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From the Principal's Desk



It gives me an immense pleasure and pride to publish the proceedings of the National Conference on “*Exploring Pillars for Viksit Bharat 2047.*” This conference has provided a valuable academic platform for academicians, researchers, and information professionals to deliberate on the changing role of different contributors to the development of the nation and achievement of the objectives.

The National Conference on “Exploring Pillars for Viksit Bharat- 2047” is a visionary platform aimed at fostering dialogue, innovation, and collaboration to realize the goal of a Developed India by 2047. The conference brought together policymakers, academicians, industry leaders, entrepreneurs, students, and civil society to deliberate on transformative strategies for inclusive, sustainable, and technology-driven national growth.

This national conference successfully addressed contemporary issues, recent trends, and challenges and role of various sectors in achieving objectives of Viksit Bharat. Through keynote addresses, panel discussions, paper presentations, and interactive sessions, the conference paved way to generate actionable insights and policy-oriented recommendations for nation-building. Let this conference serve as a catalyst for ideas that empower our citizens, strengthen our institutions, and contribute to building a prosperous and self-reliant India.

I extend my sincere appreciation to the Editor, Miss Dipali Chavan for her dedicated efforts in bringing out this conference issue. I also congratulate the organizing committee, reviewers, authors, and all contributors for their academic involvement and commitment towards the success of this conference.

I am confident that this publication will serve as a valuable reference source for researchers, students, and professionals in the field of Commerce and Management and Social Sciences. I wish the journal every success and hope it will inspire further research and innovation in the field and Vision of Viksit Bharat-2047.

Dr. Gurunath Fagare
Principal
Kisan Veer Mahavidyalaya, Wai

From the Editorial Desk



We are pleased to present this special issue of the journal dedicated to the National Conference on “*Exploring Pillars for Viksit Bharat 2047*”, organized by the Department of Commerce and Management, BCA, and Psychology, History, Political Sciences, Economics in association with IQAC. This issue provides a platform for academicians, researchers and information professionals to share their research findings, experiences and innovative practices related to the application for “*Exploring Pillars for Viksit Bharat 2047*”.

This enthusiastic participation of academicians, researchers, and scholars across the nation reflects the collective intellectual commitment towards contributing to the vision of Viksit Bharat 2047 — a developed, self-reliant, and globally competitive India. The research papers submitted cover diverse dimensions such as economic growth, sustainable development, digital transformation, governance, reforms, social empowerment, innovations, and entrepreneurship. Each contribution adds meaningful insight into the structural and strategic pillars required to achieve the national vision of Vikasit Bharat

As Chief Editor, I sincerely appreciate the dedication of all authors, reviewers, members of the organizing committee, and IQAC for maintaining academic rigor and quality throughout the review and publication process. The success of this conference is a testament to our institution’s commitment to fostering research culture, interdisciplinary dialogue and academic excellence.

I sincerely appreciate the valuable contributions made by the authors, whose scholarly papers have enriched the knowledge and added literature through this journal issue. I am also grateful to the reviewers and editorial board members for their critical evaluation and constructive suggestions, which helped maintain the academic quality of the publication. Special thanks are due to the organizing committee and all contributors who worked tirelessly for the successful completion of this conference journal.

My personal gratitude goes to the eminent personality Hon’ble Dr. Deepak Karanjikar, Advisor, Viksit Maharashtra, Government of Maharashtra who had accepted our invitation as Chief Guest of Inaugural Function and Keynote Speaker, shared his views and ideas. Dr. Parashram Patil , Advisor, Viksit Maharashtra, Government of Maharashtra had accepted our invitation as Resource Person and Dr. Major Ashok Giri, Principal A.S.S.M, Medha for sharing their valuable views in Valedictory function.

We owe our sincere thanks to Hon’ble Shri. Madandada Bhosale, President, Janata Shikshan Sanstha, Wai who is the constant source of inspiration and driving force behind the execution of innovative ideas. We are thankful to secretary Hon’ble Dr. Jayawant Chaudhari for his kind support in the venture. I express my gratitude to Hon’ble. Principal Dr. Gurnath Fagare for his constant support. The organizing committee member also contributed a lot for the success of the Conference. The said conference would not have been successful without cooperation and support of the faculty, library staff and administrative staff. I thank all of them for their kind support and cooperation.

I am confident that this issue will serve as a useful source of knowledge and inspiration for professionals, researchers and students. I hope it will encourage further research and innovation, contributing to the continuous development of Viksit Bharat in digital era.

Executive Editor

Miss. Dipali Chavan

Assistant Professor, Department of Commerce and Management
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From the Editorial Desk

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Abstract

Sustainable improvement has grown to be a worldwide priority as nations attempt to balance financial boom, environmental protection, and social well-being. With growing concerns over climate change resource depletion, and pollutants, progressive answers are needed to ensure a sustainable future. smart technologies, along with synthetic Intelligence (AI), the internet of Things (IOT), block-chain, and renewable energy systems play a important role in driving sustainable improvement through improving performance, decreasing waste, and promoting environmentally pleasant practices

Keywords : *AI in Sustainability, Block-chain for Sustainability, Carbon Footprint reduction, round economy, smooth electricity, climate alternate solutions, virtual Sustainability, Eco pleasant era.*

Introduction

smart technologies are playing a essential role in using sustainable improvement via enhancing efficiency, decreasing waste, and promoting environmentally pleasant practices. these technologies include AI, IOT, block-chain, and renewable electricity structures, which are critical for optimizing processes, improving decision making, and ultimately reducing carbon footprints. smart technologies permit industries to display and control resources with unheard of precision, promoting electricity efficiency and waste minimization throughout sectors. They are not simplest reshaping industries however additionally pushing forward revolutionary procedures sustainability that deal with the needs of present day conscientious consumers and regulatory pressures. smart technologies, consisting of artificial Intelligence (AI), the internet of things (Io T), blockchain, and renewable energy systems, play a vital role in driving sustainable development by enhancing efficiency, decreasing waste, and selling environmentally friendly practices.

1. Sustainable development means

The idea of sustainable development was first defined by the Burundian fee (1987) as “development that meets the needs of the prevailing with out compromising the capacity of future generations to meet their very own desires.”

1.1 3 Pillars of Sustainability : Sustainable development is constructed upon 3 key pillars:

1. Environmental Sustainability – protective ecosystems, lowering pollution, and selling renewable electricity.
2. Financial Sustainability – making sure long-term economic increase with out harming natural sources.
3. Social Sustainability – improving best of life, making sure get right of entry to to sources, and promoting social equity.

clever technology support all 3 pillars by way of fostering energy efficiency, lowering environmental impact, and allowing smarter decision-making.

2. The function of smart technology in Sustainable improvement

2.1 Smart energy structures and Renewable technologies

Transitioning to clean and renewable electricity sources is a key purpose of sustainable development. smart technologies enhance electricity efficiency and optimize its usage Io T-enabled clever grids beautify energy distribution, reduce electricity loss, and integrate renewable sources like sun and wind energy. AI

From the Editorial Desk

algorithms are expecting energy demand, optimize electricity usage, and save you power wastage in houses and industries. Decentralized block-chain networks permit peer-to-peer electricity trading, permitting clients to promote excess solar energy to the grid.

2.2 Clever Transportation and inexperienced Mobility

The transportation sector is one in every of the biggest participants to greenhouse fuel emissions. clever technology are transforming mobility by eco-friendly transportation-solutions like AI-powered smart grids make sure green EV charging, decreasing the strain on energy structures. clever site visitors structures use sensors and AI to optimize traffic waft, reducing congestion and emissions. Self-riding electric powered cars and clever experience-sharing offerings decrease energy consumption and enhance efficiency.

2.3 Sustainable Agriculture via Precision Farming

Agriculture must emerge as greater green and environmentally pleasant to feed the growing international population. clever farming technologies assist reduce waste, preserve water, and enhance productiveness. Sensors screen soil moisture ranges and optimize water utilization, stopping over-irrigation. AI algorithms examine satelliteTV for PC photos and drone information to discover crop diseases and are expecting yields. Blockchain guarantees traceability in food deliver chains, reducing food waste and promoting fair alternate.

2.4 Smart towns for Sustainable urban improvement

Urbanization is increasing swiftly, making sustainable city planning critical. smart town technologies help reduce useful resource consumption and improve residents' quality of lifestyles Smart bins with fill-stage sensors optimize waste series and inspire recycling.

AI controls clever lighting fixtures and HVAC structures, reducing energy waste in homes.

Sustainable structure integrates solar panels, vertical gardens, and rainwater harvesting to lessen environmental effect.

2.5 Water Conservation and smart Water control

Water scarcity is a developing worldwide problem. smart technologies permit green water control by way of reducing waste and improving distribution. IoT-enabled clever Meters tune water intake in actual time, detecting leaks and selling conservation.AI complements water purification through optimizing remedy methods and decreasing chemical utilization.

superior filtration and desalination technology offer sustainable water solutions.

2.6 AI and large information for Environmental tracking

real-time environmental tracking facilitates governments and organizations combat pollutants and climate exchange. AI and large information analytics enhance choice-makingthrough Air quality monitoring is done by using IoT sensors monitor air pollution stages, permitting targeted movement to reduce emissions.weather Prediction models uses AI-powered simulations expect weather developments and natural disasters, aiding disaster preparedness.

Deforestation and natural world Conservation can be done by AI-powered drones and satellite tv for pc imagery display forests and guard biodiversity.

3. Challenges and boundaries to clever era Adoption

- 1.high initial fees – investing in clever infrastructure calls for huge capital.
- 2.statistics privacy worries – IoT and AI rely on statistics series, elevating protection troubles.
- 3.Technological limitations – developing countries can also lack get admission to to advanced technology.
- four.Resistance to alternate – Industries and governments may be sluggish to undertake new technologies.
- 5.Regulatory and coverage Gaps – Inconsistent rules avoid the improvement of sustainable answers.

4 . Future potentialities of clever technologies in Sustainability

looking in advance, several rising tendencies will form the destiny of sustainable improvement:

1. AI-pushed round economy – AI and IoT will beautify waste reduction and useful resource performance.
2. 5G and part Computing – faster connectivity will enable actual-time monitoring of smart grids and smart towns.
3. Improvements in green technology – innovations in biodegradable substances, carbon capture, and energy garage will power sustainability.

stronger authorities rules – Stricter guidelines will encourage companies to adopt sustainable practices.

with the aid of embracing these technologies, the arena can flow towards a smarter, greener, and extra sustainable future.

Clever technologies are transforming the way we method sustainable improvement, offering progressive solutions to climate alternate, resource conservation, and pollution manipulate. From smart grids and AI-pushed energy management to IoT-based waste tracking and precision agriculture, these technology play a critical function in creating a balance between economic growth and environmental protection.

To obtain proper sustainability, governments, businesses, and individuals need to paintings together to accelerate the adoption of smart technology, ensuring a greener and greater resilient future for generations to return.

Bibliography

1. Progress in smart and sustainable technologies P Ocloń, T Tsoutsos - Journal of Cleaner Production, 2022 - Elsevier
2. Smart technologies for sustainable urban and regional development R Mehmood, T Yigitcanlar, JM Corchado - Sustainability, 2024 - mdpi.com
3. The influence of using smart technologies for sustainable development in higher education institutions
4. R Shishakly, MA Almaiah, A Lutfi... - ... Journal of Data and ..., 2024 - research.ajman.ac.ae
5. Sustainable development of smart cities: A systematic review of the literature EP Trindade, MPF Hinnig, EM da Costa... - ... Technology, Market, and ..., 2017 - Elsevier