generate economic value. Besides preserving the environment, the waste bank in Indonesia also helps to increase financial inclusion through nano finance for its customers. Through literature studies, observations or field studies, interviews, and using ethnography, this study aims to describe the evolution of waste banks in Indonesia in supporting the circular economy. This study found that waste bank brings not only implications for the economy and environment, but also brings implications for social and religious values at the same time. Nano finance in the waste bank is similar to qard al-hasan. In Islamic finance, qard al-hasan is a kindness loan that is recommended as the most appropriate contract to be implemented in ultra-micro community groups”.

Chapter 15 titled “Agenda-setting Towards Indonesia’s Ambitious Electricity Decarbonization 2030: Circularity Strategy to Renewable Power Generation” (by Hariyadi Hariyadi, Badrun Susantyo and Sahat Silalahi) affirms that “Indonesia’s successful implementation of the Green Business Plan of Electricity 2021-2030 (the Green RUPTL) is a vital momentum in achieving the energy transition. Under this framework, a necessary step includes adding 51.6% of renewable power generation by 2030. This chapter aims to analyze essential issues of mainstreaming the circularity approach in the Green RUPTL using aspects of structure, process, and socio-culture as a tool of analysis. The legal frameworks have been relatively fulfilled. However, several breakthrough measures are needed to target several vital issues. Mainstreaming the circularity strategy in solar and wind power development will be implemented massively in the long term. In the medium term, strengthening the CE approach to meet the Green RUPTL needs completion of related legal frameworks and strengthening international cooperation whilst in the short term, law enforcement in the solar and wind power projects and becomes a vital modality to begin mainstreaming the strategy”.

Chapter 16 titled “Twinning the Green Transition and Digitalization on the Islamic Philanthropy Institutions: Evidence in Indonesia” (by Khairunnisa Musari) states that “Islamic philanthropic institutions are now working towards a green transition. Digital technology plays an important role as an enabler. Through literature studies, field studies, interviews, and using ethnography, this chapter explains two things: (1) Describes green transition practices by Islamic philanthropic institutions in Indonesia; (2) Describes the extent to which the institution is utilizing digital technology in a green transition. By taking case studies on three institutions that have worked in the Green Eligible Sector, this chapter provides an overview of their twin green transition and digitalization. Islamic philanthropic institutions have done green crowdfunding through digital green branding, digital green promotion, digital green marketing, digital green fundraising, and digital green payments for supporting their green transition programs. By partnerships with deep technology providers, they can expand into green production and processing areas. Through the Islamic Quadruple Helix, the institutions can transform into a digitally-enabled society”.

Chapter 17 titled “An Empirical Study to Determine Rice Insurance Premium: A Case Study of the Vietnamese Mekong Delta” (by Nguyễn Tạc and Huynh Khai) proposes “rice crop insurance services in the Mekong Delta. The premium is a very important element in an insurance policy, and the calculation of the premium requires both science and judgment. Based on the Bayesian empirical reliability theory approach, this paper proposes an appropriate approach to calculate the premium for rice in the Mekong Delta, using both temporal and spatial aspects of data to increase the efficiency of statistical estimates. The results have calculated important criteria for the calculation of premiums according to the area yield index of the rice insurance contract, such as threshold yields, probable yields, indemnity levels, pure premium rate, and commercial premium rate. This result contributes to the design and charging of more diversified and reasonable crop insurance products”.

Chapter 18 titled “Customer Perspective on a Curated Gift-Box Service.: A Study in Sikkim, India” (by Smriti Pradhan, Saibal Saha and Ajeya Jha) states that “due to the proliferation of choices and brands, accessibility to information, and new communication mediums, consumer behavior, particularly decision-making processes, has been altered by the spending power of various segments. In the Indian environment, although product appearance has been identified as a significant factor in influencing customer behavior, its effect on decision-making when combined with other factors such as cost, features, and intrinsic psychological factors has not been studied thoroughly. This study aims to highlight consumers’ perspectives on a curated gift-box service in Sikkim. Focusing on gifting during special occasions, impulse buying, and self-gift opportunities, this study stands on the possibility that there is a need for such service in the market”.

Chapter 19 titled “Influence of Multiple Factors on Organizational Happiness in Educational Institutions” (by Muhammad Imran, Rawiyah Abd Hamid, Siti Norasyikin Abdul Hamid and Shazia Munir) analyses “the influence of perceived organizational support, organizational environment, national culture, organizational socialization, psychological capital, and organizational commitment on the organizational happiness of public schools in Punjab, Pakistan. The data from 376 responses were analyzed using SmartPLS to draw the study results. The study findings revealed that the positive relationship between Organizational climate, Organizational commitment, Organizational socialization, Perceived organizational support, and organizational happiness. On the other hand, organizational commitment found a mediatory role between the organizational climate, perceived organizational support, psychological capital, and organizational happiness. The findings of the study are useful for policymakers and the management of public schools in Pakistan”.

Chapter 20 titled “Vocational Training Course Preferences Among Sikkimese Youth” (by Saibal Saha, Monita Rai and Ajeya Jha) affirms that “unemployment is one of the major issues in modern times. High Unemployment rates affect a country’s economic growth, mental well-being of an individual and his/her family members and create unrest in society. Vocational training is one of the most crucial elements in the competitive and developing world. Through the provision of real-world experience, vocational training aids in developing skills. This study aims to highlight the aspirations of the people of Sikkim concerning vocational training and find its challenges and hindrances. With the help of a structured questionnaire, responses were taken from the youth of Sikkim, India and their perception about opting for different vocational training courses were taken. On analyzing the data, it was found that males are more inclined towards cooking and baking classes, repair of mobiles, laptops and other electronic accessories and repair of bikes and automobiles. Females on the other hand wanted to focus on makeup and beautician courses, jewelry design, floriculture and towards repair of mobile and computers”.

Chapter 21 titled “Women and Tourism Case of Sikkim, India: Women and Tourism” (by Supriya Dam) state that “socioeconomic structure in Sikkim often leads women’s participation in different walks of life. The bulk of the micro-enterprises and tourist spots are managed through women and account for the fourth highest number of self-employed women in India inside the territory. Considered a haven for women employees for security reasons along with the other tourism centered state Goa, this Eastern Himalayan state made significant progress in GPI since statehood in 1975. Test results indicate that women’s employment in the accommodation sector does not proportionately increase with the number of accommodations. Despite the incremental decrease in GER for women at the primary level, a dominant presence in higher education provides ample opportunities for women to excel in white-collar jobs, which augurs well for the service sector in general and tourism in particular”.

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Finally, Chapter 22 titled “State of the Art of Apple Waste in Circular Economy: Apple Waste in Circular Economy” (by Elif Çaloğlu Büyükselçuk) argue that “with the increasing world population, the use of resources has accelerated, environmental problems have increased, and the climate crisis has been faced. As in many sectors, investments are made for the changing process in industry, food, agriculture, livestock, and similar fields. Studies are carried out to evaluate various fruit and vegetable wastes obtained as a result of agricultural activities all over the world. One of these products is apple. In the literature, there are studies on wastes generated after processing apple fruit as fruit juice or other apple products. It would not be correct to qualify these residues as waste. Revaluation of these wastes as a result of certain processes is one of the activities of the circular economy. In this chapter, different evaluation methods such as composting, bioenergy production, biochemical production, landfilling, animal feed production or vegan leather production that can be applied to apple waste are introduced. The application of different evaluation methods, their advantages and disadvantages are examined.”

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