

EMERGING TRENDS IN RESEARCH & DEVELOPMENT

(Research, Resilience &
Revenue: The Startup Growth Formula)

ABSTRACT BOOK **ETRD – 2025** ABSTRACT BOOK

(Hybrid Mode)
July 19th-20th, 2025



विश्वविद्यालय वाणिज्य एवं प्रबंध अध्ययन महाविद्यालय



Organized by

Entrepreneurship Laboratory

Department of Business Administration

University College of Commerce & Management Studies

Mohanlal Sukhadia University, Udaipur, Rajasthan, India

in Collaboration with

**International Journal of
Innovative Research & Growth (IJIRG), INDIA**

&

Scientific & Humanities Research Society

Jaipur, Rajasthan, India



Entrepreneurship Laboratory
Department of Business Administration,
University College of Commerce and Management Studies,
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4th Global Conference

On

EMERGING TRENDS IN RESEARCH & DEVELOPMENT

(Research, Resilience, and Revenue: The Startup Growth Formula)

(Hybrid Mode)

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ABSTRACT BOOK



ORGANIZED BY
ENTREPRENEURSHIP LABORATORY
DEPARTMENT OF BUSINESS ADMINISTRATION
UNIVERSITY COLLEGE OF COMMERCE & MANAGEMENT STUDIES
MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR (RAJASTHAN), INDIA.

IN COLLABORATION WITH
INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH & GROWTH (IJIRG), INDIA.

&

SCIENTIFIC AND HUMANITIES RESEARCH SOCIETY,
JAIPUR, RAJASTHAN, INDIA

&

WORLD TRADE CENTRE, JAIPUR, RAJASTHAN, INDIA



4th Global Conference

On

EMERGING TRENDS IN RESEARCH & DEVELOPMENT

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Prof. (Dr.) Sunita Mishra
Chief Patron, ETRD-25



Message

It gives me great pleasure to extend my heartfelt greetings to all the distinguished delegates, scholars, academicians, and participants attending the 4th Global Conference on Emerging Trends in Research & Development (ETRD-25), jointly organized by the Scientific And Humanities Research Society (SAHRS) Jaipur, Rajasthan, India, Mohanlal Sukhadia University (MLSU), Udaipur, Rajasthan, India and the International Journal of Innovative Research & Growth (IJIRG), India, on July 19–20, 2025.

As we stand at the crossroads of transformation driven by technological innovation, global interconnectivity, and socio-economic change, the relevance of research and development has never been more critical. Conferences like this serve as dynamic platforms for intellectual exchange, innovation sharing, and collaborative thinking that transcend disciplines and geographical boundaries.

Mohanlal Sukhadia University takes great pride in being a part of this meaningful academic initiative. Our commitment to fostering a research-driven environment aligns seamlessly with the objectives of this conference, which seeks to explore cutting-edge developments and forward-looking strategies in research and governance.

I commend the organizers, partners, and contributors for their tireless efforts in bringing together a vibrant community of thinkers and change-makers. I am confident that the insights and outcomes of this conference will pave the way for new research paradigms and impactful collaborations.

Wishing the conference grand success and all participants a fruitful and enriching experience.

Warm regards,

A handwritten signature in black ink, appearing to read 'Sunita Mishra'.

Prof. (Dr.) Sunita Mishra
Hon'ble Vice Chancellor,
Mohanlal Sukhadia University, Rajasthan, India

Prof. (Dr.) B. L. Verma
Patron, ETRD-25



Message

It is with immense pride and satisfaction that I extend my warmest greetings to all the participants, presenters, and organizers of the 4th Global Conference on Emerging Trends in Research & Development (ETRD-25), being jointly organized by the Scientific And Humanities Research Society (SAHRS) Jaipur, Rajasthan India, Mohanlal Sukhadia University (MLSU), Udaipur, Rajasthan, India and the International Journal of Innovative Research & Growth (IJIRG), India, on July 19–20, 2025.

This conference marks a significant milestone in our ongoing efforts to bring together leading scholars, industry experts, and academicians from across the globe to share insights and innovative ideas that shape the future of research and development.

As Patron, I feel honored to support an initiative that not only highlights emerging trends across diverse domains but also upholds the spirit of academic inquiry and critical engagement. It is my firm belief that the deliberations and scholarly contributions made during this conference will have a lasting impact on research directions, institutional strategies, and practical applications across sectors.

I congratulate the organizing committee, our collaborators, and every individual whose dedication has made this event possible. I extend my best wishes for a successful and enriching conference and hope it serves as a catalyst for continued innovation and international cooperation.

Warm regards,

A handwritten signature in dark ink, appearing to be 'B.L.V.' with a stylized flourish.

Prof. (Dr.) B. L. Verma
Patron ETRD-25
Dean & Faculty Chairman
Head- Department of Business Administration
University College of Commerce and Management Studies
Mohanlal Sukhadia University Udaipur Rajasthan

Prof. (Dr.) P.L. Verma
Patron SAHRS



Message

Dear Esteemed Guests and Participants

It gives me immense pleasure to extend a warm welcome to each one of you to the 4th Global Conference on Emerging Trends in Research & Development (ETRD-25), Jointly organized by Scientific And Humanities Research Society (SAHRS) Jaipur, Rajasthan, India & Mohanlal Sukhadia University Udaipur, Rajasthan India & the International Journal of Innovative Research & Growth (IJIRG) India.

I am honored to serve as the Chief Patron of this prestigious event. ETRD-25 stands as a testament to the spirit of collaboration and the pursuit of excellence in research and development. It is a platform where scholars, researchers, academicians, and industry experts from across the globe come together to exchange knowledge, share insights, and explore the latest advancements in their respective fields.

I extend my heartfelt gratitude to all the distinguished speakers, presenters, and participants whose dedication and enthusiasm have contributed to the success of this conference. Your invaluable contributions are instrumental in fostering intellectual discourse and driving innovation.

I encourage all participants to actively engage in the sessions, exchange ideas, and forge new partnerships that will not only enrich your professional endeavours but also contribute to the advancement of your respective fields and the betterment of society as a whole.

In closing, I extend my best wishes for a productive, enlightening, and memorable conference experience. May ETRD-25 inspire you to push the boundaries of knowledge and make meaningful contributions to the world around us.

Thank you once again to everyone who has contributed to the success of ETRD-25. Your support and participation are deeply appreciated.

Warm Regards

A handwritten signature in black ink, appearing to read 'P.L. Verma'.

Patron SAHRS
Professor & Head
Govt. Vivekanand P. G. College
(PM Excellence) Maihar, M. P., India.

Dr. Preetam Singh Gour
Convener, ETRD-25



Message

Dear Esteemed Colleagues and Participants,

It is my great pleasure to welcome you to the 4th Global Conference on Emerging Trends in Research & Development, jointly organized by SAHRS, MLSU Udaipur, and IJIRG India. As the Conference Convener, I am honoured to bring together esteemed researchers, scholars, and experts from around the world to share their knowledge and insights.

This conference provides a platform for intellectual discourse, collaboration, and innovation. I hope the discussions and deliberations will inspire new ideas and foster meaningful connections.

I would like to express my sincere appreciation to all the authors whose dedication and expertise have enriched this publication. Your scholarly contributions have not only enhanced the quality of our conference but also contributed to the advancement of our collective understanding in diverse field of technology sustainable society.

I extend my gratitude to all participants, speakers, and organizers for their contributions. I wish the conference a grand success and look forward to the fruitful outcomes that will emerge from this gathering.

Thank you once again to all who have contributed to the creation of this publication, and I wish you all continued success in your academic and professional endeavours.

Warm Regards



(Dr. P. Singh)
Editor-In-Chief
IJIRG, India

Dr. Kapil Pal
Convener, ETRD-25



Message

Dear Esteemed Colleagues and Participants,

It gives me immense pleasure to extend a warm welcome to all participants of the 4th Global Conference on Emerging Trends in Research and Development (ETRD-2025). This academic gathering is being jointly organized by the Scientific And Humanities Research Society, Jaipur, Rajasthan, India, and Entrepreneurship Laboratory, Department of Business Administration, University College of Commerce & Management Studies, Mohanlal Sukhadia University, Udaipur (Rajasthan), India, and the International Journal of Innovative Research & Growth (IJIRG), India.

ETRD-2025 is envisioned as a dynamic platform to bring together academicians, researchers, scientists, and students from multi disciplines to exchange ideas, engage in meaningful discussions, and foster collaboration on recent trends and innovations in research and development. The hybrid format of the conference ensures greater participation and inclusivity, allowing scholars from across the globe to contribute and connect.

Being convener, I am excited to witness the enthusiastic response from the academic and research community. I express my heartfelt gratitude to our esteemed Chief Patron, Patrons, Keynote Speakers, Session Chairs, Contributors, and Delegates for their valued presence and contributions.

Special thanks to the Organizing Committee for their tireless efforts and meticulous planning. Their commitment has been instrumental in shaping this conference into a meaningful and memorable event.

I am confident that the deliberations and exchanges during ETRD-2025 will not only enrich our collective understanding but also spark new ideas and partnerships that will carry forward the spirit of innovation and academic excellence.

I wish all the participants a rewarding and intellectually stimulating experience and hope that ETRD-2025 proves to be a milestone in your academic journey.

Warm regards,



Dr. Kapil Pal
General Secretary
Scientific And Humanities Research Society
Jaipur, Rajasthan, India.

Dr. Sachin Gupta

Conference Director & Organizing Secretary, ETRD-25



Message

It is with great enthusiasm and a deep sense of responsibility that I welcome all delegates, researchers, academicians, and professionals to the 4th Global Conference on Emerging Trends in Research & Development (ETRD-25), jointly organized by the Scientific And Humanities Research Society (SAHRS) Jaipur, Rajasthan India, Mohanlal Sukhadia University (MLSU), Udaipur, Rajasthan, India and the International Journal of Innovative Research & Growth (IJIRG), India, on July 19–20, 2025.

This conference stands as a testament to our collective commitment to advancing knowledge, fostering innovation, and addressing contemporary challenges through interdisciplinary research. The evolving global landscape demands that we not only keep pace with emerging trends but also contribute meaningfully to shaping them. It is in this spirit that we have brought together a diverse group of thought leaders and scholars from across the globe.

Serving as both Conference Director and Organizing Secretary, I have witnessed firsthand the dedication and collaborative spirit of our organizing team, institutional partners, and contributors. Their tireless efforts have been instrumental in bringing this ambitious academic endeavor to life.

We are confident that the scholarly discussions, paper presentations, and knowledge exchanges during this conference will spark new ideas, strengthen academic networks, and inspire future collaborations.

I extend my sincere gratitude to all our patrons, sponsors, and participants for their support and engagement. I wish you all a stimulating and enriching conference experience.

Warm regards,



Dr. Sachin Gupta

Conference Director & Organizing Secretary

Assistant Professor, Department of Business Administration

University College of Commerce and Management Studies

Mohanlal Sukhadia University Udaipur Rajasthan

Dr. Naveen Kumar Singh
Organizing Secretary, ETRD-25



Message

It is my privilege to welcome you to the 4th Global Conference on Emerging Trends in Research & Development, a collaborative effort of SAHRS, MLSU Udaipur, and IJIRG India. As the Conference Organizing Secretary, I am delighted to see the culmination of our collective efforts in bringing together renowned experts, researchers, and scholars from diverse fields.

This conference aims to foster a dynamic exchange of ideas, promote interdisciplinary research, and explore innovative solutions to contemporary challenges. I am confident that the deliberations and discussions will yield valuable insights and meaningful outcomes.

I extend my heartfelt appreciation to all participants, organizers, and our esteemed partners for their tireless efforts and unwavering support. I wish the conference a grand success and look forward to the impactful contributions that will emerge from this gathering.

I welcome you all participants, chief guest, speakers, special guest and distinguished guest to ETRD-25 and extend my best wishes for the grand success of the Conference.

Warm Regards

A handwritten signature in blue ink, appearing to read 'Naveen K Singh', with a stylized flourish at the end.

(Dr. Naveen K Singh)
Associate Chief Editor,
IJIRG, India

Dr. Naveen Kumar
Keynote Speaker
ETRD-25



Message

It is a great honor and privilege to join you as a keynote speaker at the 4th Global Conference on Emerging Trends in Research and Development (ETRD-2025), organized by the Entrepreneurship Laboratory, Department of Business Administration, University College of Commerce & Management Studies, Mohanlal Sukhadia University, Udaipur (Rajasthan), India, in collaboration with the International Journal of Innovative Research & Growth (IJIRG), India, and the Scientific and Humanities Research Society, Jaipur, Rajasthan, India.

I would like to extend my heartfelt appreciation for the virtual presence of each participant. Your active engagement is a testament to your commitment to research, innovation, and knowledge-sharing. Your contributions are what truly enrich this platform, and I am grateful for the time and effort you have invested in being part of this event.

This conference serves not only as a platform for academic discourse but also as a space to cultivate partnerships, inspire innovation, and advance interdisciplinary research. I am confident that the ideas exchanged here will ignite future collaborations and lead to impactful outcomes in various domains of science, technology, and development.

I also take this opportunity to commend the entire organizing team for their vision, dedication, and seamless coordination in bringing together scholars, scientists, educators, and students from across the globe. Their efforts have provided us with an invaluable opportunity to explore emerging research trends and engage in meaningful dialogue.

As we move forward in an era defined by rapid change and innovation, conferences like ETRD-2025 remind us of the importance of collective intellectual effort, cultural exchange, and academic solidarity. In keeping with India's long-standing legacy of knowledge, philosophy, and scientific excellence, I am confident that this conference will contribute significantly to shaping a brighter and more inclusive research future.

Let us embrace this occasion with curiosity, open-mindedness, and a shared vision for progress.

Wishing ETRD-2025 great success and lasting impact.

Warm regards,

A handwritten signature in blue ink, which appears to read "Navin Kumar Ojha". The signature is fluid and cursive.

(Dr. Navin Kumar Ojha)
Saarland University, Germany
Academic Editor
IJIRG, India

Dr. Mohit Sharma

Keynote Speaker

ETRD-25



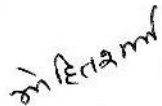
Message

It is a matter of immense honor and pleasure to be invited as a keynote speaker and facilitator at the 4th Global Conference on Emerging Trends in Research & Development (ETRD-25), organized by the Scientific and Humanities Research Society (SAHRS) in collaboration with Mohan Lal Sukhadia University, Udaipur and the International Journal of Innovative Research & Growth (IJIRG), India.

Conferences like ETRD-25 are powerful platforms that bring together diverse minds and disciplines under one roof, fostering cross-disciplinary dialogue and innovation. In today's rapidly evolving world, research is no longer confined to the laboratory—it is intricately woven into every sphere of human progress, be it in science, humanities, medicine, or technology.

As we explore emerging trends in research and development, it becomes imperative to also integrate values of ethics, sustainability, and societal relevance into our academic and scientific pursuits. I am hopeful that the deliberations at this conference will not only advance knowledge but also spark new collaborations and meaningful change. I extend my heartfelt congratulations to the organizing committee for their tireless efforts in curating such a global and intellectually stimulating event. I look forward to engaging discussions, knowledge exchange, and contributing to the shared vision of academic excellence.

With best wishes for the grand success of ETRD-25.



Dr. Mohit Sharma

Associate Professor,

SMS Medical College, Jaipur

Life Member, SAHRS

About Mohanlal Sukhadia University (MLSU)

Mohanlal Sukhadia University (erstwhile Udaipur University) at Udaipur is a State University established by an Act in the year 1962 to cater the needs of higher education in Southern Rajasthan with more than 2.25 Lakh Students. The University is located in Aravalli Hill Area largely dominated by tribal populations. Endowed with rich cultural heritage, natural resources and beautiful landscape.

About University College of Commerce & Management Studies (UCCMS)

The Department of Commerce existed as a single monolith department in the Faculty of Commerce even before the setting up of the University in 1964. During the year 1967, with a view to give recognition to the academic specializations existing in the courses of the faculty, three Boards of Studies were set up on the pattern of University of Rajasthan. The areas of the three Boards of Studies were determined as specializations at postgraduate level, namely Accountancy and Statistics, Banking Management and Business Administration. Thereafter, post-graduate degrees were awarded separately for the above three specializations. From the academic session 1983-84, when the M.Phil. Programme was started, separate courses were designed for the three specializations. Setting up the three departments thus, was the culmination of the process started in 1967 by setting up the three Boards of Studies. Presently College runs four Under Graduate Programmes – B.Com., B.Com. Honours, B.B.A. and Bachelor of Vocational Studies (B. Voc.) College has two premises one at Saraswati Marg where all the programmes except BBA of the college are run and one is Vanijya Bhawan (inside University campus) where Bachelor of Business Administration (B.B.A.) Programme is run. Programmes like Master of Commerce (M.Com.), Master of Human Resource Management (MHRM), Master of Retail Management (MRM), Master of International Business (MIB), Master of Banking & Insurance (MBI), Master of Finance & Control (MFC), Master of Vocational Studies (M. Voc.) are regular PG Programmes and three non-collegiate PG Programmes and many Diploma and Certification programmes also run simultaneously. The University College of Commerce and Management Studies offers Ph.D. programs across various disciplines, including Business Administration, Banking & Business Economics, and Accountancy & Business Statistics, fostering advanced research and academic excellence. The college has a huge building with 34 large and airy classrooms, library, reading room, e-library, two fully equipped computer labs, various databases and software, fully Wifi and CCTV-enabled campus. At present, 16 faculty members are there in the college along with around 100 visiting faculties. All the faculty members are committed to provide quality education to students and towards holistic development of students.

About Department of Business Administration

Department of Business Administration, UCCMS, established in 1984, is a department that takes pride in its commitment to education. The department boasts a dedicated faculty with a total of 7 teachers, including 3 Professors and 4 Assistant Professors, who are entrusted with shaping the academic journey of its students. Alongside the teaching staff, there are four non-teaching staff members contributing to the efficient functioning of the college.

The department offers a range of academic programs, including M. Phil. Ph.D. Post Doctoral Fellowship, Postgraduate (PG), and Certificate courses, providing students with diverse opportunities for higher education and skill development. This department is focused on equipping students with the knowledge and skills they need to excel in the fields of commerce and Management, making it a valuable hub for learning and academic growth.

About International Journal of Innovative Research & Growth (IJIRG)

The International Journal of Innovative Research and Growth (IJIRG) is a distinguished, peer-reviewed journal that has gained international recognition since its establishment in 2015. The journal stands out for its commitment to publishing high-quality research articles that span a wide array of diverse fields, making it a vital resource for scholars and professionals across various disciplines.

IJIRG is renowned for its interdisciplinary approach, welcoming contributions from a broad spectrum of academic and practical fields like "Engineering and Technology, Physical Sciences, Life Sciences, Chemical Sciences, Food Science, Earth Science, Biomedical Sciences, Biological Sciences, Biodiversity, Biotechnology, Clinical Sciences, Animal and Veterinary Sciences, Agricultural Sciences, Environmental sciences, Home Science, Horticulture, Hospitality and Tourism Management, Geology, Library & Information Science, Management, Yoga, Economics, Education, Languages and Literature etc." This inclusivity ensures that the journal serves as a platform for innovative ideas and ground breaking research that can bridge gaps between different areas of study.

IJIRG maintains rigorous editorial standards to ensure the publication of credible and impactful research. Each submission undergoes a thorough peer-review process, involving multiple expert reviewers who evaluate the manuscript's originality, methodological rigor, and contribution to the field. This process not only upholds the journal's high standards but also provides authors with constructive feedback to refine their work.

IJIRG indexed and abstracted almost in all reputed databases "CrossRef, Index Copernicus International, RPRI, SJIF, Research Gate, J-Gate, Road, WorldCat, I2OR, BASE, GENAMICS, COSMOS, CiteFactor, IP Indexing and more...."

Since its inception, IJIRG has steadily built a reputation for excellence and reliability. Its international recognition is reflected in its diverse authorship and readership, comprising academics, researchers, and professionals from around the globe. The journal's articles are widely cited, indicating their influence and relevance in various fields of study.

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About Scientific and Humanities Research Society (SAHRS)

The Scientific and Humanities Research Society is a leading research and educational organization that is committed to the development and dissemination of cutting-edge knowledge in science and technology. We specialize in offering high-quality training programs, workshops, conferences, FDPs and certification courses in emerging areas of technology, engineering, science and humanities etc.

As part of our ongoing mission to promote research, education and innovation in the field of sciences and technology, we provide a dynamic platform for scholars, researchers, scientists and enthusiasts from diverse fields to collaborate, innovate, and share knowledge. We are committed to conduct conferences, seminars, symposia, FDP etc. in collaboration with reputed institutions/ universities. We aim to bridge the gap between scientific inquiry and humanistic understanding, recognizing that the most pressing challenges of our time require interdisciplinary approaches. Through a variety of initiatives, including conferences, publications, workshops, and public engagement activities. We strive to advance knowledge, promote ethical research practices, and contribute to a more informed and connected global community.

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THE TRIANGLE OF SUCCESS: INTEGRATING KNOWLEDGE, SKILLS, AND ATTITUDES FOR OPTIMAL ACHIEVEMENT

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Abstract

The conceptual model "Triangle of Success" comprises the basic elements, required to accomplish desired results in a number of areas, such as career advancement, personal growth, and academic endeavors, namely knowledge, skills, and attitude which stand as the three main pillars of true and sustainable success. The triangle's base is knowledge, which stands for the comprehension, data, and theoretical framework relevant to a particular field or undertaking. Formal education, acquired knowledge, and a continuous dedication to staying informed are all included. The ability to put knowledge into practice is embodied by skills, the second main component which entails the acquisition of certain skills, technical know-how, and the capacity to carry out duties successfully and economically. Practice, experience, and focused instruction highlight skills. Lastly, the third and frequently most important component of the triangle is attitudes. It includes a person's work ethic, motivation, resilience, mindset, and interpersonal style. It is commonly believed that a proactive and upbeat mindset is the key that unlocks and magnifies the potential of knowledge and abilities and empowers people to overcome obstacles, endure setbacks, and work together productively. In summary, the model highlights that although information and abilities may be learned and acquired, attitudes frequently necessitate self-awareness and deliberate cultivation. The "Triangle of Success" emphasizes how these three components are interrelated and implies that a lack of proficiency in any one of them can seriously hinder success in the other two areas. Therefore, for those aiming for excellence and long-term success, a comprehensive strategy that supports all three elements is essential.

Keywords: Triangle of Success, Endure Setbacks, Self-Awareness.

THE NEED FOR SPACE WEATHER

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Abstract

Space weather refers to the dynamic conditions in the space environment, primarily driven by solar activity such as solar flares, coronal mass ejections (CMEs), and high-speed solar wind streams. These phenomena can have significant impacts on Earth's magnetosphere, ionosphere, and thermosphere, affecting satellite operations, global navigation systems (GPS), aviation routes, power grids, and even human health during deep space missions. As our reliance on space-based technologies and infrastructure grows, the need for accurate space weather forecasting becomes critical. Understanding and monitoring space weather is essential not only for protecting current technological systems but also for ensuring the safety of future space exploration missions. The community urgently needs enhanced observational capabilities, modeling efforts, and international collaboration to develop a comprehensive space weather forecasting system that can mitigate risks and strengthen our resilience against solar-driven disturbances.

Keywords: CMEs, Space Weather, GPS, Solar Wind.

REDEFINING TRANSLATION IN THE AGE OF AI – A COLLABORATIVE FUTURE

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Abstract

The translation industry is witnessing a significant transformation due to rapid advancements in artificial intelligence and digital collaboration. While AI-powered tools demonstrate remarkable efficiency, they raise critical concerns about the future role of human translators in an increasingly automated workplace. Simultaneously, digital platforms that democratize access to translation services challenge the necessity of professional translators altogether.

This keynote addresses these concerns by redefining what it means to be a translator in the digital age. Rather than viewing technology as a threat, it emphasizes the evolving collaborative relationship between AI capabilities and human expertise. This reconceptualization has profound implications for translator training programs and instructional approaches, requiring a deeper understanding of the human-technology interplay in modern translation practices.

The presentation offers insights that provide a roadmap for both translators and educators, advocating collaboration rather than replacement. AI is not eliminating human translators but empowering them to work more efficiently and precisely. Speed and efficiency, accuracy and consistency, and enhanced terminology management represent just a few of the key advantages that AI brings to translation workflows.

Consequently, human translators must develop new competencies to remain competitive in this changing landscape. These emerging skills include post-editing of AI-generated translations, multimodal translation abilities, and proficiency with specialized AI tools. While amateur translators can certainly contribute to the field—especially with AI-assisted tools making translation more accessible—they cannot fully replace professionals who excel in ensuring quality and accuracy, maintaining cultural sensitivity, handling complex specialized content, and applying creative problem-solving approaches that remain beyond the capabilities of both AI systems and non-professional translators.

Keywords: AI Capabilities and Human Expertise, Translation Industry, Human Translators.

NEXT-GENERATION TRANSPORTATION: INNOVATIONS IN AUTOMOTIVE INTERNET OF THINGS

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Abstract

Research in Automotive IoT (Internet of Things) focuses on integrating smart technologies into vehicles and transportation systems to enhance safety, efficiency, and user experience. It involves the use of sensors, communication modules, cloud platforms, and AI algorithms to enable real-time data exchange between vehicles (V2V), infrastructure (V2I), pedestrians (V2P), and networks (V2N).

Key areas of research include autonomous driving, predictive maintenance, vehicle tracking, and intelligent traffic management. By collecting data from various onboard sensors (e.g., cameras, LiDAR, GPS), researchers aim to improve vehicle perception and decision-making. Edge computing and 5G technologies are being explored to support ultra-low-latency communication essential for collision avoidance and automated driving systems.

Cybersecurity is a critical aspect, as connected vehicles are vulnerable to hacking and data breaches. Research is directed toward developing robust encryption, intrusion detection systems, and secure over-the-air updates.

Sustainability is also a focus area, where IoT supports energy-efficient driving and electric vehicle (EV) management, including smart charging infrastructure. Furthermore, integration with smart city platforms helps in reducing congestion and pollution.

Overall, Automotive IoT research seeks to transform traditional vehicles into intelligent, connected systems that support safer roads, efficient transportation, and a seamless driving experience.

Keywords: Electric Vehicle (EV) Management, , Lidar, GPS), IoT.

ETRD25101

WATERLESS PERSONAL CARE AND SUSTAINABLE STARTUPS: EXPLORING ECO-INNOVATION OPPORTUNITIES IN RESOURCE- CONSTRAINED ENVIRONMENTS

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Abstract

With increasing environmental concerns and water scarcity issues globally, the demand for sustainable alternatives in daily hygiene practices has intensified. Waterless personal care products are emerging as innovative solutions that reduce dependency on water while maintaining hygiene standards. These solutions are particularly relevant in rural areas, cold climates, and disaster-prone zones where water access is limited. This study aims to examine the role of waterless personal care innovations in shaping sustainable startup models. It also investigates consumer awareness, market readiness, and the policy ecosystem supporting such green entrepreneurial ventures. A qualitative research approach was adopted. Data was gathered through secondary literature review, expert interviews, and analysis of existing eco-conscious startup case studies. Thematic analysis was used to identify trends and insights.

The findings indicate a growing market for waterless hygiene products, especially among environmentally conscious consumers and underserved populations. Key success factors include affordability, ease of use, eco-friendly packaging, and herbal compositions. Additionally, support from government schemes and startup incubators enhances the potential for scalability and impact. Waterless personal care products represent a vital innovation in the sustainable startup landscape. By aligning with SDGs, particularly clean water (Goal 6), responsible consumption (Goal 12), and climate action (Goal 13), such startups can deliver both social and environmental benefits while achieving commercial viability.

Keywords: Sustainable Startups, Waterless Hygiene, Personal Care Innovation, Eco-Entrepreneurship, SDGs, Green Business Models, Resource-Scarce Regions.

ETRD25102

ASSESSING THE INFLUENCE OF FII FROM CHINA, UK AND USA ON VOLATILITY SPILLOVER EFFECTS IN THE INDIAN STOCK MARKET

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Abstract

Foreign Institutional Investments (FII) significantly influence stock market volatility, especially in emerging economies like India. This study examines the impact of FII inflows and outflows from the USA, UK, and China on the volatility of Nifty 50 and Sensex, highlighting spillover effects in a globalized financial market. Using quantitative tools such as the Volatility Spillover Index, Correlation Analysis, and Granger Causality Test, the research finds that FII from the USA and China strongly impact Indian market volatility, whereas UK FII has a weaker influence. The results indicate that Nifty 50 and Sensex receive significant volatility from FIIs, reinforcing their dependence on global investment flows. Relying on secondary data sources like financial reports and stock market indices, the study underscores the interconnected nature of financial markets. The findings emphasize the need for investors and policymakers to closely monitor US and Chinese FII trends to better anticipate capital inflows, volatility risks, and market fluctuations. This research offers valuable insights for portfolio managers and risk analysts in developing strategies for managing financial volatility in an evolving investment landscape.

Keywords: Foreign Institutional Investment (FII), Stock Market Volatility, Global Financial Markets, Nifty 50 and Sensex, Granger Causality Test, Market Interconnectedness.

ETRD25104

START, ADAPT, SCALE: UNPACKING THE GROWTH ENGINE OF RESILIENT STARTUPS

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Abstract

In an increasingly volatile business environment, understanding the drivers of startup growth is essential for founders, investors, and policymakers. This study investigates the relationship between research-driven strategies, organizational resilience, and revenue performance to identify a scalable formula for startup success. It hypothesizes that startups integrating continuous market and product research, while exhibiting high resilience—defined by adaptability, pivot-readiness, and leadership stability—are more likely to achieve sustained revenue growth and long-term viability.

A quantitative research design was employed, using secondary data sourced from publicly available startup databases, industry reports, and performance metrics. Variables related to research intensity, resilience indicators, and financial outcomes were analysed through statistical modelling techniques to evaluate correlations and interaction effects.

The analysis reveals a positive and significant relationship between research orientation and revenue growth, with resilience acting as a key moderating factor. Startups that effectively combine data-driven decision-making with adaptive capabilities consistently outperform peers in terms of financial sustainability and market responsiveness.

These findings offer valuable insights into how startups can align internal learning systems with external uncertainties. By leveraging secondary data, this study contributes a practical, evidence-based framework for enhancing startup performance and ensuring long-term entrepreneurial resilience.

Keyword: Startup Growth, Long-Term Viability, Revenue Growth.

ETRD25105

FAIL FAST, LEARN FASTER: A RESILIENCE-BASED FRAMEWORK FOR LEAN STARTUPS IN EMERGING MARKETS

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Abstract

In emerging markets characterized by volatility and resource constraints, startup survival and growth depend not only on innovation but on the ability to adapt rapidly and learn continuously. This study explores how research-driven experimentation and organizational resilience jointly contribute to revenue growth and sustainability in lean startups operating in high-risk environments. The core hypothesis posits that startup engaging in rapid, iterative learning—supported by adaptive structures—are more likely to achieve consistent performance outcomes despite external uncertainties.

Employing a quantitative approach, the research utilizes secondary data from startup performance databases, accelerator program reports, and market intelligence platforms. Key variables include frequency of product iteration, responsiveness to customer feedback, indicators of organizational resilience, and financial outcomes. Statistical models were used to analyse the relationship between experimentation intensity, resilience capacity, and revenue trajectories.

Findings suggest a significant positive association between iterative learning practices and revenue growth, particularly when mediated by strong resilience factors such as agility, pivot-readiness, and decision-making decentralization. Startups that “fail fast” but “learn faster” demonstrate a greater capacity to align with shifting market dynamics and sustain long-term viability. The study offers practical insights for entrepreneurs, investors, and incubators in emerging markets. By highlighting the synergistic impact of experimentation and resilience, it presents a data-backed framework for building adaptive, growth-ready ventures in uncertain environments.

Keywords: Lean Startups, Revenue Growth, Market Intelligence Platforms.

ETRD25106

A STUDY ON WOMEN ENTREPRENEURSHIP IN JAIPUR**Pragati Sharma**

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Abstract

Women entrepreneurship plays a crucial role in fostering inclusive economic growth in India. In a culturally rich city like Jaipur, women-led businesses are redefining traditional industries and contributing significantly to local economies. Despite their potential, many women entrepreneurs encounter persistent challenges such as limited access to funding, inadequate market exposure, and deep-rooted societal norms.

Objective: This study aims to evaluate the current landscape of women entrepreneurship in Jaipur, identify key growth sectors, and examine the barriers and enablers influencing their business journeys.

Methods: The research employed a mixed-methods design, combining primary data from structured interviews with 50 women entrepreneurs and secondary data from government and institutional reports. Key indicators analysed include industry type, revenue growth, sources of support, and technological adoption.

Results: The findings reveal that women entrepreneurs in Jaipur are primarily active in sectors like fashion, handicrafts, food services, and education. While 68% of respondents reported steady growth following the COVID-19 pandemic, challenges such as insufficient mentorship and funding access continue to impede progress. However, digital tools, strong familial support, and participation in local entrepreneurial networks have proven to be significant drivers of success.

Conclusion: Women entrepreneurs in Jaipur exhibit resilience, creativity, and a growing impact on the socio-economic fabric of the city. To enhance their growth, there is a need for targeted policy interventions, mentorship programs, and accessible financial literacy training. These steps can pave the way for a more inclusive and thriving entrepreneurial ecosystem.

Keywords: *Women Entrepreneurs, Entrepreneurial Ecosystem, Entrepreneurial Networks.*

ETRD25108

THE EVOLUTION AND ROLE OF FINTECH IN ACCELERATING FINANCIAL INCLUSION IN INDIA

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Abstract

India's fintech sector, driven by innovation, tech adoption, and government initiatives, has been evolving rapidly, redefining how financial services are delivered. With advancements in digital payments, lending, investment technology, and the emergence of digital-first banks, India's fintech ecosystem is reshaping financial access and inclusion. This transformation has positioned India as one of the global leaders in financial technology. In 2024, India's fintech sector is seen to be flourishing, securing a record-breaking US \$778 million in funding, reflecting a 66% increase from the same period in the previous year. This growth solidified India's position as the second-highest fintech funding recipient globally. The top-funded sectors include alternative lending, investment technology, and payments. India is projected to surpass \$150 billion by 2025, fintech in India is now expanding into alternative investments and embedded finance. The sector is creating innovative pathways for retail investors to access diversified financial products. As India advances, its fintech landscape is set to continue redefining financial services, with emerging trends like AI, blockchain, and digital-only banking gaining traction and reshaping how individuals manage their wealth. The term 'FinTech' can be broadly defined as technology-enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets, institutions and the provision of financial services. FinTech, plays an important role in accelerating Financial Inclusion in India by helping reduce costs and improving access to financial services to the underserved, persons in low-income groups, rural and other underserved sectors of the Indian economy. The important role FinTech can play in accelerating financial inclusion in India, the research paper draws the work of leading FinTech firms focused on enhancing financial inclusion in our country and official leading the FinTech agenda in our country.

Keywords: Fintech, Financial Inclusion, Innovation, Tech Adoption, Transformation, Financial Services.

ETRD25109

FAITH TO FINANCE: THE ECONOMIC IMPACT OF TEMPLE TOURISM ON MSMEs AND ENTREPRENEURSHIP IN MEWAR REGION OF RAJASTHAN

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Abstract

Rajasthan's Mewar region is well known for its temples, pilgrimage sites, and rich cultural history. Through art, festivals, and religious rituals, these places pass on their traditions and contribute to the state's socioeconomic growth. Temple tourism is a creative way to embody the idea of "Faith to Finance" and is a significant economic driver in a number of different sectors. Local business owners, transportation companies, the food sector, lodging providers, farmers, craftspeople, and street vendors like prasad sellers and florists are all included in this. Additionally, it has a good effect on local development authorities who are in charge of public facilities like parking lots, restrooms, and cloakrooms. The "Green Temple" program, a creative enterprise that recycles temple waste to produce eco-friendly items and support environmental sustainability, is also highlighted in this study. Numerous well-known temples in the Mewar region, such as Eklingji, Shrinathji, Sanwalyaji, Jagdish Temple, Bohra Ganeshji, Vaishno Mata, Karni Mata, and Neemach Mata, have provided primary and secondary data for the study. The research's conclusions provide important new information about how temple tourism greatly stimulates the local economy, supports MSMEs, promotes entrepreneurship, and creates a mutually beneficial relationship between temples and the communities they serve.

Keywords: Temple Tourism, Entrepreneurship, MSMEs, Street Vendors, Green Temple, Eco-Innovation.

ETRD25111

IMMERSIVE MARKETING IN THE METAVERSE: LEVERAGING AUGMENTED REALITY FOR NEXT-GEN BRAND ENGAGEMENT IN EMERGING BUSINESSES

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Abstract

The digital marketing landscape is undergoing a paradigm shift with the advent of immersive technologies. The convergence of the Metaverse and Augmented Reality (AR) presents unparalleled opportunities for emerging businesses to craft hyper-engaging brand narratives, transform customer experience, and drive data-rich interactions. This paper explores how startups and small businesses can leverage AR tools and virtual platforms to enhance brand engagement and positioning. By analyzing current trends, case studies, and the impact of AR-powered marketing, we propose an adaptive framework for immersive customer journeys. The research aims to bridge theoretical concepts with practical models that help emerging businesses build resilient and future-ready brand strategies.

Keywords: Metaverse, Augmented Reality, Immersive Marketing, Customer Engagement, Startup Branding, Virtual Commerce, Interactive Experience

ETRD25112

VEGANISM: INNOVATIONS AND ENTREPRENEURIAL OPPORTUNITIES

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Abstract

Veganism is a philosophy of life believing in plant-based living firmly whether it is for food, clothing or otherwise advocating ethical eating sustainably. It is the practice of refraining from the use of animals and their byproducts, and more or less driven by mythological beliefs, ethics, psychological consequences (kindness, feeling guilt free) and concerns to the environment, and health. Individuals adhering to veganism are referred to as Vegans. Vegans substitute even all the dairy products (milk, cheese, butter, ghee, butter milk, etc.) and animal by-products (egg, gelatine, honey) for food and all the animal-derived textiles, fabrics and dyes for clothing (bones, down, feathers, fur, horns, leather, pearls, shell, silk, wool, etc.). Veganism is biologically advantageous seeking high fibre content, healthy fats treasured phytonutrients, natural antioxidants and bio actives. In recent past there is an increasing surge in consumer behaviour and their preferences for food and food habits that includes plant-based meat alternatives, dairy-free products with cruelty-free beauty and are disrupting traditional markets and meeting the growing demand for ethical and sustainable products irrespective of usually being more expensive than the regular things. Despite of this, the global demand for vegan food and vegan business has reached to approximately \$ 22.0 billion and is expected to become \$ 55 billion in the coming decade followed by a transformative growth of 1.4 trillion USD by 2050. Therefore, the world economy is surrounding towards veganism in longer term. This massive economic shift to veganism would be a huge advantage directly or indirectly for Indian economy, as it would drive a wave of innovations, start-ups and entrepreneurship opportunities across different sectors, viz. agriculture, cosmetics, fashion, food technology, and biotechnology in the years. The present study would therefore investigate how the new food industry ventures and start-ups as well as new entrants, agricultural ventures and agripreneurs at local level would be establishing and amalgamating inclusively pivoting a way to change in the new business innovations, environment, and implications for marketing and policies in a sustainable manner.

Keywords: Agripreneurs, Entrepreneurship Opportunities, Start-ups, Vegans, Veganism, Vegan Omics.

ETRD25114

THE NEW ERA OF STARTUPS: LEVERAGING RESEARCH AND RESILIENCE FOR SUSTAINABLE REVENUE IN 2025

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Abstract

The Indian startup ecosystem is witnessing unprecedented growth, fueled by innovation, technological advancement, and the increasing availability of funding. However, while many startups experience rapid early-stage growth, sustaining long-term success requires a delicate balance of research, resilience, and revenue generation. This paper explores the synergy between these critical factors, focusing on how startups can leverage research and resilience to drive sustainable revenue in the ever-evolving market landscape of 2025.

The first section of the paper highlights the importance of research and development (R&D), emphasizing how it allows startups to innovate and stay ahead of the competition. By investing in market research, data analytics, and product development, startups can identify emerging trends, improve customer experiences, and develop scalable solutions. Examples of successful Indian startups, such as Byju's and Zomato, demonstrate the impact of research-driven innovation in driving revenue.

The second section addresses resilience in the startup journey. Startups often face a range of challenges, including regulatory hurdles, financial constraints, and intense competition. This paper discusses how resilience, manifested in adaptability and perseverance, plays a pivotal role in overcoming such obstacles. Case studies from Indian companies like Flipkart and OYO provide real-world examples of resilience in action, showcasing how startups navigated market disruptions and remained profitable. Finally, the paper explores the concept of sustainable revenue generation and its importance for long-term startup success. It discusses various revenue models, including diversification and subscription-based services, that have helped Indian startups like Paytm and Razorpay scale and maintain growth. In conclusion, this paper posits that startups in India can unlock sustainable growth by integrating research and resilience into their business strategies, ultimately leading to sustained revenue and market leadership.

Keywords: Sustainable Revenue, Startups, Paytm and Razorpay.

ETRD25115

ग्रामीण क्षेत्रों के सामाजिक एवं आर्थिक विकास पर उद्यमिता का प्रभाव: उदयपुर और झुंजरपुर का एक
अनुभवजन्य अध्ययन

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सारांश (Abstract)

यह अध्ययन राजस्थान के दो प्रमुख जनजातीय बहुल जिलों उदयपुर और झुंजरपुर में ग्रामीण उद्यमिता के सामाजिक-आर्थिक विकास पर पड़ने वाले प्रभाव का अनुभवजन्य विश्लेषण प्रस्तुत करता है। अध्ययन का मुख्य उद्देश्य यह जानना है कि कैसे स्थानीय स्तर पर विकसित सूक्ष्म, लघु और मध्यम उद्यम (MSMEs), स्वरोजगार और महिला उद्यमिता ने ग्रामीण जीवन में बदलाव लाने में योगदान दिया है। इस शोध के अंतर्गत 200 ग्रामीण उद्यमियों का चयन स्ट्रेटिफाइड सैम्पलिंग विधि द्वारा किया गया और सर्वेक्षण, गहन साक्षात्कार एवं फोकस ग्रुप डिस्कशन (FGD) के माध्यम से प्राथमिक आंकड़े एकत्र किए गए। विश्लेषण में पाया गया कि जिन परिवारों में उद्यमिता सक्रिय है, वहाँ औसत वार्षिक आय, शिक्षा स्तर, स्वास्थ्य सुविधा तक पहुँच, और सामाजिक सहभागिता के स्तर में उल्लेखनीय सुधार देखा गया। विशेष रूप से महिला उद्यमिता, जो स्वयं सहायता समूहों (SHGs) के माध्यम से सक्रिय है, जो कि न केवल आर्थिक स्वतंत्रता प्रदान की है, बल्कि पारिवारिक निर्णयों में भी महिलाओं की भागीदारी को बढ़ावा दिया है। हालाँकि, ग्रामीण उद्यमियों को पूंजी की कमी, प्रशिक्षण अवसरों का अभाव और बाज़ार तक सीमित पहुँच जैसी कई चुनौतियों का सामना करना पड़ रहा है। यह अध्ययन सुझाव देता है कि यदि नीतिगत सहयोग, वित्तीय समावेशन और कौशल विकास कार्यक्रमों का समुचित क्रियान्वयन किया जाए, तो ग्रामीण उद्यमिता सामाजिक-आर्थिक परिवर्तन का एक सशक्त साधन बन सकती है।

मुख्य शब्द (Keywords): ग्रामीण उद्यमिता, सामाजिक-आर्थिक विकास, उदयपुर, झुंजरपुर, महिला सशक्तिकरण, स्वयं सहायता समूह (SHGs), स्वरोजगार, नीतिगत समर्थन।

ETRD25116

BRIDGING THE GAP: FROM ESG THEORY TO SUSTAINABLE BUSINESS PRACTICE IN SMALL AND MEDIUM ENTERPRISES (SMES) IN MAJOR CITIES OF RAJASTHAN

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Abstract

Environmental, Social, and Governance (ESG) frameworks are gaining prominence globally, yet their practical implementation in small and medium enterprises (SMEs) within emerging markets remains underexplored. This study examines how SMEs in Rajasthan, India, interpret and apply ESG principles, identifying key enablers and barriers to sustainable business practice. Using a mixed-methods approach—combining surveys and semi-structured interviews with SME owners and managers—the research uncovers varying levels of ESG awareness, limited institutional support, and challenges related to capacity, resources, and regulatory clarity. The findings highlight the need for context-sensitive strategies, training, and policy incentives to facilitate ESG adoption at the grassroots level. This research contributes to bridging the gap between ESG theory and practice by offering practical insights for policy makers, industry bodies, and entrepreneurs committed to sustainable growth in emerging economies.

Keywords: ESG (Environmental, Social, and Governance), SMEs, Sustainability, Emerging Markets, Rajasthan, Business Practices, ESG Implementation, Responsible Business, Sustainable Development, Institutional Support.

ETRD25117

ECONOMIC FREEDOM FOR RURAL WOMEN: THE ROLE OF SAKHI UTPADAN SAMITI IN RAJASTHAN

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Abstract

India's fast-growing economy has focused more on inclusive development, especially by empowering women. Rural women play a key role in driving social and economic growth in their societies. This study focused on how self-employment and local economic opportunities can help rural women become financially independent and socially empowered. Using information from books, journals, government reports, and trusted online sources, the paper gives an overview of the current situation of women entrepreneurs in rural India.

The study shows that businesses led by women not only boost the economy but also support gender equality and stronger communities. It highlights several government programs and corporate social responsibility (CSR) initiatives that help rural women start and grow their businesses. A special focus is given to Sakhi Utpadan Samiti, a women-led enterprise supported by Hindustan Zinc Limited, working in Rajasthan and Uttarakhand. Through small and medium-sized businesses, the initiative helps improve the lives of rural women.

The study also points out major challenges like limited access to funding, poor market connections, and social restrictions. Despite these issues, the outcomes are encouraging—more women are joining the workforce, gaining confidence, and contributing to their communities. The paper suggests that with better support and targeted policies, rural women entrepreneurs can play a bigger role in building a fair and sustainable future for India.

Keywords: Women Empowerment, Financial Independence, Government Programs, Challenges, Corporate Social Responsibility (CSR), Small and Medium-Sized Businesses.

ETRD25118

INFLUENCE OF TILLAGE AND WEED MANAGEMENT PRACTICES ON WEED DYNAMICS AND YIELD OF CHICKPEA (*CICER ARIETINUM* L)

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Abstract

A field experiment was conducted during the *rabi* seasons of 2023-2024 and 2024-2025 at the Agronomy Farm, Rajasthan College of Agriculture, MPUAT, Udaipur, to assess the influence of tillage and weed management practices on weed dynamics and productivity of Chickpea (*Cicer arietinum* L.). The experiment followed a split-plot design with three replications. The main plot treatments comprised four tillage practices: conventional tillage (CT), conventional tillage with residue retention (CT+R), zero tillage (ZT) and zero tillage with residue retention (ZT+R). Sub-plot treatments included three weed control methods viz., Topramezone 25.2 g ha⁻¹ as PoE (20 DAS), Pendimethalin as 1000 g ha⁻¹ PE *fb* Hand weeding at 40 DAS and Weedy check. The experimental field was infested with *Chenopodium album*, *Chenopodium murale*, *Convolvulus arvensis*, *Melilotus indica*, *Malva parviflora*, *Phalaris minor* and *Cyperus rotundus*. Findings revealed that the CT+R tillage practice in combination with Pendimethalin as 1000 g ha⁻¹ PE *fb* Hand weeding at 40 DAS significantly reduced weed density and dry biomass, while enhancing seed and haulm yield compared to other treatment combinations. The study highlights the role of integrated tillage and weed management practices in effective weed suppression and improved chickpea performance under semi-arid conditions.

Keywords: Chickpea, Tillage, Weed Management, Yield, Weeds, Weed Dynamics.

ETRD25119

FROM ISOLATION TO INNOVATION: LEVERAGING SOCIAL NETWORKS FOR WOMEN ENTREPRENEURSHIP IN RAJASTHAN'S STARTUP ECOSYSTEM

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Abstract

The start-up environment welcomes Rajasthan women entrepreneurs to break societal gender norms while driving economic expansion. Social and economic barriers together with restricted financing options and leadership stereotypes constrain Rajasthan women entrepreneurs from reaching their full potential as business owners. This paper reviews how both official networks including incubators and accelerators and online platforms plus unofficial support from peer groups and family members feed innovation growth among Rajasthan women entrepreneurs. The study uses qualitative interviews of 25 women entrepreneurs and selected stakeholders operating in Jaipur Udaipur and Jodhpur entrepreneurship clusters to determine specific mechanisms for social capital use in tackling structural barriers.

Primary data reveals that professional sponsors and institutional backers infrequently support women entrepreneurs at business launch. However, women who strongly engage their networks demonstrate better success in funding acquisition and business advancement. First- wave support along with pragmatic help arrives from intense informal networks but businesses that develop extensive formal connections generate professionalism and market access as well as technical expertise. This investigation demonstrates how women-exclusive accelerator centers along with internet resources achieve resource equality specifically when targeting entrepreneurs from rural and lower-tier areas.

The paper discusses policy recommendations centered on startup policy development for women which requires gender sensitivity as well as community-building programs and fund allocation strategies to address gender-based enterprise gaps. The author establishes that developing inclusive networks exceeds being simply an empowerment program because it serves as an essential foundation for sustainable innovation within Rajasthan's startup landscape.

Keywords: Women Entrepreneurship, Social Networks, Startup Ecosystem, Innovation, Rajasthan.

ETRD25120

ROLE OF START-UPS IN JOB CREATION & ECONOMIC GROWTH

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Abstract

Start-ups play an important role in strengthening India's future economic development. Today, the problem of unemployment remains the main problem in India, which hinders economic development. This requires jobs, which are created by start-ups, not by big businesses. Start-ups bring innovation, new jobs and competitive dynamism in the business environment. Start-ups help in bringing changes in traditional industries. The Government of India runs the Start-up India program to strengthen its economy. At present, most of the employment opportunities in India have been obtained through start-ups. Most of the big companies outsource their work to start-ups. This also helps in increasing the cash flow of start-ups. Start-ups are making a huge contribution in strengthening India's economy. Strengthening the country's economy is the main objective of the economic policy, which at present is due to the art of start-ups, in achieving this objective, start-ups play a major role. In this research paper, the impact of start-up, its growth, contribution of start-up scheme to Indian economy and analysis of the growth of economy etc. will be analysed and explained.

Keywords: Start-ups, Innovation & Technology, Government policies.

FROM WASTE TO WEALTH: CIRCULAR ECONOMY STRATEGIES IN EARLY-AGE STARTUPS

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Abstract

Traditional linear economic models are giving way to more sustainable, circular ones worldwide as a result of the growing urgency of resource shortages and environmental deterioration. Key players in this shift are early-stage startups, which are renowned for their inventiveness and agility. This paper explores how early-stage startups are adopting circular economy (CE) strategies to transform waste into valuable resources, driving sustainability and innovation. By analyzing case studies and emerging business models, it highlights the challenges and opportunities that startups face in implementing circular practices, such as upcycling, and product-as-a-service. The paper also examines the role of policy, funding, and consumer awareness in supporting CE adoption at the startup level. The objectives of this research paper would be to identify challenges faced by such start-ups, their revenue and expenses, customer attraction and retention, and price sensitivity towards such start-ups by the customers.

A qualitative research methodology was used, involving in-depth case studies of five early-stage startups across sectors. Data was gathered through secondary sources such as company reports, sustainability publications, and academic journals. The findings reveal few dominant strategies: upcycling and product innovation, waste-to-resource platforms, product-as-a-service models, and localized circular systems. Despite their promise, startups face significant barriers including limited funding, infrastructural gaps, and regulatory misalignment. The research concludes that early-stage startups play a vital role in operationalizing by leveraging resource loops, digital technologies, and community engagement. However, their success is contingent on supportive policy frameworks, investor readiness, and consumer education. This study contributes to the growing body of knowledge on circular entrepreneurship and offers insights for stakeholders seeking to accelerate the transition toward a circular economy.

Keyword: Circular Economy, Early-Age Startups, Digital Technologies.

ETRD25123

DIGITAL MARKETING & SOCIAL MEDIA STRATEGIES FOR STARTUPS

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Abstract

Digital marketing and social media marketing play an essential role in shaping consumer buying behaviour. Social media platforms provide consumers with access to product information, reviews and price comparisons that influence their purchasing decisions. The research will examine how marketing activities in digital and social media such as product reviews, social media advertising, e-mail marketing and influencer marketing affect consumer behaviour and purchasing decisions. This study investigates two under-researched areas, social media as it relates to new startup, and marketing capability gaps in an era of rapid digitalisation. It will help in new startups to better understand consumer behaviour in the digital age and inform their online marketing efforts to increase sales and profitability. The startups of social media marketing capability and associated digital marketing strategies are new to the extant literature moving forward the understanding of digital marketing and social media strategies for startup in theory and practice.

Keywords: Digital Marketing, Social Media, Graphic Design, Search Engine Optimization, Startups.

ETRD25125

THE ROLE OF GOVERNMENT SCHEMES AND DIGITAL PLATFORMS IN STRENGTHENING WOMEN'S FINANCIAL INCLUSION: A COMPARATIVE STUDY OF JAIPUR AND UDAIPUR DISTRICTS

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Abstract

This paper analyses the role of government schemes (such as Pradhan Mantri Jan Dhan Yojana, Mudra Yojana) and digital platforms in enhancing financial inclusion of women in Jaipur and Udaipur districts of Rajasthan. The aim of the research is to know the extent to which these initiatives have facilitated women's access to banking services, credit, insurance and digital transactions. Adopting a mixed research methodology, primary data was collected through surveys and interviews. In conclusion, the schemes have had a positive impact in urban areas, while awareness and digital literacy are still lacking in rural areas. The research suggests that digital training, infrastructure improvements and awareness programmes are needed at the local level to further strengthen women's financial participation and empowerment.

Keywords: Digital Training, Government Schemes, Digital Literacy.

ETRD25126

THE ROLE OF GOVERNMENT SCHEMES AND DIGITAL PLATFORMS IN STRENGTHENING WOMEN'S FINANCIAL INCLUSION: A COMPARATIVE STUDY OF JAIPUR AND UDAIPUR DISTRICTS

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Abstract

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Keywords: Digital Training, Government Schemes, Digital Literacy.

USING MACHINE LEARNING TO OPTIMIZE GREEN INFLUENCER MARKETING STRATEGIES: A STUDY OF CONSUMER BEHAVIOUR TRENDS

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Abstract

This paper examines the role of machine learning (ML) in optimizing green influencer marketing strategies, with reference to the green consumer behaviour trends in India. With growing desire for sustainability in consumer markets, companies are relying on data-driven techniques to optimize the impact of green marketing campaigns. This study follows a quantitative research approach, using survey data collected from 1,500 respondents on an e-commerce platform in India. The study examines the consumer interaction with green influencers, perceived authenticity and the influence of ML-based recommendation-systems in purchasing behaviour.

The results emphasize the importance of influencer trustworthiness and trust on consumer engagement, where both authenticity and transparency appeared as the most dominant of the two. The response from consumers was so overwhelmingly positive that an overwhelming majority said that they would be inclined to purchase green products – proving that this type of message can work if it is targeted effectively. ML algorithms were crucial in identifying the top influencers, segmenting the audience based on preferences, and personalizing recommendations to drive up engagement and conversion rates. Relationships were analysed using factor and correlation analyses, which indicated the presence of positive relationships among influencer authenticity, consumer trust, and purchase intention.

The study fills a significant vacuum in the existing literature by offering region-specific evidence and highlighting the role ML can play in the development of green marketing strategy in Indian context. The implications provide practical directions for marketers as well as a share of fresh perspective to policymakers and researchers, promoting the sustainable development of marketing and enhancing ML-based informed Ness in influencer marketing.

Keywords: Machine Learning, Green Marketing, Influencer Marketing, Consumer Behaviour, Sustainability, Data-Driven Strategies.

FROM ISOLATION TO INNOVATION: LEVERAGING SOCIAL NETWORKS FOR WOMEN ENTREPRENEURSHIP IN RAJASTHAN'S STARTUP ECOSYSTEM

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Abstract

The start-up environment welcomes Rajasthan women entrepreneurs to break societal gender norms while driving economic expansion. Social and economic barriers together with restricted financing options and leadership stereotypes constrain Rajasthan women entrepreneurs from reaching their full potential as business owners. This paper reviews how both official networks including incubators and accelerators and online platforms plus unofficial support from peer groups and family members feed innovation growth among Rajasthan women entrepreneurs. The study uses qualitative interviews of 25 women entrepreneurs and selected stakeholders operating in Jaipur Udaipur and Jodhpur entrepreneurship clusters to determine specific mechanisms for social capital use in tackling structural barriers.

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The paper discusses policy recommendations centered on startup policy development for women which requires gender sensitivity as well as community-building programs and fund allocation strategies to address gender-based enterprise gaps. The author establishes that developing inclusive networks exceeds being simply an empowerment program because it serves as an essential foundation for sustainable innovation within Rajasthan's startup landscape.

Keywords: Women Entrepreneurship, Social Networks, Startup Ecosystem, Innovation

ETRD25129

THE IMPACT OF FLEXIBLE WORK HOURS ON EMPLOYEE PRODUCTIVITY AND STRESS LEVELS IN TECH STARTUPS: A QUANTITATIVE STUDY

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Abstract

In the dynamic environment of tech startups, maintaining employee well-being while maximizing productivity is a critical challenge. Flexible work hours have emerged as a popular strategy to enhance work-life balance, yet their impact on employee outcomes remains underexplored, especially in early-stage companies. This quantitative study investigates the relationship between flexible work hour policies, employee productivity, and stress levels within tech startups. Drawing on data from a sample of 150 employees across 10 UK-based startups, the research utilizes a structured survey comprising the Perceived Stress Scale (PSS) and self-reported productivity metrics, supplemented by performance KPIs provided by team leads. Statistical analysis, including correlation and regression tests, is employed to examine associations between flexibility in work hours, stress reduction, and productivity levels.

Preliminary findings suggest that higher degrees of flexibility are significantly correlated with reduced stress and increased productivity, particularly among employees with caregiving responsibilities or long commutes. However, the data also indicates potential downsides, such as time management issues and blurred work-life boundaries, which can offset the benefits for some individuals. The study contributes to the growing body of evidence on modern workplace practices and offers actionable insights for startup leaders aiming to design policies that support both employee well-being and organizational performance. By quantifying the effects of flexible work schedules, this research provides a data-driven foundation for strategic HR decision-making in startup environments.

Keywords: Flexible Work Hours, Tech Startups, Startup Environments.

BEHAVIOUR MODULATIONS ANALYSIS OF WORKING PROFESSIONALS: A MULTI-GENERATION APPROACH – A REVIEW-BASED PERSPECTIVE

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Abstract

This review explores how working professionals across different generational cohorts (Baby Boomers, Gen X, Millennials, and Gen Z) modulate their behaviour in contemporary organizational settings. Drawing on recent literature (2018–2024), the paper synthesizes key themes such as emotional regulation, adaptability, intergenerational dynamics, and the impact of hybrid work models. The review highlights gaps in empirical research—particularly concerning cross-generational behavioural frameworks—and offers directions for HR practices aimed at fostering cohesive, adaptive workplace cultures. Workplaces today are more generationally diverse than ever before, comprising Baby Boomers, Generation X, Millennials, and Generation Z. Each cohort brings distinct values, behaviours, and expectations shaped by unique socio-cultural and technological experiences. As organizations transition to hybrid and digital work environments, understanding how professionals across generations modulate their behaviour is vital for collaboration, adaptability, and organizational cohesion.

This review aims to: (1) identify generational traits influencing behavioural modulation; (2) explore emotional regulation and adaptability in hybrid work contexts; (3) examine the role of leadership and HR practices in shaping behaviour across generations; (4) highlight research gaps; and (5) offer actionable recommendations for inclusive workplace strategies. A systematic literature review was conducted using Scopus, Web of Science, JSTOR, and Google Scholar, focusing on peer-reviewed articles from 2018–2024. Sixty-one studies were selected based on relevance to generational behaviour in professional settings, with thematic analysis used to extract insights.

Findings indicate that younger generations (Millennials and Gen Z) are more expressive, tech-adaptive, and feedback-oriented, while older cohorts (Gen X and Boomers) emphasize stability, structure, and formal communication. Emotional intelligence, leadership styles, and digital fluency emerged as critical factors influencing behaviour modulation. Understanding behaviour modulation from a generational lens enables organizations to tailor HR practices, reduce conflict, and foster collaboration. Future research should expand beyond Western contexts and include real-time and longitudinal analyses to deepen insights.

Keywords: Behaviour Modulation, Generational Workforce, Workplace Adaptability, Emotional Regulation, Hybrid Work.

ETRD25133

ECHOES OF THE PANDEMIC: NEW NARRATIVES IN RAJASTHAN TOURISM LANDSCAPE

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Abstract

Rajasthan's tourism industry is vital for its economy, generating employment, preserving cultural heritage, and supporting local businesses. However, the sector, profoundly affected by the COVID-19 pandemic, faced difficulties from travel restrictions, safety concerns, and economic declines. The research examines how domestic and international tourist trends are changing, how travelers' preferences are evolving, and what this indicates for the state's economy in terms of tourism. The research used a mixed-methods approach, using primary data from surveys and secondary sources including government publications and academic literature. Additionally, the study will shed light on how Rajasthani tourism is adapting to the new reality, such as a preference for open and less crowded destinations, a trend towards short-haul travel, and an increased emphasis on safety and cleanliness measures. These shifts in conduct will greatly impact marketing strategies, infrastructure development, and tourism planning. The findings will contribute to a deeper understanding of post-pandemic Tourism dynamics and help inform sustainable and resilient tourism policy strategies for Rajasthan's future.

Keywords: Rajasthan, Travel Behavior, Domestic Tourism, International Tourism, Tourism Economy, COVID-19 Impact, Pandemic.

ETRD25134

UNVEILING IONOSPHERIC DYNAMICS: CORRELATION ANALYSIS OF TEMPERATURE AND ELECTRON CONTENT DURING SOLAR FLARE EVENTS

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Abstract

This study investigates the interrelationships between Ion Temperature (Ti), Electron Temperature (Te), and Total Electron Content (TEC) during C-class, M-class, and X-class solar flare events, employing Spearman, Kendall, and Pearson correlation methods. The analysis reveals consistent positive correlations across all flare intensities, with Ti-TEC exhibiting the strongest monotonic relationships (Spearman: 0.67 for C-class, 0.64 for M-class) and Te-TEC showing stronger linear correlations in M-class (Pearson: 0.57) and C-class (Pearson: 0.61) events. In X-class flares, Ti and Te display near-perfect rank correlations (Spearman and Kendall: 1.0), with Ti-TEC showing a stronger linear correlation (Pearson: 0.71) than Te-TEC (Pearson: 0.52). These findings highlight complex, nonlinear ionospheric responses to solar flares, with ion temperature playing a significant role in electron density variations. The results underscore the importance of multi-method correlation analyses for understanding ionospheric dynamics and enhancing space weather forecasting models, particularly for mitigating impacts on telecommunications and navigation systems.

Keywords: Ionosphere, Solar Flares (SF), Correlation Analysis, Ion Temperature (Ti), Electron Temperature (Te), Total Electron Content (TEC).

ETRD25135

ASSESSING SERVICE QUALITY PERCEPTIONS AT INDIAN DRY PORTS: STAKEHOLDER'S PERSPECTIVE VIA AHP**KANNAN KUMAR**

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Abstract

This research assesses service quality at Indian dry ports through the application of the SERVQUAL model and the Analytic Hierarchy Process (AHP). It examines five key dimensions—Responsiveness, Reliability, Assurance, Tangibles, and Empathy—and identifies Responsiveness (31.5%) and Reliability (29.9%) as the most influential factors. In contrast, Tangibles (13.8%) and Empathy (5.7%) were found to have a lower impact. The study highlights differing priorities among stakeholders: port operators emphasized operational efficiency, port users focused on timeliness and effective problem-solving, and policymakers stressed the importance of safety and regulatory compliance. Preferences also varied with the type of goods handled, as users dealing in high-value cargo prioritized responsiveness, while those managing lower-value goods placed greater emphasis on reliability. The results underscore the need for customized strategies, such as balancing infrastructure investments with customer-oriented services and integrating digital innovations. Aligning service quality improvements with the distinct expectations of various stakeholders can enhance the competitiveness of Indian dry ports, promote export growth, and contribute to India's larger economic objectives. The study provides practical recommendations for stakeholders to strengthen service quality across the dry port sector.

Keywords: Analytical Hierarchy Process (AHP), SERVQUAL, Dry Ports, Logistics, Multi Stake Holder.

ETRD25136

INDIAN FINTECH & FINANCIAL INCLUSION INITIATIVES AND INTERVENTIONS: DIGITAL PAYMENTS, BLOCKCHAIN, AND ALTERNATIVE LENDING - AN EMPIRICAL INVESTIGATIVE APPROACH

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Abstract

This research examines the transformative impact of financial technology (FinTech) on financial inclusion in India through digital payments, blockchain applications, and alternative lending models. Drawing on primary survey data from 450 respondents across rural and urban India and secondary data from regulatory reports, the study employs a mixed-methods research approach to evaluate the effectiveness of India's financial inclusion initiatives. Findings reveal that UPI-based payment systems have achieved the highest penetration rate (78.3%) among digital financial services, while blockchain applications remain at nascent adoption levels (12.4%). Alternative lending platforms demonstrate significant growth in underserved segments with 63.7% of first-time borrowers accessing formal credit. Implementation challenges persist, including digital literacy gaps (affecting 57.4% of rural users), infrastructure limitations, and regulatory uncertainties. The research establishes a significant positive correlation ($r=0.76$, $p<0.01$) between digital financial service adoption and improved financial well-being indices. Based on empirical findings, this study proposes a comprehensive framework for policymakers and financial institutions to enhance the efficacy of FinTech interventions for financial inclusion in emerging economies.

Keywords: Financial Technology, Financial Inclusion, Digital Payments, Blockchain, Alternative Lending, India, Unified Payment Interface, Digital Financial Services.

JEL Classification: G21, G23, G28, O16, O33

ETRD25138

FINANCIAL STRENGTH POST- MUNI BOND: READINESS OF SELECTED SMART CITIES FOR THE URBAN CHALLENGE FUND

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Abstract

With rapid urbanization and the closure of the Smart Cities Mission, the need for alternative and sustainable funding sources, particularly municipal borrowing, has become increasingly urgent. Cities, especially those identified as Smart Cities, must now take full responsibility for completing ongoing projects, their operations and maintenance (O&M), and long-term infrastructure sustainability. This study evaluates the financial strength of eight Indian Smart Cities that have already issued municipal bonds, focusing on their capacity to service existing debt and their readiness to raise additional funds under the proposed Urban Challenge Fund. Based on income and expenditure data for the four years ending in 2023–24, sourced from the City Finance Portal, the analysis employs a combination of accounting and statistical tools. These include trend analysis of Operating Surplus (OS), EBIDA, and the Interest Coverage Ratio (ICR), along with statistical tests such as correlation, regression, Shapiro-Wilk for normality, Durbin-Watson for autocorrelation, and VIF for multicollinearity. Non-parametric tests were used where normality was not observed. The four-year average of key indicators formed the basis for evaluating debt-servicing capacity. Findings show that Ahmedabad and Pune are financially strong, while Indore and Surat show mixed results. In contrast, Bhopal, Vadodara, Lucknow, and Pimpri Chinchwad reflect weak financial health. The results highlight that even bond-issuing cities face challenges, signaling the need for cities yet to enter the bond market to strengthen their financial preparedness, offering a compelling direction for future research. The study offers key insights into municipal financial sustainability, accountability, and strategic funding readiness.

Keywords: Financial Strength, Indian Smart Cities, Muni-Bonds, Urban Challenge Fund. JEL Classification Number: H54, H72, R51.

ETRD25141

GEOMAGNETIC STORMS RELATED WITH HIGHER SPEED CMES AND MAGNETIC CLOUDS AND THEIR RELATION WITH SOLAR WIND PLASMA DISTURBANCES

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Abstract

We have analyzed geomagnetic storms (GMs) associated with higher speed CMEs and magnetic clouds (MCs), observed during the period of decline phase of 2015-2019 with disturbances in solar wind plasma parameters, interplanetary magnetic fields (IMF B), southward component of interplanetary magnetic fields (IMF B_z), and solar wind plasma density (SWPD). We have observed that all the geomagnetic storms (GMs) are linked with disturbances in solar wind plasma parameters interplanetary magnetic fields (IMF), southward component of interplanetary magnetic fields (IMF B_z), solar wind plasma density (SWPD). Strong positive correlation with correlation coefficient 0.78 has been found between magnitude of geomagnetic storm and peak value of associated disturbances in IMF and 0.74 between magnitude of geomagnetic storm and magnitude of associated disturbances in IMF. Further, strong positive correlation with correlation coefficient 0.86 has been detected between magnitude of geomagnetic storm and magnitude of peak value of associated disturbances in IMF B_z and 0.77 between magnitude of geomagnetic storm and magnitude of associated disturbances in IMF B_z. From the data analysis of geomagnetic storms and disturbances in solar wind plasma density, it is seen that magnitude of geomagnetic storms and peak value and magnitude of disturbances in solar wind plasma density is strongly correlated. Strong positive correlation with correlation coefficient 0.69 has been found between magnitude of geomagnetic storm and peak value of associated disturbances in SWPD and 0.66 between magnitude of geomagnetic storm and magnitude of associated disturbances in SWPD. It is concluded that geomagnetic storms associated with CMES and MC are strongly related to disturbance in solar wind plasma parameters interplanetary magnetic fields, IMF, southward component of interplanetary magnetic fields, and solar wind plasma density SWPD.

Keywords: *Geomagnetic Storms (GMs), Coronal Mass Ejections (CMEs), Solar Flares (SFs), Magnetic Clouds (MCs) and Disturbances in Solar Wind Plasma Parameters. IMF, SWPD.*

ETRD25143

CORRIDORS OF DARKNESS IN THE LABYRINTH OF THE MIND: COUNT DRACULA AND VOLDEMORT AS MIRROR VILLAINS

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Abstract

In this research paper we are going to shed the light on the topic "Corridors of Darkness in the Labyrinth of the Mind: Count Dracula and Voldemort as Mirror Villains" which is on the verge of Hermeneutics darkness of Count Dracula from Bram Stoker novel and Voldemort from the universe of Harry Potter by J.K. Rowling through Renowned literary figure psychologist Namely Jungian shadow, Erich Fromm's, and Freudian. Moreover, we also going to explore dark traits like Moral Insensitivity, Egotism, Opportunistic Manipulation, etc part of their darker personalities. During this research their several questions arises likewise, their dense perspective towards death, life, fear, and forbidden desire and the hunger of their dominance, control, and power of dark potential which is hidden inside their cognitive thought process. The research method adopted is Qualitative Textual Analysis and Psychoanalytic Criticism to investigate the symbolism used in both works, such as coffins, immortality through blood and Horcruxes, and slavery. Meanwhile, we need to compare and contrast both characters to bring out the best from the worst and examine their correlation, even though they never face each other. After conducting a comparative study of these two eminent figures, we understand their darker personality traits and ideologies. Using Freud, Jung, and Fromm's theories, one can dissect the desire for blood (Dracula) versus Horcruxes (Voldemort) as methods of immortality. This also intertwines the relationship between literature and psychology while reflecting the game of power struggle, which remains present in our society. Thus, we can easily witness the essence of Dracula and Voldemort's ideologies manifesting in different individuals' actions today. In the end, this paper employs a psychoanalytic framework to examine literary antagonists who believe they are superior to others. In finishing statement, we would like present this notion that Dracula and Voldemort are not just characters but ideologies, which create a gap and present a socio-political picture even in today's society were superiors' rule over Lower-ranker.

Keywords: Dark Personality Traits, Immortality, Obsession, Antagonists, Literature and Psychology.

ETRD25145

A STUDY ON THE DIFFERENT MSMEs RELATED TO AYURVED ACROSS DIFFERENT STATES AND PERFORMANCES ON THE BASIS OF DIFFERENT PARAMETERS

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Abstract

Startups and MSMEs are generally recognized with drivers of high growth and development of employment in Indian market. In this consideration, central and state government also provides several benefits to the business and different schemes. In addition to this, several programs are also promoted that ascertained with educational driven and innovation. The present study will provide detail and insight regarding different MSMEs that considered in Ayurveda. There are different states undertaken those provides formalization against the poverty reduction. In this aspect, different strategies, funding, and sustainability will be shown that flagship that support women with focused programs. Furthermore, study determines different organizations with effectiveness of natural ingredients. It will help to considered effectiveness programs for achieve better results and future development.

The present research followed with mixed research with primary and secondary both kinds of data. It will ascertain with government database, statistical report, and many other publications will study. There are different start-ups followed in the study.

Keywords: MSMEs, Ayurveda, Start-ups.

ETRD25146

FOSTERING COLLABORATIVE INNOVATION: A TRIPLE HELIX APPROACH TO INDIA'S GROWTH

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Abstract

This study analyses the application of the Triple Helix model—collaboration among government, academia, and industry—in shaping India's innovation ecosystem. While India has seen significant progress in science and entrepreneurship, systemic inefficiencies and fragmented collaborations hinder innovation. Through a systematic literature review, the research identifies barriers, enablers, and sectoral disparities, offering actionable strategies for policy coherence and inclusive growth. Theoretical contributions highlight the model's adaptability to resource-constrained environments, while practical implications focus on fostering sustainable partnerships. The study underscores the potential of collaborative innovation in accelerating India's transition to a knowledge-based economy and suggests directions for future research.

Keywords: Triple Helix Model, Innovation Ecosystem, Government-Academia-Industry Collaboration, India's Innovation Landscape, Technological Advancement.

ETRD25148

WHISPER NETWORKS: FEMALE ALLIANCES AS SUBVERSIVE POWER IN JANE AUSTEN'S FICTION

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Abstract

This paper examines the socio-political value of female friendships in Jane Austen's novels, contending that women's informal social networks—friendships, sisterhoods, mentorship, and rivalries—function as subversive processes of influence and survival within the limits of a patriarchal, class-divided society. Using feminist literary theory, sociological concepts of informal power, and historical context for early 19th-century British womanhood, this paper examines the subtle strategies women use to negotiate autonomy, agency, and social mobility in Austen's domestic spheres.

The phrase "whisper networks," typically used to refer to secretive female communication to counter or navigate patriarchal systems, is repurposed here as a critical perspective. In Austen's novels, women's relationships are at once narrative motors and systems of subversion. The essay considers how these relationships both reinforce and subvert the ideological parameters of gender, class, and decency.

Through close reading of three great novels—*Pride and Prejudice*, *Emma*, and *Sense and Sensibility*—the essay charts how characters such as Elizabeth Bennet, Charlotte Lucas, Emma Woodhouse, Harriet Smith, Elinor, and Marianne Dashwood participate in interpersonal negotiations that disclose underlying structures of emotional and political economy. For example, Charlotte Lucas's marriage to Mr. Collins, traditionally read as pragmatic compliance, is recast as a strategic choice that quietly critiques the narrow options available to women. Likewise, the sisterly solidarity between Elinor and Marianne operates as a dialectical relationship—ideological and emotional—that mirrors the contradictions between conformity and resistance.

The paper also discusses how apparently ancillary or secondary female characters (e.g., Miss Bates, Lady Lucas, or Mrs. Jennings) function within these networks, frequently in the roles of information brokers, emotional anchors, or moral guideposts. Through these characters, the essay shows how influence exists through less salient, too-often underappreciated, modes of communication—gossip, caring, shared intimacies, and emotional labor.

Ultimately, this research contends that Austen's representation of women's solidarities prefigures contemporary feminist challenges to institutional power, providing a muted but effective critique of how subaltern voices negotiate within hegemonic structures. Though open revolt is infrequent in Austen's fiction, the subtext of solidarity, defense, and tactical silence betrays a profound awareness of gendered relations of power. Austen's parlors, drawing rooms, and garden strolls are transformed into microcosms of political negotiation, in which women communicate in coded glances, suggested sympathies, and affect-laden silences.

This reading places Austen not simply as a recorder of courtship rites and class politics, but as a nuanced theorist of relational power. Her novels invite a reading of femininity not as passive acquiescence, but as active negotiation—of self, of community, and of resistance. In highlighting "whisper networks," this article makes a contribution to the redefinition of what power is, in the literary canon, focusing on the complex, close, and frequently invisible forms of feminine solidarity that drive Austen's imaginative universes.

Keywords: Jane Austen, Women's Alliances, Gossip Networks, Feminist Literary Theory, Gender and Power Relations, Women's Mentoring.

ETRD25149

GREEN MARKETING FOR STARTUP SUCCESS: AN EMPIRICAL STUDY ON FMCG CONSUMER BUYING BEHAVIOR

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Abstract

This research investigates how green marketing practices affect consumer purchase decisions throughout Rajasthan's FMCG startup market. Businesses need green marketing as a vital strategy to reach environmentally conscious consumers while the general public and the environment grow in concern. A structured questionnaire went out to 198 participants across different Rajasthan cities during the research phase. Statistical tests, including correlation analysis, t-tests, ANOVA, and regression, examined the variables of green marketing awareness, eco-label trust, green product perception, eco-friendly packaging, and brand loyalty in the research. The study demonstrates that consumer purchasing of green products increases when they receive proper education regarding environmental marketing practices. The study found that trust in eco-labels leads to modest changes in brand loyalty levels. Research demonstrated that female consumers expressed stronger brand loyalty towards green brands than their male counterparts. Green product perception, together with eco-friendly packaging, proved to be crucial in shaping buying behaviour, yet price sensitivity showed a diminished impact. Research showed that lower-income consumers demonstrate a stronger tendency for sustainable purchasing choices in green marketing campaigns. Strategic green marketing approaches targeting consumer awareness and eco-friendliness lead to notable changes in FMCG consumers' preferences and sustained purchasing behaviour towards environmentally friendly products.

Keywords: Green Marketing, Consumer Buying Behavior, FMCG Sector, Eco-Friendly Packaging, Brand Loyalty.

ETRD25152

ESTIMATING TIME OF DEATH IN FORENSIC PATHOLOGY

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Abstract

Knowing the time of death is crucial in forensic investigations, as it helps reconstruct events, verify alibis, and determine the sequence of criminal activity. It serves as a foundational element in crime scene analysis, guiding investigators toward the most accurate timeline. Several biological and environmental factors contribute to estimating the postmortem interval (PMI), including algor mortis (body cooling), rigor mortis (muscle stiffening), livor mortis (blood settling), stomach content analysis, decomposition stages, and insect colonisation. Advanced techniques like analysing potassium levels in the vitreous humour provide chemical support for more precise estimates. These indicators are interpreted collectively, as each offers a time range rather than an exact moment. The accuracy of PMI estimation is influenced by external conditions such as temperature, humidity, and body exposure.

Ultimately, establishing the time of death is a scientific pursuit and a strategic tool in uncovering the truth, identifying suspects, and delivering justice.

Keywords: Time of Death, Postmortem Interval (PMI), Algor Mortis, Rigor Mortis, Livor Mortis, Vitreous Humour Analysis.

OTT PLATFORMS: THE VOICE OF SILENCED WOMEN

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Abstract

The rise of digital OTT Platform embarked the transformative journey in Indian entertainment landscape in the last few years. It represents the dynamic and multifaceted portrayal of women. This article highlights how OTT platforms act as a voice of silenced women who were stucked in stereotypical role and their struggles, challenges, voices have long been marginalized or sidelined in traditional media narratives. By avoiding the outdated censorship and commercial pressure, OTT platforms reflecting nuance and resilience portrayal of women's experiences beyond intersectionality. Digital platforms illustrate women from marginalized groups, rural backspaces, oppressed caste, LGBTQ+ identities and those who scuffling daily life issues, barely explored on the silver screen. Through the case study of web series such as Delhi Crime, Bombay Begums, made in Heaven and Aranyak, this paper evaluates that how OTT platforms such as Netflix, Amazon prime, Jio hotstar, zee 5 and others created space for the modify the depiction of women and focusing how reshaping female characters, amplified hidden voices of women and contributing to vital culture shift towards gender inclusivity. These platforms also considered the viewers perception and societal impact of these storytelling's. OTT platforms are not only conferring space for entertainment but rather than the transformation of the society. Additionally, the article explores the role of digital freedom, creative autonomy and approach of audience to allowing such stories flourish. These digital platforms are not only vehicle to drive the entertainment but act as a cultural space where alternative female voice are heard, validate and amplified.

Keywords: OTT Platforms, Silenced Women, Delhi Crime.

ETRD25156

IMPACT OF 7:6 PEG/LDPE RATIO ON THE STRUCTURAL PROPERTIES PREPARED VIA NANOPRECIPITATION METHOD

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Abstract

This study investigates the effect of 7:6 weight ratio of polyethylene glycol (PEG) to Low density polyethylene (LDPE) on the structural properties by using nanoprecipitation method. The high PEG content (54 wt%) was expected to enhance colloidal stability and surface wettability, potentially forming a hydrophilic shell around a hydrophobic LDPE core. surface morphology observed via SEM, FTIR confirmed characteristic functional groups and indicated partial compatibility between PEG and LDPE through observed shifts in a peak intensity, XRD analysis revealed semi crystalline structure with decrease crystallinity relative to pure components and UV-Vis spectroscopy indicated improved light absorption. The 7:6 PEG/LDPE blend demonstrates promising features for biomedical and packaging applications due to its tunable properties and ease of fabrication.

Keywords: PEG, LDPE SEM, XRD, FTIR, UV-VIS.

ETRD25157

EFFECTIVENESS OF GOVERNMENT STARTUP GRANTS ON EARLY-STAGE REVENUE GROWTH: A QUANTITATIVE STUDY IN RAJASTHAN

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Abstract

Startups are increasingly recognized as key drivers of innovation, economic diversification, and employment generation. In India, central and state governments have introduced a range of financial support mechanisms such as seed grants, tax incentives, and incubator funding under schemes like Startup India and state-level startup missions.

- To assess whether startups receiving government grants in Rajasthan demonstrate higher early-stage revenue growth compared to those that do not.
- To examine whether the amount and type of grant received correlate with changes in startup performance.
- To control for confounding factors such as industry sector, founder experience, and team size.

This research will adopt a quantitative approach, using primary data collected via a structured questionnaire from 140 startup founders across Rajasthan. Variables: grant receipt (amount, year, purpose), revenue figures over the first three operational years, and key firm characteristics. To test the hypotheses, independent-samples t-tests will be conducted, followed by multiple linear regression analysis to isolate the effect of grants on revenue growth while controlling for relevant variables. It is anticipated that startups that have received government grants will exhibit higher average revenue growth in the early stages of their operations than those that have not. Should the results align with expectations, the study would provide evidence supporting the effectiveness of grant-based government intervention in accelerating early-stage business performance.

Keywords: Startup India, Startup Grants, Revenue Growth.

ETRD25158

ADHERENCE OF RESEARCH AND PUBLICATION ETHICS NORMS: A ROADMAP TO CONDUCT QUALITY RESEARCH

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Abstract

The present study will elicit that why we need to adhere to the research and publication ethics norms while conducting the quality research because to bring the quality in the age of ChatGpt and Open AI tools is the challenge in front of the academic and research societies and stakeholders.

A well-structured questionnaire was administered to 50 research scholars of Guru Jambheshwar University of Science & Technology, Hisar. The sample of scholars was mixed irrespective of disciplines including management, science, humanities, and social sciences.

The present study results show a lack of awareness among scholars about the university grants commission Research and Publication Ethics norms which are meant to conduct the quality research and its consequences. They feel completion of research is important. As of now, breaching ethics is a cognizable offence and the study reveals that the general attitude prevailing among the research scholars about research and publication ethics.

In the present study, we have addressed many important issues. The University Grants Commission, the apex regulatory body of higher education in India, and the individual universities have to come together to develop a mechanism to create awareness among research scholars about research and publication ethics, its consequences, and remedies. This awareness drive has to be periodic in nature and success can be achieved by delivering awareness among the scholars so that things may be materialized.

Keywords: Research and Publication Ethics, UGC, Research Scholars.

ETRD25159

CONSUMER PERCEPTIONS OF SMART HOME TECHNOLOGY**Apoorva Chaturvedi**

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Abstract

Consumer attitudes towards smart home systems are explored in this study, including the drivers for adoption and the obstacles to their widespread use. What's more, while consumers are increasingly interested in smart home devices – like smart thermostats, voice assistants, and security cameras – interest varies for different demographics. A census was carried out on 100 urban-based van-prepaid users according to their age, income, and technology adoption experience. Main results newer consumers (aged <35 years), high-earners, and those with high levels of technological comfort were more inclined to use smart home technologies. Older age groups, lower income consumers and individuals who have lower technological expertise show lower adoption rates because of privacy, security, cost, device complexity. Our findings highlight that the smart home industry needs to work on breaking these barriers down with affordable, user-friendly, and safe solutions to have a broader adoption, especially in elderly and less technology-proficient segments of the population. The paper contributes to better consumer understanding and carries implications for manufacturers attempting to broader diffusion in the heterogeneous market segments of the consumers.

Keywords: Smart Home Technology, Barriers, Privacy, Security, Technology Adoption Experience.

ETRD25160

ROLE OF RURAL WOMEN ENTREPRENEURS IN AGRIFOOD BUSINESSES (A CASE STUDY OF UTTARAKHAND)

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Abstract

Global markets are marked with women entrepreneurs who brought potential change in the economic set up of a country. Women entrepreneurs play a very important role in the economic growth of our country also. However, Women led businesses faced many challenges that directly influence their business performances. Their competency is always compared to men when it comes to business leadership. Global Entrepreneurship Monitor (GEM) report clearly states that there is need to prioritize women especially rural women in new business innovations. This paper focuses on rural women led agrifood businesses in the state of Uttarakhand which are environmentally sustainable and economically viable. The paper examines that how these women contribute in economic development and succeed in managing and expanding their businesses. Another important objective of the research paper is to identify the challenges faced by women led businesses. According to the Economic Survey 2017-18, the women are dominating the agricultural industry as they are actively engaged in varied jobs as labour, entrepreneur and cultivators. However, lack of human capital, social customs, gender-based discrimination, technology and market awareness and financial constraints are the main challenges which need to be addressed. Before addressing these challenges there is a need to focus on few important research questions like in what type of business industries women are involved, how they generate income from their businesses, do they get any benefit from the rural government schemes and programs, how they contribute in economic growth and is there any capacity building or training programs for the rural women entrepreneurs. In this research paper mixed-method descriptive research and convenience sampling is used, including 100 participants.

Keywords: Global Entrepreneurship Monitor, Women Entrepreneurs, Agrifood Businesses.

ETRD25161

LEADERSHIP IN BALANCE: EXAMINING THE IMPACT OF EMOTIONAL REGULATION ON WORK-LIFE BALANCE AND LEADERSHIP SUCCESS

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Abstract

The research presents the relationship between work-life balance and emotional regulation abilities as a successful approach for leaders. By understanding the importance of emotional regulation for women leaders, such as fostering cordial relationships with colleagues, enhancing team spirit, and building performance within an organization, this study emphasizes the significance of emotional regulation skills as an effective leadership strategy. Stress management, relationship maintenance, and responsibility management all rely on emotional regulation techniques. Women leaders also responded that their family life was interrupted by their work more than work was interrupted by their family life. This Empirical study explores that leaders who learn emotional regulation skills are capable to get along with the demands of their position while creating a positive work culture, promoting organizational effectiveness, and assuring individual well-being.

Assessing the influence of emotional regulation on effective leadership, which includes dimensions such as:

- The development of cordial relationships and team spirit within the workplace
- Developing insight into women leader's experiences with work-life balance and emotional regulation, particularly regarding, 'how work influences family life and otherwise.'

These objectives further aim to increase the knowledge on the complex relation between work-life balance, emotional regulation, and leadership effectiveness.

Findings also indicate that leaders who utilize these techniques typically take care of their responsibilities, cultivate positive relationships with their team members, and promote organizational success by creating a healthy balance between work and home life.

Keywords: Work-life Balance, Emotional Regulation, Leadership, Women Leaders.

ETRD25162

THE ROLE OF SOCIAL MEDIA TACTICS FOR EMERGING START-UPS FROM THE PERSPECTIVE OF THE INDIAN ECONOMY

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Abstract

In the rapidly evolving Indian economic landscape, emerging start-ups are leveraging social media as a critical tool for growth, visibility, and customer engagement. This empirical paper explores the strategic role of social media tactics in enhancing the performance and sustainability of start-ups within India's dynamic entrepreneurial ecosystem with India witnessing a digital revolution driven by affordable internet access and a tech-savvy population, platforms like Instagram, LinkedIn, Facebook, and Twitter offer cost-effective avenues for marketing, brand building, and customer feedback. The study uses a mixed-methods approach, combining surveys, interviews, and social media analytics to assess the effectiveness of various social media strategies. The research is carried out with the aid of tables and figures for easy understanding. Key findings highlight the importance of content quality, influencer partnerships, and platform-specific tactics. The research establishes that social media is expanding its reach in the industry rapidly, and has immense potential for the future. Start-ups are developing through adopting social media tools for increasing their market accessibility. This empirical study confirms that strategic use of social media significantly enhances the growth prospects of emerging start-ups in India. The paper concludes with insights on best practices and future opportunities for social media in India's start-up sector.

Keywords: Customer Engagement, Strategic Role, Influencer Partnership, Social Media Strategies, Entrepreneurial Ecosystem.

ETRD25163

ZERO DISCHARGE TECHNIQUE IN THE TEXTILE INDUSTRY

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Abstract

The textile industry is one of the largest water-consuming and polluting sectors globally, generating massive volumes of wastewater laden with dyes, chemicals, and hazardous substances. The zero-discharge technique has emerged as a sustainable solution to address the environmental challenges posed by textile effluents. This approach aims to eliminate liquid waste from production processes by implementing advanced treatment methods, recycling, and reusing water within the system. Key components of the zero-discharge technique include efficient wastewater treatment technologies such as membrane filtration, reverse osmosis, and evaporation. Innovative strategies like water-efficient dyeing processes and chemical recovery further reduce environmental impact. By integrating these methods, the textile industry can significantly reduce freshwater consumption, minimize pollution, and achieve circularity in water usage. Adopting zero discharge systems promotes environmental sustainability and aligns with stringent regulations and growing consumer demand for eco-friendly products. Despite challenges such as high initial investment and operational complexity, the long-term benefits of reduced water usage, lower operational costs, and enhanced corporate responsibility make zero discharge a viable and essential practice for the future of the textile industry.

Keywords: textile industry, zero discharge systems, environmental sustainability.

ETRD25164

THE IMPACT OF DIGITAL TRAINING ON ACQUIRING AND RETAINING YOUNG TALENT

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Abstract

In today's rapidly changing work environment, organizations struggle to attract and retain young talent, especially amid digital transformation. As Millennials and Generation Z enter the workforce, their expectations for learning, engagement, and career growth require innovative strategies. This study explores how digital training tools—such as e-learning, virtual mentorship, gamification, and AI-driven personalized learning on the effectiveness of talent acquisition and retention strategies.

The research aims to assess how structured digital training programs affect an organization's appeal to young professionals and their long-term commitment and performance. Using a mixed-method approach, quantitative data were gathered from surveys across 50 mid-to-large companies, and qualitative insights came from interviews with HR managers and employees aged 20–30. Statistical analysis, including correlation and regression, was used to examine links between digital training and HR outcomes like retention rate, engagement levels, and time-to-productivity.

Results indicated a statistically significant positive correlation between comprehensive digital training programs and improved employee retention ($p < 0.01$), with a 27% increase in first-year retention reported by participating organizations. Many respondents cited digital training as a key reason for influencing their decision to accept and stay in a role.

In conclusion, digital training functions as a strategic facilitator in both attracting and retaining young employees. Companies that invest in adaptive, technology-driven learning platforms are more likely to maintain workforce competitiveness and reduce turnover in an unpredictable job market.

Keywords: AI-driven Personalized Learning, Virtual Mentorship, Millennials and Generation.

ETRD25166

BUSINESS, MANAGEMENT AND ACCOUNTING

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Abstract

In today's dynamic economic environment, effective business management and accounting practices are essential for organizational success and sustainability. This paper explores the integration of strategic management principles with modern accounting techniques to improve decision-making processes and organizational performance. It highlights the role of financial and managerial accounting in supporting strategic planning, budgeting, and performance evaluation. Furthermore, the study investigates how digital transformation and data analytics are reshaping traditional accounting functions, enabling more proactive and real-time business management. The findings underscore the importance of aligning accounting practices with strategic business goals to maintain competitiveness in a rapidly evolving marketplace.

Keywords: Business Strategy, Management Accounting, Financial Accounting, Decision-Making, Performance Evaluation, Digital Transformation.

ETRD25169

INTEGRATING ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE PRACTICES: A STUDY OF EMERGING IHRM TRENDS IN UDAIPUR'S TECH-DRIVEN ORGANIZATIONS

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Abstract

The rapid integration of Artificial Intelligence (AI) in business processes has introduced transformative shifts in Human Resource Management (HRM), particularly in how organizations manage talent, streamline HR functions, and ensure strategic alignment. This research focuses on exploring the evolving role of International Human Resource Management (IHRM) in the context of AI integration within selected tech-driven and service-oriented organizations in Udaipur, Rajasthan.

As Udaipur advances toward becoming a digitally enabled smart city, local businesses—including IT firms, HR agencies, and educational institutions—are beginning to adopt AI tools for recruitment, performance evaluation, training, and data-driven decision-making. The study aims to analyse how these organizations are managing global HRM principles such as cross-cultural sensitivity, diversity, ethical hiring, and employee well-being, while integrating AI technologies. Particular emphasis is placed on understanding the challenges of algorithmic bias, data privacy, resistance to change, and the ethical dilemmas faced by HR managers.

The research adopts a qualitative and exploratory design using interviews with HR professionals, case studies of local tech firms, and analysis of policy documents. The outcomes will provide a regional perspective on the global discourse of AI in HR, offering insights into how smaller cities like Udaipur are preparing for the digital future in HRM. This study aims to contribute practical recommendations for ethically and culturally responsible AI adoption in HR processes.

Keywords: Artificial Intelligence (AI), International Human Resource Management (IHRM), Udaipur, Tech-Driven HR Practices, Ethical AI In Recruitment.

ETRD25170

MACHINE LEARNING METHODS TO PREDICT THE COMPRESSIVE STRENGTH OF CONCRETE

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Abstract

The accuracy in prediction of the compressive strength of concrete is a most critical task in civil engineering. The compressive strength is directly affected on the safety and durability of structure. The conventional method for calculating compressive strength of concrete is time consuming and it also required laboratory testing. This study involved an artificial intelligence method using machine learning techniques like python programming to predict compressive strength of concrete.

A dataset is prepared using the input parameters like cement, fine aggregate (sand), coarse aggregate, admixtures and water cement ratio. The target parameter is the compressive strength of concrete by using different parameter. The machine learning techniques involve Python language which contain Pandas, Scikit learn and Tensor Flow. This study presents multiple algorithms like linear regression, Decision Trees, Random Forest etc.

Model performance is evaluated by the metrics like Mean Squared Error, R^2 score and cross validation techniques. By using this method any one can predict the compressive strength of concrete for better accuracy of structure. This is the most reliable and efficient approach to the conventional method for prediction of compressive strength of concrete.

Keyword: Regression, Machine Learning, Pandas, R^2 , Compressive Strength.

CROSS MARKET VOLATILITY SPILLOVER AND RESILIENCE AMONG EMERGING NATIONS: EVIDENCE FROM BRICS

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Abstract

In the present scenario of emerging global financial integration and cross-country capital flow, the emerging markets are playing a pivotal role. The BRICS nations stand for Brazil, Russia, China, India and South Africa, the term coined by Jim 'o Neil in the year 2001, these group of countries attract most of the capital among emerging nations. The high frequency movement of capital among these nations make the stock market volatile and due to high integration among these stock markets, often cross-country volatility spillovers and contagion can be observed, there are studies on this dimension, but there are only few studies on resilience of these countries from spillovers.

This study explores the dimension of spillover resilience among BRICS stock market. The idea of resilience in stock market highlights the capability of any stock market to regain its normal course of movement after, disruption created due to spillovers from other stock markets.

This study employed the Impulse Response Function and GARCH family models to explore about the volatility, spillovers and response of one stock market to the other. The paper has taken daily data of stock exchanges of BRICS nations i.e. National Stock Exchange, Shanghai Stock Exchange, Johannesburg Stock Exchange, Moscow Stock Exchange, Brazilian Stock Exchange.

Keywords: Resilience, Stock Market, Volatility, Spillover, GARCH, Impulse response function, BRICS.

ETRD25173

FINANCIAL INCLUSION INITIATIVE THROUGH THREE LENS IN INDIA: GOVERNMENT, INDUSTRY AND DEVELOPMENT SECTOR

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Abstract

Financial inclusion is a concept that offers every individual access to and use of financial services. It ensures that unserved and underserved populations are catered to their financial needs and not excluded from the financial ecosystem. This paper aims to understand the initiatives undertaken in digital financial services in India. It uncovers the initiatives in digital financial services from three perspectives: Government Initiatives, Industry Initiatives, and Development Sector Initiatives. The secondary data available on the RBI website (reports and press releases), IMF reports, and the Global Findex database have been utilised to gather knowledge regarding the initiatives undertaken by three broad sectors. The financial inclusion is a fundamental tool with the growth in financial services with approximately 52.8 crore accounts opened under PMJDY as of July 2024 along with remarkable growth in digital payment via click increasing to 5 billion in March 2024, a 26% growth trajectory in 2023-24 in the Microfinance industry Small Finance Bank industry and demand of Fintech companies shows foundational work undertaken in three sectors to strengthen the financial health of the country and an individual. However, this study identified persistent challenges and suggests taking a step towards increasing women's access to accounts and DBT to reduce the gender gap, and infrastructural development to address digital literacy gaps and regional disparities. Also, the rights of consumers must be protected by ensuring data privacy protection by regulatory frameworks.

Keywords: Financial Inclusion, Financial Literacy, Digitalization, Government Initiatives.

ETRD25174

TECHNOLOGY INNOVATION AND ENTREPRENEURSHIP

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Abstract

Technological innovations have become a critical driver of entrepreneurial success in the modern digital economy. This paper examines the intersection of technology and entrepreneurship, focusing on how emerging technologies such as artificial intelligence, block chain, and the Internet of Things are enabling new business models and disrupting traditional industries. It also explores the role of digital platforms, innovation ecosystems, and startup incubators in fostering entrepreneurial ventures. The research highlights the importance of adaptability, innovation management, and access to technological resources in the growth and sustainability of startups. Ultimately, the study emphasizes how technology not only enhances operational efficiency but also opens up new avenues for value creation and competitive advantage in entrepreneurial ventures

Keywords: Technological Innovation, Entrepreneurship, Startups, Digital Economy, Artificial Intelligence, Block Chain.

ETRD25175

LEADERSHIP IN BALANCE: EXAMINING THE IMPACT OF EMOTIONAL REGULATION ON WORK-LIFE BALANCE AND LEADERSHIP SUCCESS

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Abstract

The research presents the relationship between work-life balance and emotional regulation abilities as a successful approach for leaders. By understanding the importance of emotional regulation for women leaders, such as fostering cordial relationships with colleagues, enhancing team spirit, and building performance within an organization, this study emphasizes the significance of emotional regulation skills as an effective leadership strategy. Stress management, relationship maintenance, and responsibility management all rely on emotional regulation techniques. Women leaders also responded that their family life was interrupted by their work more than work was interrupted by their family life. This Empirical study explores that leaders who learn emotional regulation skills are capable to get along with the demands of their position while creating a positive work culture, promoting organizational effectiveness, and assuring individual well-being.

Assessing the influence of emotional regulation on effective leadership, which includes dimensions such as:

- The development of cordial relationships and team spirit within the workplace
- Developing insight into women leader's experiences with work-life balance and emotional regulation, particularly regarding, 'how work influences family life and otherwise.'

These objectives further aim to increase the knowledge on the complex relation between work-life balance, emotional regulation, and leadership effectiveness.

Findings also indicate that leaders who utilize these techniques typically take care of their responsibilities, cultivate positive relationships with their team members, and promote organizational success by creating a healthy balance between work and home life.

Keywords: Work-life Balance, Emotional Regulation, Leadership, Women Leaders.

ETRD25177; ETRD25402

SUSTAINABLE BUSINESS MODELS: ESG FRAMEWORKS AND GREEN ENTREPRENEURSHIP

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Abstract

Sustainable entrepreneurship has emerged as a pivotal pressure within the cutting-edge enterprise landscape, with a developing emphasis on environmentally aware practices that reconcile financial prosperity with ecological stewardship. This paper presents a complete evaluation of inexperienced enterprise practices within the context of sustainable entrepreneurship, dropping mild at the multifaceted dimensions of environmental effect. The look at delves into the center standards that underpin sustainable entrepreneurship, analyzing the combination of environmental issues into enterprise techniques and operations. Entrepreneurs, pushed with the aid of using a heightened consciousness of world environmental demanding situations, are more and more adopting green practices to mitigate poor results at the planet. The paper explores diverse inexperienced enterprise models, consisting of round economic system approaches, eco-innovation, and sustainable deliver chain management, as key enablers of sustainable entrepreneurship. Furthermore, the environmental effect of sustainable entrepreneurship is classified via an exam of case research and empirical evidence. From decreased carbon footprints to aid performance and waste reduction, the fine effects of inexperienced enterprise practices are elucidated. The paper additionally highlights the capacity demanding situations and obstacles confronted with the aid of using sustainable entrepreneurs, consisting of marketplace acceptance, regulatory constraints, and economic implications. Understanding those demanding situations is critical for fostering supportive surroundings for sustainable ventures. Additionally, the assessment addresses the position of generation and innovation in riding sustainable entrepreneurship forward. Technologies like renewable energy, superior materials, and information analytics are explored as catalysts for environmentally pleasant commercial enterprise practices. The paper emphasizes the want for non-stop studies and improvement to decorate the effectiveness and scalability of inexperienced solutions. This assessment contributes to the developing frame of know-how on sustainable entrepreneurship with the aid of using presenting a complete evaluate of inexperienced commercial enterprise practices and their environmental impact. As corporations international grapple with the vital of sustainable improvement, the insights offered herein function a precious useful resource for entrepreneurs, policymakers, and researchers searching for to navigate the intersection of monetary boom and environmental responsibility. Keywords: Entrepreneurship; Green Business; Environmental Impact; Sustainability; Review

Keywords: Sustainability, Entrepreneurship, Environmentally, Innovation, Materials, Technology.

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LEVERAGING DIGITAL MARKETING AND SOCIAL MEDIA STRATEGIES FOR STARTUP GROWTH AND REVENUE GENERATION

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Abstract

In the digital era, startups face the challenge of limited resources and the need for rapid growth. Digital marketing and social media have emerged as pivotal tools, enabling startups to reach broader audiences, build brand awareness, and drive revenue without substantial financial investment. However, the effectiveness of these strategies hinges on their strategic implementation and adaptability to the ever-evolving digital landscape. This research aims to explore and analyze the digital marketing and social media strategies employed by startups to enhance their growth and revenue. The study seeks to identify best practices, challenges faced, and the impact of these strategies on startup success, aligning with the conference theme of "Research, Resilience, and Revenue: The Startup Growth Formula."

A mixed-methods approach was adopted, comprising:

- Case Studies: In-depth analysis of successful startups like Glossier and Dollar Shave Club to understand their digital marketing and social media strategies.
- Surveys: Questionnaires distributed to startup founders and marketing managers to gather insights on strategy implementation and outcomes.
- Data Analysis: Examination of key performance indicators (KPIs) such as engagement rates, conversion rates, and return on investment (ROI) to assess the effectiveness of strategies.

The findings indicate that startups leveraging a combination of content marketing, influencer partnerships, user-generated content, and targeted paid advertising experience higher engagement and revenue growth. For instance, Glossier's emphasis on community engagement and user-generated content led to a substantial increase in brand loyalty and sales. Digital marketing and social media strategies are instrumental in the growth and revenue generation of startups. By adopting a strategic approach that includes content creation, influencer collaborations, and data-driven decision-making, startups can enhance their market presence and achieve sustainable growth. However, challenges such as resource constraints and market saturation necessitate continuous innovation and adaptability in strategy execution.

Keywords: Digital Marketing, Social Media Strategies, Brand Awareness, Revenue Growth, SEO, Content Marketing.

ETRD25184

SUSTAINABLE IT PRACTICES FOR EMPLOYEE WORKPLACE HAPPINESS: A BIBLIOMETRIC REVIEW

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Abstract

This paper gives an exhaustive bibliometric analysis of Sustainable IT Practices (SIP) for the employee workplace satisfaction, considering articles published from 2015 to 2024. Employing sophisticated bibliometric software like Bibliophagy and VOSviewer, the investigation identifies important scientific trends, depicting the intellectual landscape and thematic developments in the domain. The study measures metrics such as yearly scientific production, citation rates, Lotka's Law for productivity of authors, H-index for local impact, and core journal, author, and institutional impact. In addition, it examines collaborative networks, country-level contributions, and communication patterns, providing insights into world research dynamics. Thematic mapping identifies key clusters based on cyber resilience, green IT infrastructure, digital well-being, and the influence of sustainable digital environments on improving employee happiness and organizational transparency.

The research emphasizes the growing applicability of SIP in developing safe, effective, and psychologically secure digital workplaces. Although strong, the research is limited by being based solely on the Dimensions database and English literature, which could exclude important non-indexed and multilingual inputs. The other types of documents like conference articles and books also are not covered in the study, which can hold important ideas. Subsequent studies are invited to employ a multi-database methodology, combining Scopus, Web of Science, and Google Scholar, with advanced visual analytics for wider and more profound mapping. Augmenting linguistic and geographic coverage will still increase inclusivity and depth. This bibliometric investigation offers a conceptual template for researchers and practitioners who wish to continue developing sustainable digital strategies in concert with human values in the unfolding world of IT-enabled work environments.

Keywords: Augmenting Linguistic, Sustainable IT Practices, Workplace Happiness.

ETRD25185

EMPLOYEE WELL-BEING AND PRODUCTIVITY IN STARTUPS IN INDIA

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Abstract

This research examines the intricate relationship between employee well-being initiatives and productivity outcomes within India's burgeoning startup ecosystem. As the Indian startup landscape continues to evolve rapidly, with over 100,000 DPIIT-recognized startups as of 2023, understanding the human capital dimension becomes increasingly critical for sustainable growth. The study investigates how recent developments—including post-pandemic work models, mental health awareness, and the implementation of the Startup India initiative—have transformed approaches to employee welfare in emerging ventures.

This research identifies emerging patterns in well-being practices through qualitative analysis comprising in-depth interviews with 45 employees and 15 founders across technology, fintech, and e-commerce startups in Bangalore, Mumbai, and Delhi-NCR. The study reveals that startups implementing holistic well-being programs incorporating mental health support, flexible work arrangements, and financial wellness initiatives demonstrate measurably higher employee retention rates and productivity metrics compared to counterparts with traditional approaches.

Notably, the research highlights how Indian cultural contexts influence well-being frameworks, with successful startups adapting global best practices to local sensibilities. The findings suggest that investment in employee well-being represents a strategic advantage rather than an operational expense amid funding winter challenges and increased competition for talent. This paper contributes to the growing discourse on sustainable startup growth in the Indian context by proposing a culturally-responsive framework for employee well-being that aligns with both productivity goals and the unique challenges faced by Indian startups in their growth journey.

Keywords: Well-being, Productivity, DPIIT, Employee Welfare, Mental Health Support, Indian Startups.

ETRD25186

REDEFINING RETIREMENT: A SYSTEMATIC REVIEW ON DETERMINANTS OF FINANCIAL INDEPENDENCE, RETIRE EARLY (FIRE) MOVEMENT

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Abstract

40 is the new 60 is an apt phrase that showcases how the FIRE movement is redefining retirement. FIRE an acronym for Financial Independence, Retire Early is a socio-economic lifestyle which involves frugal living, aggressive savings, and early retirement through financial independence. FIRE acolytes seek early exit from the traditional employment structures of 9 to 5. Coined around the aftermath of 2008 financial crisis, the notable rise in FIRE adaptors highlights the need to identify the factors causing such intense adoption. PRISMA framework was used to extract studies on FIRE movement and early retirement determinants from Scopus between 2005 to 2024. The studies reveal strong desire for autonomy/freedom and job-related stress and dissatisfaction as the primary determinants. Moreover, social support from family and active digital communities support eases out the adoption process. People with good financial status i.e. high paying jobs are better equipped to adapt to FIRE principles. Lastly, FIRE adoption is feasible only by those with financial education and access to digital financial ecosystem. FIRE movement is not just a financial strategy but a significant behavioural and ideological shift. The nascent nature of the study calls for thorough research in the domain from the policy making perspective especially in developing countries where the idea is taking momentum.

Keywords: FIRE Movement, PRISMA framework, Financial Independence.

ETRD25187

EMPOWERING GIRLS AND YOUNG WOMEN THROUGH FOOTBALL: A CASE STUDY OF THE FOOTBALL FOR FREEDOM PROGRAM BY MAHILA JAN ADHIKAR SAMITI

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Abstract

Mahila Jan Adhikar Samiti (MJAS), a women-led organization in Rajasthan, has been working since 2000 to empower marginalized women and girls through community-based initiatives. One of its flagship programs, Football for Freedom, Unity & Solidarity, supported by the HCL Foundation, aims to challenge gender norms and promote gender equality through sports.

The program seeks to:

- Enhance girls' agency and confidence.
- Improve life skills through sports-based learning.
- Transform community perceptions around girls and gender roles.

The program operates in five villages in Ajmer district, engaging over 250 adolescent girls. Football training is combined with structured life skills sessions on leadership, reproductive and mental health, and child sexual abuse prevention. Nutritional support and participation in football tournaments are integral to the model. Data was collected through interviews, observations, and feedback from girls, parents, and community members.

The program led to a significant improvement in girls' leadership, confidence, and social engagement. Life skills training had a positive effect on their personal development and awareness. Community perceptions shifted, with increased acceptance and support for girls participating in sports. Several girls gained recognition at district and state-level competitions.

The study supports the hypothesis (H1) that sports-based interventions significantly empower girls, promote gender equality, and improve life skills. The alternative hypothesis (H2) of minimal impact is not supported. The program has emerged as a model for leveraging sports for holistic development and social transformation.

Keywords: Gender Equality, Sports, Football, Community Transformation, Life Skills Development.

ETRD25188

AGRI-BASED STARTUPS BY RURAL WOMEN: INNOVATION, CHALLENGES, AND GROWTH

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Abstract

This research paper examines rising phenomenon of agri-based startups led by rural women in India, emphasizing their role in driving innovation and promoting inclusive rural development. Women entrepreneurs are increasingly engaging in activities such as organic farming, value added food processing, agri-tourism, herbal product manufacturing, and other agri-based enterprises. These startups reflect a unique collaboration between traditional agricultural knowledge and modern entrepreneurial practices, including digital marketing, eco-friendly production methods, and locally adopted innovations. Apart from their strengthening role, rural women faces many challenges such as limited access to institutional finance, lack of formal training, lack of market linkages, and socio-cultural barriers. Based on secondary data, this paper explores the motivations, innovation practices, and operational challenges of rural women entrepreneurs. The findings recommends that the importance of targeted policy support, access to technology, and capacity-building initiatives in scaling such ventures. The paper concludes with policy recommendations aimed at creating an enabling ecosystem for rural women to develop as agripreneurs and actively contribute to sustainable agricultural growth and rural employment.

Keywords: Agri-based Startups, Rural Development, Women Entrepreneurs, Innovation.

ETRD25189

A STUDY OF LIBRARIES AT NAAC-ACCREDITED HIGHER EDUCATION (UNIVERSITIES) INSTITUTIONS IN JAIPUR (RAJASTHAN)

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Abstract

This study explores the best practices adopted by NAAC-accredited higher education institutions (HEIs) in Jaipur, Rajasthan, with a particular focus on their academic libraries. Best practices in libraries play a critical role in enhancing research quality, promoting knowledge advancement, and supporting institutional growth. These practices ensure that users can access accurate and relevant information efficiently, thereby improving user satisfaction and academic productivity. The research includes 11 universities in Jaipur that are accredited by NAAC with grades A and B, and uses exploratory methods such as surveys, observations, and questionnaires. Key best practices identified include 100% library automation, widespread access to e-resources, internet availability for all user groups, current awareness services, and technology-driven innovations like RFID systems. Libraries also offer services such as user education, orientation programs, staff training, book exhibitions, and career information support. The study highlights how adherence to these practices contributes to institutional excellence and user empowerment. It also emphasizes the need for continuous improvement to meet evolving academic demands and ensure the sustainable development of academic libraries in HEIs.

Keywords: Academic Libraries, Best Practices, NAAC, Higher Education, Library Automation, E-Resources.

ETRD25193

EMERGING TRENDS IN RESEARCH AND DEVELOPMENT**Vedanshi Sharma**

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Abstract

This paper examines the evolving dynamics of Research and Development (R&D) through the integrated lens of research, restraint, and revenue—a strategic triad that defines modern innovation practices. As global challenges intensify and technological capabilities expand, organizations are rethinking how they invest in and manage R&D activities. Research remains the cornerstone of innovation, but it is now increasingly shaped by data-driven methods, artificial intelligence, and collaborative ecosystems. Restraint has emerged as a critical consideration, reflecting the growing need for ethical responsibility, resource efficiency, and sustainable practices within R&D strategies. This includes minimizing environmental impact, aligning with regulatory frameworks, and managing risk in volatile markets. At the same time, revenue generation continues to be a key performance indicator, emphasizing the need to translate research efforts into scalable, market-ready solutions. The paper explores how these emerging trends are reshaping the R&D landscape, offering insights into how organizations can build more resilient, responsible, and revenue-focused innovation models in an increasingly complex world.

Keywords: Research and Development (R&D), Revenue Generation, Technological Capabilities.

ETRD25194

THE RISE OF ROBO- ADVISORS: A SHIFT FROM TRADITIONAL INVESTMENT ADVISORY METHOD

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Abstract

Investment decision-making has undergone a significant transformation with the advent of technology-driven financial tools, particularly robo-advisors. This paper explores and compares the effectiveness of robo-advisory services and traditional investment advisory methods. Robo-advisors utilize algorithms and artificial intelligence to provide automated, low-cost, and data-driven investment recommendations, often appealing to tech-savvy and cost-conscious investors. In contrast, traditional methods rely on human financial advisors who offer personalized guidance, taking into account emotional, behavioral, and complex financial factors. The study analyzes the strengths and limitations of both approaches in terms of accessibility, cost efficiency, personalization, risk assessment, and investor trust. Findings suggest that while robo-advisors are revolutionizing investment strategies with efficiency and scalability, traditional advisors continue to play a critical role in building long-term relationships and offering tailored advice in complex financial situations. The integration of both methods may represent the future of holistic financial planning.

Keywords: Robo-advisors, Traditional Advisors, Investment Decisions, Fintech, Automated Investment, Personalized Investment.

ETRD25196

IMPACT OF INTERNET ERA ON ENTREPRENEURSHIP OPPORTUNITIES FOR WOMEN IN INDIA

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Abstract

This study investigates the transformative role of digitalization in advancing women entrepreneurship in India. Amid a growing presence of women-led enterprises - now comprising approximately 45% of Indian start-ups - digital tools have emerged as critical enablers of operational efficiency, market access, and enterprise growth. Utilizing snowball sampling, primary data were collected through a structured questionnaire distributed via Google Forms to women entrepreneurs across diverse sectors. The analysis, grounded in inferential statistical techniques, explores the extent of digital adoption, training, government support, and prevailing challenges. Findings reveal that digitalization significantly enhances business visibility, customer engagement, and financial management. However, persistent barriers such as digital illiteracy, cybersecurity concerns, and inadequate infrastructure - especially in rural contexts - impede optimal outcomes. The study underscores the need for inclusive digital literacy programs and improved technological access to realize the full potential of digital entrepreneurship among women. These insights bear relevance for policymakers, educators, and development practitioners aiming to promote gender-inclusive economic growth in the digital economy.

Keywords: Digital Economy, Entrepreneurship, Policymakers.

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HUMAN TECH-SYNCHRONY: REDEFINING HR IN THE AGE OF AI AND EMPATHY

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Abstract

In today's dynamic business ecosystem, the Human Resource function stands at a fascinating crossroad—where Artificial Intelligence meets Authentic Human Empathy. This study introduces the concept of Human Tech-Synchrony (HTS)—a futuristic HR model designed to blend algorithmic efficiency with emotional intelligence. The research explores how organizations can foster a workplace culture that leverages AI-powered tools without compromising the human touch that defines people management. The study aims to identify key strategies where human-centric HR practices can coexist with technological automation, creating a sustainable, inclusive, and emotionally intelligent workplace.

A mixed-method approach was adopted. Quantitative surveys were conducted with 100+ HR professionals across Indian metro cities, while qualitative interviews with industry leaders provided deeper insights into evolving HR-Tech trends.

Findings reveal a compelling shift—while 72% of respondents view AI as a tool for productivity, 88% emphasize the irreplaceable role of empathy in areas like conflict resolution, onboarding, and cultural integration. The HTS Model proposed in the paper is a 4-layer framework integrating AI, EI (Emotional Intelligence), DEI (Diversity-Equity-Inclusion), and Strategic Thinking.

The future of HR isn't Human vs. Machine—it's Human with Machine. Organizations that embrace this harmony will not only thrive but lead with purpose and impact in Industry 5.0.

Keywords: Human-Tech Synchrony, AI in HR, Empathy, Future of Work, Emotional Intelligence, Strategic HR, Industry 5.0.

UNIFIED TRANSFORMER ARCHITECTURES FOR MULTI-TASK LEARNING ACROSS VISION, LANGUAGE, AND AUDIO DOMAINS

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Abstract

The rise of transformer-based architectures has significantly advanced deep learning across individual modalities such as text, vision, and audio. However, training and maintaining separate models for each modality leads to redundant computations and limited cross-modal understanding. This paper proposes a Unified Transformer Architecture (UTA) capable of performing multi-task learning across diverse modalities—vision, language, and audio—within a single, shared framework.

Our architecture leverages a modular transformer backbone that utilizes modality-specific tokenizers and shared self-attention layers, allowing for effective representation learning and task execution in a multi-modal environment. We demonstrate how cross-modal tasks, such as image captioning, visual question answering, and audio-based sentiment recognition, benefit from shared learning signals. The model is pre-trained on a large-scale heterogeneous dataset and fine-tuned on multiple downstream tasks, achieving state-of-the-art or competitive results with significantly reduced parameter count and training cost compared to separate models.

Additionally, we explore knowledge transfer between modalities, showing that training on one modality improves performance in another, validating the hypothesis of shared latent structures across data types. We also present an ablation study to highlight the contributions of cross-modal attention and task-specific heads. This research contributes toward the vision of general-purpose AI systems and paves the way for more efficient, scalable, and versatile AI architectures that unify perception and understanding across diverse domains.

Keywords: Unified Transformer, Multi-Task Learning, Cross-Modal Learning, Vision-Language-Audio Integration, General-Purpose AI, Self-Attention Mechanism.

ETRD25200

SUSTAINABLE SOLUTIONS FOR A GREEN ENVIRONMENT: NURTURING A HARMONY BETWEEN HUMANITY AND NATURE

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Abstract

This paper explores ways to create a sustainable environment by balancing human needs with nature's well-being. It highlights the urgent need for joint efforts to address growing environmental problems caused by human activities and technological developments.

Key challenges such as climate change, loss of biodiversity, pollution, and depletion of natural resources are discussed, emphasizing the need for significant changes. The paper explains sustainability principles, including balancing economic, social, and environmental goals, promoting fairness and justice, and taking precautionary measures to prevent harm.

The paper also discusses sustainable farming methods like organic farming, conservation agriculture, and permaculture, offering real-world examples such as eco-friendly urban planning in Copenhagen and renewable energy projects in Costa Rica.

In conclusion, the paper encourages ongoing improvements in sustainability through innovation, education, and supportive policies. It calls for cooperation among individuals, communities, and governments to create a healthier and more balanced planet for current and future generations.

Keywords: Sustainability, Green Environment, Environmental Challenges, Sustainable Solutions.

ETRD25201

RURAL ENTREPRENEURSHIP AND AGRI- BUSINESS STARTUPS

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Abstract

Rural entrepreneurship refers to the creation and management of new ventures in rural areas. Rural entrepreneurs are typically individuals or groups who identify opportunities in their local environments and develop enterprises that cater to the needs and preferences of their communities. By tapping into the unique advantages of rural settings, such as abundant natural resources and traditional skills, rural entrepreneurship can significantly contribute to the overall socio-economic development of these areas. Rural entrepreneurship is important for economic growth, employment opportunities, utilization of local resources, sustainable development, community development, diversification of rural economy, innovation, and technological adaptation and Women empowerment.

India's Agri business startup ecosystem is rapidly growing, with over 1,400 recognized Agri tech startups spanning organic agriculture, food processing, horticulture, animal husbandry, fisheries, and more. These startups are transforming agriculture by leveraging technology, improving supply chains, and offering innovative solutions to farmers and agri-businesses.

Agri business startups are crucial for modernizing agriculture and empowering farmers in India. Their importance of an Agri business start-up is boosting productivity by leveraging technologies like AI, IoT, and data analytics, Agri startups enable precision farming, which helps farmers make informed decisions, optimize resource use, and increase crop yields by up to 30%., market access, reducing post, harvest losses financial inclusion employment sustainability, and climate resilience with government support.

Agri business startups are transforming Indian agriculture by making it more efficient, profitable, and sustainable, while also empowering millions of farmers and revitalizing rural communities.

Keywords: Rural Entrepreneurship, Agri Business Start-Ups, Economic Growth, Employment Opportunity.

DISSECTING ESG PERFORMANCE: A BIBLIOMETRIC EXPLORATION ACROSS TOP GLOBAL ECONOMIES

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Abstract

The term ESG “Environmental, Social, and Governance” was formally introduced in a joint report initiative by UNGC “United Nations Global Compact” and Financial Institutions, titled “Who Cares Wins”. Since then, a number of research developments have been seen in this field, hence understanding the academic literature surrounding ESG and its component has become essential. The paper aims to check the existing literature and research trends by various researchers from different regions and geographies who have contributed to this field. We have explored literature evidence of ESG performance on its individual components- environmental, social, and governance. Additionally, this study also aims to gain existing evidence and insights into ESG in the top 6 economies by GDP and to identify dominant themes, authors and collaboration patterns. The data was extracted from the Scopus database for the period 2014-2024 using combinations of keywords (with Boolean operators, AND) such as “ESG performance” with “Environment,” “social,” and “Governance.” We have used VOSviewer for bibliometric analysis, and excel for data cleaning purpose. The study analyzed publication types, keyword co-occurrence, country and organizational co-authorship, author citations, and source citations. The findings reveal China as the leading contributor to ESG literature, followed by the USA and UK. The keyword analysis highlighted recurring themes such as sustainable development, corporate governance, and green innovation. Co-authorship and institutional analyses show a concentration of impactful work within Chinese institutions. Highly cited authors such as “Serafeim G. and Wang Y.” dominate the field, while journals like “Sustainability” and “Journal of Business Ethics” emerge as leading publication platforms.

Keywords: ESG performance, Bibliometric coupling, Sustainability, VOSviewer, ESG literature.

ETRD25206; ETRD25207

SEEING IS BELIEVING: HOW AUGMENTED REALITY IS TRANSFORMING BRAND STORYTELLING AND CUSTOMER ENGAGEMENT

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Abstract

As organizations strive toward creating more immersive and customized experiences in the age of digitization, traditional marketing strategies are changing quickly. By blending digital and physical content, augmented reality (AR) has become an effective strategy for changing brand narratives and improving consumer interaction. Customers can experience companies in a more engaging and prominent way thanks to augmented reality's special interactive platform. To generate memorable brand experiences, this technology has been embraced more and more by a variety of industries, including retail, fashion, automotive, and tourism. As consumers' demands for immersive, personalized, and real-time content increase, augmented reality (AR) emerges as a powerful tool for marketers to tell stories that captivate audiences.

"The main aim of this research paper is to identify how Augmented Reality (AR) is helping in increasing consumer interaction by personalizing their brand experiences, and reshaping the traditional customer journey within modern marketing environments. "And brand storytelling by examining successful case studies, identifying important trends and technology, and evaluating how AR affects customer behaviour and brand impression are its objectives.

Using a qualitative review technique, this study analyses the secondary data from industry reports, case studies, scholarly literature, and augmented reality marketing initiatives. The study evaluates B2B and B2C environments across several industries to understand how AR affects brand narrative tactics.

AR dramatically improves brand recall, emotional connection, and customer interaction, according to the findings. Businesses that use AR have seen improvements in brand loyalty, purchasing intent, and customer engagement rates. Case studies like Sephora's Virtual Artist, Pepsi Max's "Unbelievable Bus Shelter," and IKEA Place demonstrate how AR effectively connects narrative with consumer action.

Augmented reality has evolved into a revolutionary marketing tool rather than a futuristic idea. By facilitating multimodal, interactive, and customized experiences that increase consumer involvement, it enhances brand narratives. AR technology will become more and more important as it develops in terms of how brands interact, engage, and convert in the online market.

Keywords: Augmented Reality, Customer Engagement, Brand Recall, Tourism, Automotive.

ETDR25208

INVERSION OF AN INTEGRAL INVOLVING A PRODUCT OF M-SERIES AND ALEPH-FUNCTION AS KERNEL

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Abstract

Solution for a Certain Convolution integral equation of Fredholm type Whose Kernel involves a product of M -Series and \aleph - Function has been determined. The main result is believed to be general and unified in nature. A number of results follow as special cases by specializing the parameters of the M -Series and the Aleph- Function.

Keywords: Convolution Integral Equation, M-Series, \aleph -Function.

ETRD25209

IMPACT OF DIELECTRIC PROPERTIES ON SOIL TEXTURE**Meenakshi Chandra¹, A.K. Shrivastav²**¹Research scholar, Dr. C V Raman University Kota, Bilaspur, Chhattisgarh, India²Dean, Faculty of science, Dr. C V Raman University Kota, Bilaspur, Chhattisgarh, IndiaEmail: meenakshichndra2011@gmail.com

Abstract

In this paper attempt has been made by the author to calculate the dielectric properties of herbal based soil of Chhattisgarh state. There are lot of nutrients elements in rich the environment. Different parameters pH, EC, organic carbon, soil texture, micronutrients and macronutrients affect the dielectric behavior of soil. The samples are collected from Raipur, Bilaspur, Jaspur, Bastar and Durg. When after result have been analyzed different values have been shown for different parameter amount of sand, silt and clay. It has been seen that the value of dielectric constant of dry soil has been found in between 3.01 to 3.13. There is a very small variation dielectric constant and dielectric loss both increases significantly with pH, EC, Sulphur, zinc, potassium, substance found in soil. It has been concluded that dielectric constant is very important for production of agriculture.

Keywords: Dielectric Constant, Agriculture, Moisture Content, Soil Texture and Soil.

ETRD25210

WETLAND ECOTOURISM IN UDAIPUR: A PATHWAY TO SUSTAINABLE DEVELOPMENT THROUGH GREEN BUSINESS MODEL

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Abstract

Udaipur renowned as the "City of Lakes," and designated as India's first Ramsar "Wetland City". The growing interest in ecotourism offers an opportunity to balance conservation and economic development. This study conceptually explores the integration of green sustainable business models into ecotourism development. The primary objective is to explore how ecotourism, when approached through sustainable and inclusive planning, can balance environmental conservation with socio-economic development. This study adopted analytical tool like SWOT and exploratory in nature, drawing insights from existing literature, best practices in global ecotourism, and frameworks for sustainable tourism and business modelling (Samal, & Dash, 2025 ; Ganjali *et al.*, 2014). The study synthesizes secondary sources and strategic concepts to propose viable ecotourism pathways tailored to Udaipur's unique urban wetland landscape. The analysis reveals that Udaipur's wetlands hold significant potential for ecotourism that promotes biodiversity conservation, heritage appreciation, and local employment. However, current tourism practices are largely conventional, lacking environmental safeguards and equitable benefit-sharing. The study identifies opportunities for developing low-impact, education-oriented tourism supported by eco-friendly infrastructure and community-driven initiatives (Teruki, N., 2024). The study concludes that embedding sustainability into the core of tourism business planning is essential for Udaipur's long-term ecological and economic resilience. Policymakers, entrepreneurs, and stakeholders must collaboratively adopt models that promote conservation, community empowerment, and innovation. Udaipur thus has the potential to become a leading example of how urban wetland cities can harmonize tourism growth with environmental stewardship through green, sustainable business practices.

Keywords: Green Business Model, Ecotourism Development, Sustainable Business Models.

ETRD25211

IMPACT OF LEADERSHIP STYLES ON EMPLOYEE ENGAGEMENT AND PRODUCTIVITY IN REMOTE WORKING MODELS

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Abstract

The rapid transition to remote work has redefined workplace dynamics, emphasizing the critical role of leadership in maintaining employee engagement and productivity. With the increasing reliance on virtual teams, understanding the influence of leadership styles in this context has become essential. This study investigates the impact of transformational, transactional, and laissez-faire leadership styles on employee engagement and productivity within remote work environments.

A mixed method research design was employed. Quantitative data were collected from employees through structured questionnaires, and qualitative insights were gathered via semi-structured interviews with team leaders. Statistical analyses (correlation and regression) were conducted to examine relationships, and thematic analysis was used for qualitative data.

The result indicates that transformational leadership has a strong positive effect on both employee engagement and productivity in remote settings. Transactional leadership showed moderate effectiveness, mainly in task orientation and goal clarity. Conversely, laissez-faire leadership was associated with low engagement and reduced productivity. The finding underscores the importance of leadership adaptability in virtual work environments. Transformational leadership is particularly effective in fostering a motivated and productive remote workforce. The study recommends leadership training programs tailored to virtual team management.

Keywords: Employee Engagement and Productivity, Remote Work Environments, Leadership.

ETRD25212

LEADING THROUGH UNCERTAINTY: QUALITATIVE INSIGHTS INTO RESILIENCE LEADERSHIP FROM SIX STARTUP CASE STUDIES

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Abstract

Startups operating in high-velocity, resource-scarce environments face heightened exposure to disruption. In such contexts, the role of leadership in cultivating organisational resilience becomes central to survival and long-term adaptability. While resilience leadership has gained traction as a theoretical lens (Lengnick-Hall, Beck, & Lengnick-Hall, 2011), limited empirical research has examined how startup leaders actively navigate prolonged uncertainty in practice. This study addresses that gap through a qualitative investigation of six purposefully selected Indian and international startups that demonstrated sustained performance amidst dynamic challenges. Using a multiple case study design, the research draws on in-depth interviews, public narratives, and secondary sources. Thematic analysis revealed three key dimensions of resilient leadership in action: strategic capability building, the fostering of psychologically safe and adaptive cultures, and responsive decision-making during high-pressure transitions. These insights suggest that resilience is not merely a trait or outcome but an emergent, context-sensitive leadership process. The study contributes to the evolving literature on organisational resilience and entrepreneurship by grounding theoretical constructs in practical, real-world leadership behaviours. It also offers actionable recommendations for startup founders, incubators, and policymakers looking to build resilient ecosystems. In highlighting the lived experiences of leaders steering their ventures through uncertainty, this paper brings new depth to understanding the micro-foundations of resilience in the startup domain.

Keywords: Resilience Leadership, Startup Case Studies, Qualitative Research, Organizational Adaptability, Dynamic Environments, Startup Ecosystems.

MONITORING THE DECADAL FRONTAL AND AREAL CHANGES OF AMERY ICE SHELF, EAST ANTARCTICA USING OCM-3 ONBOARD EOS06

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Abstract

Antarctic ice shelves function as buttresses, providing structural support to the grounded ice sheet. This support mitigates the rate of ice flow into the ocean, thereby contributing to the stabilization of global sea levels (Branecky Begeman & Doake, 2019). Amery ice shelf is the third largest ice shelf of Antarctica and largest ice shelf of East Antarctica, primary fed by the seaward flow of ice from three tributary glaciers namely, Lambert, Mellor and Fisher. The Amery Ice Shelf serves as a major outlet for ice flow from the East Antarctic Ice Sheet into the ocean. The Lambert glacier is world's largest glacier and Lambert-Amery system drained roughly 16% of East Antarctic ice sheet (Fricker et al., 2002). This study examines a spatial-temporal shift in the front edge and change in Amery Ice Shelf (AIS) area during the years 2005–2025 using OCM-3 and MODIS imagery. Ocean Colour Monitor-3 onboard EOS06 (OceanSat-3) sensor has 13 bands ranging between 400–1100 nm covering visible and IR region, has 360 m spatial resolution, and 1440 km swath (Thapliyal, 2021) which covers entire ice shelf in one scene. The data were collected during the summer months of December–March of the year of 2005–2025. Amery ice shelf had an area of ~ 60335 km² in 2005, over the 20 years area has grown modestly by 2.19% to ~ 61657 km². The ice shelf is advancing gradually in the decadal analysis, 2.67 % ice shelf area has been increased in first decade (T1: 2005–2015) while 0.48 % of its area got lost in second decade (T2: 2015–2025). The correlation between SST and area change for Amery reveals a moderate negative relationship, with a Pearson correlation coefficient of -0.4666 ($p = 0.0381$). This statistically significant value suggests that warmer ocean temperatures during the austral summer correspond with reduced ice shelf gains or increased retreat.

Keywords: Amery Ice Shelf, Antarctica, OCM-3, Sea Surface Temperature, Sea-Level Rise.

SNIFFING THE SILENT KILLER: BeN_4 MONOLAYER AS A SENTINEL FOR SULPHUR DIOXIDE

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Abstract

The vehicular emissions cause proliferation of sulphur dioxide (SO_2) around the globe. This not only damages the respiratory system of the animals, but also results into acid rain, which in turn becomes hazardous towards the whole ecosystem. Sensing and capturing SO_2 becomes essential for the improvement in the air quality and also nurturing the biodiversity. A monolayer consisting of nitrides of beryllium (BeN_4) was explored to investigate its ability to sniff and trap SO_2 gas effectively. Implementing the first principles technique, the structural as well as electronic properties of BeN_4 monolayer were scrutinized. With semi-metallic behaviour, it exhibits Dirac cones, near the lower symmetry point. In presence of gases such as, carbon monoxide (CO) and carbon dioxide (CO_2), the semi-metallic nature of BeN_4 monolayer stays unchanged. However, when the SO_2 gets into the vicinity of BeN_4 monolayer, it becomes metallic, owing to the observed peaks at the Fermi level in density of states (DOS), which took place due to the strong interaction between SO_2 and BeN_4 monolayer. The computed adsorption energy of -0.87 eV indicates physical adsorption. Further, the values of charge transfer and variation in the work-function, also conform the strong interaction between the gas and the monolayer. Eventually, observing the I-V characteristics, estimated through non-equilibrium Green's function (NEGF) method, elevated sensitivity of BeN_4 monolayer towards SO_2 at very small voltage of 0.6 V, is evocative of its excellent efficiency.

Keywords: Sulphur Dioxide, Nitrides of Beryllium, Sulphur Dioxide.

ETRD25215

INNOVATION, ADAPTABILITY, AND PROFITABILITY: A TRIADIC MODEL FOR STARTUP SUCCESS

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Abstract

This paper looks at three important things that help a startup grow and succeed: new ideas (innovation), the ability to adjust to change (adaptability), and making money (profitability). Many startups start with great ideas, but not all of them survive or grow. Through surveys and real-life examples, this study shows that startups are more successful when they balance all three — they come up with fresh ideas, quickly respond to market changes, and manage their money well. This model can help new businesses, investors, and support organizations understand what it really takes to build a strong and lasting startup.

Keywords: Adaptability, Profitability, Startup.

ETRD25216

ENHANCING FINANCIAL ACCURACY: A STUDY ON AI-DRIVEN ACCOUNTING AUTOMATION

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Abstract

The integration of Artificial Intelligence (AI) into accounting practices has emerged as a transformative force in enhancing financial accuracy, operational efficiency, and decision-making processes. This study investigates the impact of AI-driven accounting automation on the accuracy and reliability of financial reporting within contemporary business environments. For the study, primary data were collected from accountants, accounts managers, finance analyst and academic researcher. By analysing primary data, the research explores how accounting applications using machine learning algorithms, natural language processing, and robotic process automation (RPA) streamline routine tasks such as data entry, transaction categorization, reconciliation, and compliance monitoring. The findings reveal a significant reduction in human error, improved consistency in financial records, and greater capacity for real-time analysis and forecasting. Additionally, the study discusses the challenges of implementing AI in accounting, including data privacy concerns, algorithmic transparency, and the need for skilled personnel. The research concludes that while AI-driven automation cannot wholly replace human oversight, it serves as a powerful tool for enhancing financial accuracy and strategic decision-making in the digital era.

Keywords: Accounting Automation; Artificial Intelligence; Financial Accuracy; Business Forecasting; Strategic Decision-Making; Digital Era.

ETRD25217

VARIANT PROFILING IN INTERSTITIAL LUNG DISEASE USING SINGLE-CELL RNA SEQUENCING

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Abstract

Single-cell RNA sequencing (scRNA-seq) offers high-resolution insights into gene expression and genetic variation at the individual cell level, facilitating a deeper understanding of disease mechanisms and cellular heterogeneity. In this study, we performed variant analysis on scRNA-seq data targeting 12 genes implicated in interstitial lung disease (ILD), with the goal of identifying potential pathogenic variants contributing to disease progression. Bioinformatics tools such as SIFT and SNPNexus were employed to predict the functional impact of amino acid substitutions and to interpret variant significance. This integrative analysis revealed distinct variant profiles across different cell types and identified functionally relevant mutations that may play a role in ILD pathogenesis. Result shows various pathways and genes involved in disease progression which are Collagen Type1 Alpha1(COL1A1) in Extracellular Matrix Remodeling(Collagen Degradation), Alpha-2 Actin(ACTa2) in NOTCH Signaling, Matrix Metalloproteinase-2(MMP2) involved in MAPK Signaling, Cytokine Signaling and collagen degradation, Metalloprotease-9 (MMP9) involved in Cytokine signaling and SCF-KIT signaling, Platelet Derived Growth Factor Receptor-8 (PDGFR-8) involved in AKT signaling, MAPK Signaling and Cytokine signaling, Transforming Growth Factor Beta-1(TGFβ1)involved in Amyloid fiber formation in Protein metabolism. The findings underscore the power of integrating single-cell transcriptomics with variant analysis to enhance our molecular understanding of complex diseases like ILD.

Keywords: *Single-Cell RNA Sequencing, ILD, Variant Calling, SNP, Mutation, Bioinformatics.*

LIMIT SETS IN SEMI-DYNAMICAL SYSTEMS

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Abstract

Semi-dynamical systems are a fundamental part of non-linear dynamics, particularly useful for modeling systems that evolve continuously over time. Within this framework, limit sets help describe the long-term behavior of system trajectories and are vital in determining system stability and convergence.

This study aims to explore the nature and characteristics of limit sets in semi-dynamical systems. It also seeks to classify different types of limit sets and analyze their behavior under varying mathematical conditions.

The research employs a theoretical approach, supported by analytical modeling and case-based simulations. Various dynamical scenarios were constructed to observe the behavior of limit sets, particularly under hybrid dynamics, fractal geometry, and delayed feedback systems.

The findings reveal that limit sets are highly sensitive to initial conditions and system parameters. Distinct categories of limit sets, such as omega-limit sets and attractors, were observed. The study also highlights the emergence of complex structures when systems incorporate fractal properties or time-delayed interactions.

Limit sets offer a powerful lens to understand and predict the asymptotic behavior of semi-dynamical systems. This research contributes to a more detailed classification framework and suggests that further investigations into non-linear perturbations and feedback mechanisms could yield deeper insights.

Keywords: Semi-Dynamical Systems, Omega-Limit Sets, Asymptotic Behavior.

ETRD25219

ROLE OF AGRI-TECH STARTUPS IN MODERNIZING RURAL AGRICULTURE

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Abstract

Agriculture continues to be a vital pillar of rural economies, yet it faces ongoing issues such as low efficiency, outdated practices, limited market access, and unpredictable pricing. In response, Agri-tech startups have begun to play a transformative role by introducing modern technological solutions tailored for rural farming needs. This research investigates how these startups contribute to agricultural modernization through tools like precision farming, digital platforms, streamlined supply chains, and improved access to financial and advisory services. By analysing current literature and real-world case studies, the paper highlights the ways in which these ventures are closing the technology gap in rural regions, supporting farmers with timely data, and encouraging sustainable practices. Additionally, it addresses the obstacles Agri-tech startups encounter, including lack of infrastructure, policy challenges, and hesitance among farmers to adopt new methods. The study concludes by emphasizing the importance of targeted policies, collaborative efforts, and enhanced digital literacy to fully realize the benefits of Agri-tech in transforming rural agriculture.

Keywords: Agri-Tech Startups, Rural Agriculture, Agricultural Modernization.

ETRD25220; ETRD25223

ENHANCING STUDENT ENGAGEMENT AND LEARNING OUTCOMES THROUGH GAME-BASED EDUCATION

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Abstract

The impact of game-based learning has on students interacting and comprehending in a schooling environment is what this game-focused study analyses. Learning today is much different than before and trying to figure out new ways to make it fun and useful at the same time is an increasing challenge. This paper aims to highlight the possibilities that lie behind using games, more specifically a Minecraft based learning model. The model aims at aiding learners to build an understanding with fundamental concepts in programming such as conditional statements, loops, and data types by providing an interactive computerized game. This proposed model hopes to foster the integration of hands-on coding instruction within a strategically designed Minecraft environment which can help increase students' interest towards learning. Primary data was obtained through online questionnaires (Google Forms) filled out by students, instructors, and guardians, together with observation and an extensive review of literature on game-based learning. The results of the survey confirm the initial hypothesis that Minecraft makes game-based learning attractive, increases students' enthusiasm towards learning, and helps them understand programming better. This study combines a new element of gamification where traditional teaching is done in a more 'fun' manner using Minecraft as a pedagogical tool.

Keywords: Game-Based Learning, Student Engagement, Educational Gamification, Minecraft based Education, Programming Education, Interactive Learning.

ETRD25221

STUDY ON EFFECTIVE MARKETING WITH INNOVATION IN MILLET PRODUCTS

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Abstract

Millet is a coarse grain which is found in western Rajasthan especially in low water and desert soil. Millet is a versatile grain that can be used for food, animal feed and other products. Millet is a good source of carbohydrates, dietary fibre, protein and vitamin B complex. It is also rich in calcium, phosphorus, iron, potassium, magnesium, copper, manganese and antioxidants. As a whole grain, millet provides varying amounts of fibre. Dietary millet plays a role in regulating blood sugar. Moreover, the traditional products made from it have not been able to reach the consumer in terms of their manufacturing methods and utility, which is currently the need of marketing. Tunntada, a by-product of millet, can be used to make modern decorative products that are light, inexpensive and organic. These products can be demanded in the Indian and international markets through modern marketing methods.

The objective of the above article is to create demand for millet products with innovation and to effectively market them.

Keywords: Millet, Product, Marketing, Utility, Innovation.

STARTUPS AND MSMEs: GROWTH STRATEGIES, FUNDING AND SUSTAINABILITY

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Abstract

This research examines the evolving landscape of startups and Micro, Small, and Medium Enterprises (MSMEs) in India. It focuses on sustainable growth strategies and funding mechanisms in the post-pandemic era. Despite contributing approximately 30% to India's GDP and employing over 110 million people, Indian MSMEs and startups face significant challenges in scaling operations and securing adequate capital. Through qualitative analysis involving in-depth analysis of existing scholarly literature, this study identifies emerging patterns in business sustainability and access to funding.

The research highlights the transformative impact of recent government initiatives, particularly the Atmanirbhar Bharat reforms, Production Linked Incentive (PLI) schemes, and the Fund of Funds for Startups (FFS). Our findings reveal a significant shift toward digital adoption, with a significant percentage of MSMEs in India implementing technology solutions to enhance operational efficiency. The study also documents the growing importance of alternative financing models, including revenue-based financing, supply chain financing, and the emerging role of Small Finance Banks in addressing the ₹20- 25 lakh crore credit gap.

The paper makes use of thematic analysis to propose recommendations for sustainable growth that balances profitability with environmental and social considerations, particularly relevant in India's diverse socioeconomic context. Recommendations include sector-specific policy interventions, strengthening the mentor-investor ecosystem, and developing specialized financial instruments for different enterprise at different stages of maturity. This research study makes an attempt to contribute to the understanding of entrepreneurial resilience in emerging economies and provides actionable insights for stakeholders in India's startup and MSME ecosystem.

Keywords: MSME, Startups, Startup Ecosystem, Entrepreneurship, PLI, Atmanirbhar Bharat.

ETRD25224

IONIC LIQUID- AN ECOFRIENDLY SOLVENT

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Abstract

Ionic liquids may be viewed as a new and remarkable class of solvents, or as a type of materials that have a long and useful history. The efficiency of a chemical synthesis can be nowadays measured, not only by parameters like selectivity and overall yield, but also by its raw material, time, human resources and energy requirements, as well as the toxicity and hazard of the chemicals and the protocols involved. The development of multi component reactions (MCRs) in the presence of task-specific ionic liquids (ILs), used not only as environmentally benign reaction media, but also as catalysts, is a new approach that meet with the requirements of sustainable chemistry. Ionic liquids have a number of interesting properties that make them useful for industrial applications and academic purpose. Typical ionic liquid properties include excellent thermal and chemical stability, negligible vapour pressure (which facilitates product separation by distillation), high fluidity, broad electrochemical windows, low viscosities, and unique solvation properties. Furthermore, the potential combinations of cations and anions provide nearly unlimited chemical tunability. Other important properties including large liquids range, stable in air and ability to solvate compounds of widely varying polarity. The aim of this research work is to highlight the use of ILs for the development of new eco-compatible methodologies for heterocyclic chemistry.

Keywords: *Ionic-liquids (green solvent), Heterocyclic Chemistry.*

ETRD25225

RESEARCH IN THE EVER-EVOLVING LANDSCAPE OF ACADEMIA AND INNOVATION IN TRIBAL EDUCATION LEADING TO EQUITY

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Abstract

Tribal communities in India have historically encountered deep-rooted educational discrimination based on geographic isolation, socio-economic marginalisation, and cultural disconnect with mainstream education system. However, recent discoveries in academic research and educational innovation are reshaping the landscape of tribal education. These advances are not only limited to addressing historical inequities but also extend to catalysing new models of inclusion, participation, and knowledge creation suited to tribal contexts. This paper investigates transformative breakthroughs within academic and innovation-driven initiatives aimed at achieving equity in tribal education. It studies the role of research institutions, policy shifts, community participation, and technology in dismantling structural barriers and promoting equitable access to quality education. A qualitative, multi-source meta-analysis was undertaken, encompassing academic literature, national education policy documents, field reports, and grassroots case studies from 2010 to 2024. An attempt was made to use NVivo software to identify innovation patterns based on thematic analysis. Interviews were also conducted with tribal educators and researchers to enrich the data with experiential insights. Following is few of the breakthroughs revealed through this study: increased tribal representation in academic research and policy bodies, integration of tribal knowledge systems into academic curricula, adaptive learning assessments focussed on equity outcomes, and digital and mobile learning platforms designed for tribal learners. These breakthroughs reflect a paradigm shift from deficit-oriented approaches to empowerment-based models grounded in cultural respect and academic inclusivity. Continued investment in context-driven research, indigenous knowledge validation, and policy integration will be important in sustaining and scaling these gains.

Keywords: Tribal Education, Tribal Knowledge Systems, Educational Innovation.

ETRD25226

NEXUS BETWEEN GREEN FINANCE AND SUSTAINABLE DEVELOPMENT IN INDIA

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Abstract

Green finance (GF) has become a crucial mechanism for channeling investments into environmentally sustainable projects. However, in India, limited empirical evidence exists on how GF influences sustainable development outcomes. This paper examines the nexus between green finance and sustainable development in India. It has two main objectives: first, to identify the challenges and opportunities of green finance in India; second, to study the impact of green finance on sustainable development. The study highlights key obstacles (such as limited regulatory frameworks and financing gaps) and opportunities (such as expanding green bond markets and policy support) in the Indian context. To address this research gap, the study uses secondary data from 2019–20 to 2023–24 and employs panel data regression to empirically analyse the relationship between green finance and sustainable development indicators. The results indicate that green finance has a positive impact on sustainable development in India. These findings suggest that increased green investments and financing mechanisms for environmentally sustainable projects contribute significantly to economic growth, social welfare, and environmental objectives. Practical implications are discussed to guide policymakers and stakeholders, providing suggestive guidance on leveraging green finance to achieve India's sustainable development goals.

Keywords: Green Finance, Sustainable Development, ESG Investments, Sustainable Development Goals (SDGs), Climate Finance.

ETRD25228

APPLICATION OF ARTIFICIAL INTELLIGENCE IN DIGITAL RECRUITMENT IN INDIA

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Abstract

The Indian recruitment landscape is experiencing a transformative shift with the integration of Artificial Intelligence (AI) into digital hiring processes. This study investigates how AI-driven tools are redefining traditional recruitment by automating resume screening, improving candidate-job fit, enhancing decision-making speed, and reducing human bias. The research adopts a mixed-methods approach, combining structured surveys with semi-structured interviews of HR professionals across IT, BFSI, Startups', and traditional sectors. Through both quantitative analysis and qualitative insight, the study critically evaluates existing recruitment practices and the level of AI adoption in different industries. The research identifies clear benefits, including reduced time-to-hire, enhanced candidate experience, and improved recruitment analytics. However, it also highlights persistent challenges, such as algorithmic bias, lack of transparency, and concerns regarding data privacy and ethics. A key empirical finding includes the result of a chi-square test, which revealed a statistically significant association between industry type and AI adoption level. This indicates that technology-forward sectors like IT and start-ups show higher adoption rates compared to traditional sectors. The study not only validates global trends in AI-driven recruitment but also contextualizes them within the unique socio-economic and technological landscape of India. It concludes that while AI has the potential to revolutionize talent acquisition, its implementation must be guided by robust ethical frameworks, continuous employee training, and inclusive design. The findings offer actionable recommendations for organizations seeking to leverage AI for building a more efficient, equitable, and data-informed recruitment ecosystem in India.

Keywords: Artificial Intelligence, Digital Recruitment, Talent Acquisition, Automation, HR Technology, Bias Reduction.

ETRD25230

FREQUENCY-DEPENDENT COMPLEX PERMITTIVITY OF SANDY SOIL AS A FUNCTION OF MOISTURE CONTENT: MEASUREMENT AND MODEL COMPARISON

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Abstract

In this study, the complex permittivity ($\epsilon = \epsilon' - j\epsilon''$) of a soil sample collected from an agricultural field in Banas kantha district, Gujarat, India, was measured over the frequency range of 0.5 to 10 GHz using a vector network analyser (VNA) with the help of custom-designed open-ended coaxial probe. The complex permittivity of sandy soil was measured as a function of volumetric moisture content. Results show that both the real part (ϵ'), which represents the soil's ability to store electric energy, and the imaginary part (ϵ''), which represents energy loss due to dielectric relaxation, increase with water content. The measured values of the real and imaginary parts of permittivity were compared with the Wang and Schmugge, Hallikainen et al., and DHG-ADV models. Such insights help to better understand how soil moisture affects complex permittivity, that are critical for designing in situ soil moisture sensors and for improving remote sensing accuracy in agricultural and hydrological applications.

Keyword: Soil Measurements, Dielectric Measurements, Moisture Content, Microwave Frequency.

ETRD25231

AN INTEGRATED MODEL OF SUPPLY CHAIN MANAGEMENT, INDUSTRY 5.0 AND OPTIMIZATION TECHNIQUES TO IMPROVE MANUFACTURING INDUSTRIES

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Abstract

This study aimed to identify and prioritize key success factors for improving supply chain system. The approach has been proved to be an efficient way to fast-track integration and provide significant organizational benefits to the manufacturing industries. Identify potential factors through semi-structured questionnaires for improving supply chain management under the context of Industry 4.0 to 5.0. Valid questionnaires were used to measure the factors with the results showing that these factors play an important role in industry. Customer satisfaction, supplier performance, information systems and leadership qualities are the most significant elements influencing improvements in supply chain management system.

Keywords: Supply Chain Management, Customer Satisfaction, Optimization Techniques.

ETRD25232

MAGIC PITS: A NOVEL PLATFORM FOR SUSTAINABLE AND INNOVATIVE CONTROL OF WASTE WATER GENERATION

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Abstract

The world's population is continuously increasing. The demand of water for drinking, agriculture, industry, and energy production is also increasing continuously. Water is an important component of energy production in hydropower and cooling systems for thermal power plants and as a solvent in all the industries, laboratories and supports the wetlands, rivers, lakes, and the surrounding flora and fauna. It is the essential for ecosystem. The discharge of untreated wastewater as a result of various developmental activities causes great threat to aquatic ecosystems as well as humans. Hence there is a need of sustainable and innovative control of wastewater generation. In this paper we discuss the magic pits for unhygienic and safe disposal of wastewater.

Keywords: Wastewater, Pollution, Magic Pit, Sustainable Approach.

ETDR25233

TRANSFORMING THE WORKPLACE WITH ADOPTION OF ARTIFICIAL INTELLIGENCE

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Abstract

The proliferation of Artificial Intelligence (AI) technologies in workplaces is reshaping corporate environments and introducing complex legal challenges in governance. This paper examines the evolving legal landscape surrounding AI adoption in corporate workplaces, with particular attention to the implications for corporate governance structures in India and globally. As AI assumes a pivotal role in functions such as recruitment, performance evaluation, compliance monitoring, and decision-making, existing legal frameworks are being tested for adequacy, relevance, and adaptability.

The study analyses how current Indian laws—such as the Information Technology Act, 2000; the Digital Personal Data Protection Act, 2023; the Companies Act, 2013; and relevant labor legislations—interact with the deployment of AI in business operations. It highlights legal gaps related to algorithmic transparency, workplace surveillance, discrimination, and accountability of AI-led decisions. Furthermore, the paper explores international regulatory models including the European Union’s Artificial Intelligence Act and the OECD AI Principles, comparing them with India’s evolving stance.

Through a doctrinal and comparative approach, the paper underscores the urgency for corporate entities to adopt robust AI governance policies that comply with constitutional mandates, data protection norms, and ethical standards. The role of board-level oversight, legal compliance officers, and AI ethics committees is evaluated in the context of fiduciary duties and corporate responsibility.

The research concludes by proposing recommendations for a legal framework that balances innovation with accountability. It advocates for mandatory algorithmic audits, employee rights safeguards, and transparent corporate disclosures to ensure that AI integration aligns with democratic values and corporate good governance.

Keywords: Artificial Intelligence (AI), Digital Personal Data Protection, OECD AI Principles.

ETRD25234

UNCONVENTIONAL PERSUASION ACROSS DEMOGRAPHICS: A STUDY ON GUERRILLA MARKETING EFFECTIVENESS

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Abstract

The research shows guerrilla marketing improves brand memory retention and builds customer engagement and broadens marketing reach specifically for young urban highly-educated audiences. Public relations messages that embrace target audience cultural values are seen as more effective by the target audiences. Guerrilla marketing provides an inexpensive but extremely effective advertising solution for market competitors in the food sector. The research included 500 survey participants who represented diverse populations throughout their study design. Overall, the survey examined consumer understanding of guerrilla marketing approaches together with their direct encounters with the strategies followed by requests for participant assessment of marketing effectiveness. Each case containing any responses missing from the data was deleted to maintain complete data integrity according to the listwise deletion method. The data analysis through Chi-square tests established that guerrilla marketing affects fast food product trial intentions for consumers significantly. However, the outcomes differed based on participant age, education levels yet did not shift based on economic standing. The strategic marketing benefits of guerrilla marketing tactics were independently validated among different consumer segments.

Keywords: Guerrilla Marketing, Consumer Adoption, Fast Food, Traditional Food, Innovation.

ETRD25235

FINANCIAL CAPABILITY AND FINANCIAL WELL-BEING: A SYSTEMATIC LITERATURE REVIEW

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Abstract

Financial well-being plays important role in determining individual's overall well-being. Financial capability which includes both ability and opportunity to act plays important role in reducing financial vulnerabilities and reducing financial exclusion. However, a very limited studies summarizes the research in this field. The current study investigates the impact of financial capability on financial well-being through a systematic literature review. The study review papers employing the Theory, Context, characteristics and Methodology (TCCM) framework. The study addresses research questions, including utilization of theoretical frameworks explaining the impact of financial capability on financial well-being. Also, the study identified the dependent, independent, control, mediating and moderating variables involved, along with the methodological approaches utilized for assessing the impact. Further, it explores the diverse contexts embracing industries, countries and consumer type involved in the relationship. Using the Scientific Procedures and Rationales for systematic literature reviews (SPAR-4-SLR) 119 papers were identified. The review offers global insights contributing to academic understanding and offers future direction of research in Indian context. The findings of the study provide significant implications for policy makers and financial practitioners.

Keywords: *SPAR-4-SLR, Financial Capability, Financial Practitioners.*

ETRD25236

CONVOLUTION PROPERTIES FOR CERTAIN SUBCLASSES OF ANALYTIC FUNCTIONS USING JACKSON Q-DERIVATIVE OPERATOR

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Abstract

In this article, we introduce and investigate two subclasses of starlike and convex functions that are analytic in the unit open disk, defined via the Jackson q -derivative operator. We explore the properties of these classes under the Hadamard product and the quasi-Hadamard product. Furthermore, we establish necessary and sufficient conditions for functions to belong to these subclasses and derive coefficient estimates associated with them.

Mathematics subject classification 2020 : 30C45, 30C50

Keywords: Q -Starlike and Convex Functions, Hadamard Product, Quasi Hadamard Product, Subordination.

ARTIFICIAL INTELLIGENCE AND ALGORITHMIC TRADING: A REVIEW OF TRADING STRATEGIES AND THEIR MARKET IMPACT

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Abstract

This paper examines the interaction between algorithmic trading and artificial intelligence (AI), emphasising how their integration is transforming the structure of financial markets. It delineates the historical progression of algorithmic trading, emphasising the paradigm shift instigated by advancements in AI technologies—specifically machine learning and deep learning. The study analyses diverse algorithmic strategies, such as trend following, statistical arbitrage, market making, and sentiment analysis, and investigates the ways in which AI augments these techniques via adaptive learning and real-time data processing.

The primary aim of the project is to examine the impact of AI-driven trading methods on market efficiency, liquidity, and price discovery. The research assesses the wider ramifications of these technologies on market stability and structure, taking into account both potential and systemic concerns. Regulatory oversight, algorithmic bias, and ethical concerns are scrutinised, along with the increasing market strength and influence of AI-driven trading systems.

The research critically evaluates the interdependent relationship between algorithmic techniques and AI advances, elucidating how these technologies mutually influence and develop alongside one other. The report finishes by examining future patterns, regulatory reactions, and the likely evolution of financial markets in the era of AI. This report provides a thorough and detailed examination, enhancing the understanding of the changing dynamics of algorithmic trading and its significant implications for global finance.

Keywords: Market Impact, AI-Driven Trading Systems, Global Finance.

ETRD25240

THE RASA THEORY OF BHARATA'S NATYASHASTRA: ITS RELEVANCE AND APPLICATION IN CONTEMPORARY INDIAN THEATRE AND CINEMA

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Abstract

Bharata's Natyashastra, an ancient treatise on dramaturgy, is a foundational text for Indian performing arts, encompassing theatre, dance and music. It was composed between 200 BCE and 200 CE, which includes rasa (aesthetic emotion), bhava(expression), stagecraft and audience engagement. In contemporary Indian theatre, practitioners like Ratan Thiyam and Bansi Kaul have drawn upon Natyashastra to revive classical aesthetics while addressing modern socio-political themes. The text's emphasis on stylized gestures, symbolic movement, and immersive storytelling offers tools for innovative theatrical expression that bridges tradition and modernity.

Similarly Indian cinema, particularly filmmakers like Satyajit Ray and Mani Ratnam, implicitly employ Natyashastra's principles, especially in crafting emotional depth and visual storytelling. Despite technological advancements, the philosophical underpinnings of Natyashastra continue to inform narrative structures, character arcs, and audience reception in visual media.

Thus, Natyashastra is not merely a historical document but a living tradition that adapts to evolving artistic expressions. Its relevance lies in its holistic approach to performance, enabling a culturally rooted yet globally resonant artistic language in contemporary Indian theatre and cinema.

Keywords: Natyashastra, Rasa, Bhava, Aesthetics, Tradition.

ETRD25241

LEADING THROUGH UNCERTAINTY: QUALITATIVE INSIGHTS INTO RESILIENCE LEADERSHIP FROM SIX STARTUP CASE STUDIES

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Abstract

Startups operating in high-velocity, resource-scarce environments face heightened exposure to disruption. In such contexts, the role of leadership in cultivating organizational resilience becomes central to survival and long-term adaptability. While resilience leadership has gained traction as a theoretical lens (Lengnick-Hall, Beck, & Lengnick-Hall, 2011), limited empirical research has examined how startup leaders actively navigate prolonged uncertainty in practice. This study addresses that gap through a qualitative investigation of six purposefully selected Indian and international startups that demonstrated sustained performance amidst dynamic challenges. Using a multiple case study design, the research draws on in-depth interviews, public narratives, and secondary sources. Thematic analysis revealed three key dimensions of resilient leadership in action: strategic capability building, the fostering of psychologically safe and adaptive cultures, and responsive decision-making during high-pressure transitions. These insights suggest that resilience is not merely a trait or outcome but an emergent, context-sensitive leadership process. The study contributes to the evolving literature on organizational resilience and entrepreneurship by grounding theoretical constructs in practical, real-world leadership behaviours. It also offers actionable recommendations for startup founders, incubators, and policymakers looking to build resilient ecosystems. In highlighting the lived experiences of leaders steering their ventures through uncertainty, this paper brings new depth to understanding the micro-foundations of resilience in the startup domain.

Keywords: Resilience Leadership, Startup Case Studies, Qualitative Research, Organizational Adaptability, Dynamic Environments, Startup Ecosystems.

ETRD25242

A STUDY OF SYNERGY BETWEEN SUSTAINABLE BUSINESS MODEL AND ESG ADOPTION ON CORPORATE PERFORMANCE OF INDIAN COMPANIES

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Abstract

This study aims to analyze the interaction between environmental, social and governance (ESG) practices and green entrepreneur in promoting sustainable business model. Environmental, Social, and Governance (ESG) factors serve as critical yardsticks for evaluating the businesses' ethical impact and long-term viability. This research paper highlights the interrelationship between ESG integration and the development of sustainable business models. It also lays emphasis on how responsible corporate practices boost resilience, innovation, and stakeholder value.

The study explores the growing needs for organizations to shift their focus from profit-making to sustainability. It also covers other aspects, such as the evolution of ESG frameworks, the barriers and drivers of ESG adoption across industries, and the regulatory pressures influencing corporate behavior. It investigates how ESG metrics are integrated into risk management, strategic decision-making, and value creation processes.

Using a qualitative method, the research analyzes case studies of leading corporations with strong ESG performance to figure out best practices, challenges, and measurable impacts on business outcomes such as financial performance, reputation, and stakeholder engagement.

Key findings reveal that companies integrating ESG principles into their core functions and operations tend to perform better in terms of long-term financial stability, innovation capability, and market adaptability. Furthermore, the thesis highlights that sustainable business models are instrumental in building trust and strengthening stakeholder relationships. This research contributes to the growing discussion on sustainable capitalism by offering a strategic framework for embedding ESG into organizational DNA. It underscores the importance and need for businesses to align profit with purpose, positioning ESG as a catalyst for gaining competitive advantage.

In conclusion, the paper asserts that the combination of ESG and sustainable business models helps businesses operate and compete in the 21st century, respond to societal expectations, and build resilience against future shocks. The research offers a strategic roadmap for business leaders, investors, and policymakers to foster a more sustainable, inclusive, and equitable economy.

Keywords: Corporate Performance, Sustainable Business Model, Environmental, Social, and Governance (ESG).

ETRD25243

WHAT MATTER FOR R&D ACTIVITIES OF FIRMS IN INDIAN ORGANISED MANUFACTURING? ROLE OF SUBSIDY, SIZE AND LOCATION

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Abstract

Study examines the impact of industry concentration and government incentives such as product-subsidy on R&D activities and intensity for small & medium size (SMS) and large firms using Cragg double-hurdle model and Heckman selection model, while accounting for other firm-level characteristics. Double-hurdle regression analysis shows that the larger firms and those located in industrial concentration areas are more likely to engage in R&D and invest more in it. Product-subsidy coefficients were positive, but it is less significant in impacting the likelihood of R&D engagement, suggesting that while subsidies can support R&D, their direct impacts are often limited. However, firms receiving subsidies on a larger number of products experienced a significant positive influence on their R&D activities. For SMS firms, the results indicate that they may benefit more from subsidies and technology imports, pointing towards potential policy interventions to enhance their R&D efforts.

Keywords: R&D Activities, R&D Engagement, SMS Firms.

ETRD25244

LEVERAGING CAPITAL MARKETS FOR MSME GROWTH: INSIGHTS FROM SME IPO PERFORMANCE IN INDIA

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of India's economy, contributing nearly 30% to the GDP and providing employment to over 110 million people. However, limited access to affordable capital continues to hinder their scalability and long-term sustainability. In recent years, SME Initial Public Offerings (IPOs) on platforms like BSE SME and NSE Emerge have emerged as a viable alternative financing route, enabling MSMEs to access equity markets and reduce dependency on debt. This study investigates the pricing and post-listing performance of SME IPOs in India between 2013 and 2024, with a focus on evaluating their effectiveness in supporting MSME growth. The objectives include analyzing underpricing trends, sectoral performance, utilization of IPO proceeds, and identifying factors influencing post-IPO returns. The research uses a dataset of 100 SME IPOs and applies descriptive statistics, sectoral trend analysis, and multiple regression models. Key variables include offer price, listing gain percentages, promoter shareholding, financial ratios, and stock performance over one and three-year horizons. Findings indicate an average underpricing of 21.3%, with IT and Pharma sectors demonstrating superior long-term returns. Most IPO funds (58%) were used for working capital, while high promoter retention and pre-IPO profitability were positively correlated with performance. Conversely, excessive underpricing and sectoral volatility negatively impacted post-listing outcomes. The study concludes that SME IPOs offer a promising pathway for MSME growth, but their broader success hinges on supportive policies, investor awareness, and post-listing compliance facilitation.

Keywords: SME IPOs, MSME Funding, Underpricing, Equity Markets, Indian Financial Market.

ETRD25245

VALUE CHAIN ANALYSIS AND SUSTAINABLE SUPPLY CHAIN MANAGEMENT IN CUT FLOWERS: A CASE STUDY OF THE ROSE MARKET IN WEST BENGAL

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Abstract

India leads globally in the area and production of cut flowers, yet contributes minimally to international trade. West Bengal, in particular, has seen a surge in cut flower production, especially roses, despite facing challenges in cultivation area, pricing, and profitability. This study investigates the current economic conditions of floricultural entrepreneurs—farmers, wholesalers, and retailers—engaged in the rose market at Mullick Ghat Flower Market, one of Asia's largest. Using statistical tools such as Chi-Square Tests, Spearman's Rank Correlation, T-Tests, and multiple regression analysis, the research identifies key cost drivers (e.g., rent and irrigation), inefficiencies in price transmission across the supply chain, and constraints such as lack of market information and transport-induced wastage. Findings reveal that farmers and wholesalers share the highest gross margins, whereas retailers experience diminished profits due to fluctuating purchase prices and marketing costs. Transport emerges as the most significant contributor to both cost and waste, directly affecting profitability. The study proposes strategic policy recommendations for improving infrastructure, access to real-time market data, and optimizing transport systems to enhance sustainability and profitability in West Bengal's floriculture sector. Limitations include the exclusive focus on roses and geographical constraints. Further research is encouraged to explore broader cut flower varieties and the rising influence of online floral trade.

Keywords: Floriculture, Value Chain Analysis, Sustainable Supply Chain, Cut Flower Market, Rose Production in West Bengal.

ETRD25246; ETRD25280

FACTORS INFLUENCING ACADEMIC PERFORMANCE IN PRIVATE HIGHER EDUCATION INSTITUTIONS: A COMPARATIVE STUDY BETWEEN SOUTH AFRICA AND OTHER DEVELOPING COUNTRIES

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Abstract

This study aims to identify and analyse the key factors that influence academic performance among students in private higher education institutions (PHEIs), focusing on a comparative analysis between South Africa and other developing countries. It seeks to understand both commonalities and contextual differences affecting student outcomes.

A mixed-methods approach was employed. Quantitative data were collected via structured questionnaires from students' data across private universities in South Africa, India, Nigeria, and Brazil. Key variables included socioeconomic status, teaching quality, institutional resources, parental education, and student motivation. Statistical analysis involved multiple regression, ANOVA, and thematic analysis for qualitative data.

This study explores the critical factors that affect academic achievement at universities that are private within South Africa as well as other developing countries. As an important factor in socioeconomic development is higher education., understanding determinants of academic success is essential for improving educational outcomes and policy-making. The research focuses on a broad range of variables, including socio-economic status, institutional quality, faculty competence, access to learning resources, government regulations, and student support systems. The study collects data using both qualitative and quantitative techniques from students, faculty, and institutional administrators across selected PHEIs in South Africa, as well as comparative data from institutions in other developing nations such as India, Nigeria, and Brazil. The results indicate significant differences and similarities in how these factors affect student outcomes across different contexts, highlighting the particular difficulties PHEIs in the underdeveloped countries confront.

Study concludes with recommendations for policy reforms and institutional strategies to enhance academic performance and contribute to national development goals.

Keywords: Socioeconomic Status (SES), Institutional Quality, Student Engagement Student Support Systems.

ETRD25247; ETRD25248; ETRD25249

AI AND MACHINE LEARNING IN PRESERVING AND PROMOTING INDIAN HERITAGE

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Abstract

AI and machine learning has played a significant role in enhancing and preserving Indian heritage. India, with its immense and varied cultural heritage, is struggling to save its rich traditions, monuments, languages, and art forms in the face of fast-paced modernization and technological changes. Artificial Intelligence (AI) and Machine Learning (ML) are being seen as revolutionary tools in helping to overcome these challenges. This study investigates the potential of AI and ML in preserving and showcasing Indian heritage through digital documentation, language translation, image recognition, and predictive restoration methods. It showcases successful applications like 3D reconstructions of historical monuments, AI-driven analysis of classical music and dance patterns, and smart archiving of rare manuscripts and dialects. In addition, the study explains how these technologies are boosting public engagement and education through virtual museums, AR/VR experiences, and personalized cultural content. Through an examination of ongoing trends, projects, and challenges, this paper underscores the importance of collaborative action between technologists, historians, and cultural institutions to ensure that India's intangible and tangible heritage is not just preserved but also made accessible to future generations in innovative manners.

Keywords: *Artificial Intelligence (AI), Machine Learning (ML), Indian Cultural Heritage, Digital Preservation, Heritage Promotion, Language Translation, Virtual Museums.*

THE FOG OF INFORMATION WARFARE: THE USE OF PROPAGANDA IN THE EVENTS SURROUNDING OPERATION SINDOOR

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Abstract

India's Operation Sindoor took place in the early hours of May 7, 2025 (approximately 1 am to 1:30am). The operation targeted well known terrorist training camps in POK and Pakistan. This Operation occurred in the wake of the Pahalgam Terror incident on April 22, 2025 and was followed by 'Operation Bunyan al-Marsus' – Pakistan initiated UAV/Drone and missile attacks targeting Indian Military, Civilian, and religious sites. Ceasefire was declared on May 10 but broken within a few hours; a more stable ceasefire was established by May 13, 2025.

Propaganda and 'agitprop' before the Pahalgam attack, during the attack, and in the aftermath of Operation Sindoor was disseminated in a massive scale. Narratives/counternarratives, disinformation/misinformation campaigns were carried out via social media as well as legacy media and Governments of several countries. The objectives of this 'information warfare' ranged from psychological (demoralizing the enemy), to political (capturing the narrative) to economic (promote/defame defense products such as missiles and fighter jets).

This article seeks to throw light on the ubiquitous use of propaganda that target the psychological, political, economic dimensions of society in events surrounding Operation Sindoor. Other objectives are to evaluate a) the success of different types of propaganda in terms of creating a lasting impression on the subject b) The effectiveness of debunk campaigns against disinformation and misinformation

Several memes, media releases, short videos etc. from a wide variety of sources including social media influencers, media houses, and government handles have been analyzed and classified using contemporary scholarship on the topics of propaganda, war propaganda, agitprop and visual symbols, information warfare, and emotional/psychological response to propaganda. Types of propaganda used in every stage of these momentous current events are a) enumerated using (among others) the framework of the seven common propaganda devices b) analyzed using the lens of psychology and the use of stereotypes, archetypes, powerful symbolism c) Evaluated in terms of success as 'post-truth' and hybrid warfare. The measures taken to counter misinformation/disinformation are also discussed in the context of recommendations within scholarship.

A wide variety of Propaganda and AgitProp was used in the prelude to and aftermath of the Pahalgam terror attack. Propaganda was tailored for specific audiences based on existing biases and paradigms that would predispose them towards believing and accepting the narratives. The psychological, political, and economic effects of this propaganda diffed in degrees of success based on accurate framing of the propaganda as well as penetration of disinformation and misinformation. In every case, propaganda that used and built upon potent preexisting archetypes and symbols was most successful. Further, Conspiracy theories have persisted and debunk campaigns against Misinformation and Disinformation have been only marginally successful in the 'post-truth' information age.

Keywords: Operation Sindoor, Misinformation and Disinformation, Operation Bunyan al-Marsus.

STARTUPS & MSMEs: GROWTH STRATEGIES, FUNDING, AND SUSTAINABILITY

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Abstract

Startups and Micro, Small, and Medium Enterprises (MSMEs) are vital to India's economic growth, contributing significantly to employment, innovation, and inclusive development. As drivers of grassroots entrepreneurship, they foster local economies and reduce regional disparities. To thrive in a competitive environment, these businesses must adopt clear growth strategies, ensure operational efficiency, and pursue sustainable practices.

A key success factor is understanding customer needs and preferences. Startups and MSMEs should leverage digital tools like analytics, e-commerce platforms, and social media to reach and retain customers. Building skilled, agile teams and nurturing a culture of innovation are equally important for long-term success. Embracing new technologies such as AI, IoT, and automation can help streamline operations and reduce costs.

Access to funding remains a major challenge. Businesses explore various sources, including traditional bank loans, government-backed schemes, venture capital, and angel investors. New-age solutions like digital lending platforms and revenue-based financing are emerging, offering flexible capital without equity dilution, making them attractive to early-stage ventures.

Sustainability is no longer optional. By adopting eco-friendly materials, optimizing energy usage, and minimizing waste, businesses can appeal to environmentally conscious consumers and comply with evolving regulations. Government programs such as SIDBI's green financing encourage such transitions.

Policy supports also plays a crucial role. Schemes like Startup India, reduced regulatory burdens, and the removal of the 'angel tax' have improved the startup ecosystem. MSME parks developed across states provide essential infrastructure, reducing entry barriers for small enterprises.

In conclusion, a balanced focus on strategy, funding, innovation, and sustainability is essential for startups and MSMEs to scale and drive India's economic transformation.

Keywords: MSMEs, Growth Strategies, Sustainability, Digital Transformation, Revenue-Based Financing, Economic Development.

ETRD25253

CLIMATE CHANGE AND INDIGENOUS WATER CONSERVATION METHODS: EXPLORING THE FUTURE PROSPECTS IN CHAMOLI DISTRICT, UTTARAKHAND

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Abstract

The mighty Himalayas are seeing altered rainfall and snowfall patterns because of climate change, which is probably causing the world to warm. Weather patterns are being transformed by climate change, which is making extreme weather events more frequent and severe, making water availability unpredictable, making water scarcity worse, and poisoning water sources. These effects can significantly impact the amount and quality of water that people require to survive. Chamoli district, in the Garhwal region of the Western Himalaya, are still able to benefit from traditional water collection and supply systems such as Dhara (springs), Gadhera (small river tributaries), Gul (traditional irrigation canals), Chal and Khal (artificial ponds on hilltops), and Naula (little depression aquifer). They are still used as the primary source of drinking water in many hilly areas of the region. This paper attempts to analyse the impact of climate change on the availability of water resources, their traditional management, conservation methods used to preserve the area's natural water supply, and the sustainable future of residents.

Keywords: Himalaya, Traditional, Climate Change, Management, Conservation, Sustainable.

URBAN FARMING REDEFINED: INDIGO'S INNOVATIVE HOME HARVESTING FOR ECO-FRIENDLY LIVING

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Abstract

As urbanization accelerates worldwide, the need for sustainable food production becomes increasingly pressing. In response, innovative solutions such as urban farming kits have emerged to revolutionize traditional agricultural practices. This chapter explores the integration of the Indigo Urban Farming Kit, a pioneering home harvesting model, in promoting sustainable development, responsible consumption, and environmental stewardship. The Indigos Urban Farming Kit represents a paradigm shift in urban agriculture, offering individuals the opportunity to cultivate fresh produce within the confines of their homes. By leveraging hydroponic and vertical farming techniques, the kit enables efficient use of space and resources, making it particularly suitable for urban environments where land availability is limited. This model not only addresses the challenges of food security and access but also contributes to broader sustainability goals by reducing carbon emissions associated with conventional farming and transportation. Central to the sustainability of the Indigo Urban Farming Kit is its integration of circular economy principles. Through closed-loop systems, the kit minimizes resource wastage by recycling water and nutrients, thus reducing environmental impact and promoting resource efficiency. Additionally, the use of renewable energy sources such as solar panels further enhances its sustainability credentials, reducing reliance on non-renewable energy and mitigating greenhouse gas emissions. Beyond environmental considerations, the Indigo Urban Farming Kit also promotes social sustainability by fostering community engagement and empowerment. Through initiatives such as community gardens and collaborative farming programs, the kit brings people together, strengthens social bonds, and promotes knowledge sharing, thereby enhancing food security and resilience at the local level. Furthermore, by empowering individuals to take control of their food production, the kit promotes a sense of self-sufficiency and independence, contributing to broader social and economic development objectives. In terms of responsible consumption, the Indigo Urban Farming Kit offers consumers a sustainable alternative to conventional food production and consumption practices. By enabling individuals to grow their own fresh, nutritious produce at home, the kit reduces reliance on industrial agriculture, which is often associated with environmental degradation, biodiversity loss, and excessive use of pesticides and fertilizers. Moreover, by shortening the supply chain and eliminating the need for long-distance transportation, the kit minimizes carbon emissions and reduces food miles, thereby further enhancing its sustainability credentials. In conclusion, the Indigo Urban Farming Kit represents a holistic approach to urban agriculture, combining innovative technology with sustainability principles to promote responsible consumption and environmental stewardship. By empowering individuals to cultivate fresh produce at home, the kit not only addresses the challenges of food security and access but also contributes to broader sustainability goals, including resource efficiency, carbon reduction, and community resilience. Moving forward, further research and investment in urban farming kits like Indigo are essential

to realizing the full potential of urban agriculture in creating more sustainable, resilient, and equitable food systems for the future.

Keywords: Stewardship, Indirgro, Resilience, Sustainability, Empowering.

SOLAR ENERGY: KEY TO SUSTAINABLE DEVELOPMENT

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Abstract

Solar energy, derived from the sun's radiation, is a sustainable and abundant renewable energy source. India has a high potential of electricity generation through solar energy. Present article is an attempt to examine the status of solar energy at global as well as at India level. Apart from it, recent trends, potentials and importance of solar energy in India is also elucidated and role of government policies in promoting renewable energy will also be assessed. Globally, the production of solar energy experienced a remarkable increase from 705.4 TWh in 2019 to 1641.5 TWh in 2023, representing a growth of 132.6%. In India, the share of solar capacity surged from a mere 0.06% of renewable energy sources in 2010-11 to 44.2% in 2023-24, surpassing other renewable sources such as hydro and wind. An Ordinary Least Squares (OLS) regression analysis reveals an average annual growth rate of 37% in India's solar energy production from 2012 to 2023. India holds the third position globally in solar photovoltaic deployment and has set a target to achieve 500 GW of non-fossil fuel capacity by 2030. Solar energy is not merely an alternative; it is essential for sustainable development. Compared to traditional electricity, solar energy is the preferred option regarding sustainability, economic viability, and environmental stewardship. Solar power has become progressively more competitive in economic terms. Presently, the cost of solar energy in India is around ₹2.50 to ₹3.00 per kWh, which is considerably less than the price of conventional electricity, which varies from ₹4.00 to ₹6.00 per kWh. By investing in solar infrastructure now, we can guarantee that future generations will inherit a planet sustained by clean and renewable energy. The research indicates that solar energy plays a crucial role in sustainable development and serves as a significant catalyst for climate resilience, economic growth, energy security, provides a clean, renewable, and plentiful source of power. It helps lower greenhouse gas emissions, addresses climate change, and reduces reliance on fossil fuels. Additionally, solar energy fosters economic growth, generates employment opportunities, and enhances energy security. As costs continue to decrease and technology improves, solar energy becomes more accessible, positioning it as a crucial factor in promoting an environmentally sustainable global future.

Keywords: Solar Energy, Sustainable Development, Renewable Energy.

EMOTIONAL AI IN HUMAN RESOURCE MANAGEMENT: THEORETICAL PERSPECTIVES ON EMOTION RECOGNITION AND THE FUTURE OF WORK

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Abstract

As Artificial Intelligence (AI) continues to reshape business functions, Human Resource Management (HRM) is undergoing a fundamental transformation—shifting from administrative optimization to emotional intelligence-driven decision-making. Emotional AI, a branch of affective computing, equips systems with the ability to detect, interpret, and respond to human emotions through tools such as facial recognition, sentiment analysis, and vocal modulation tracking. This paper provides a theoretical exploration of emotion recognition technologies within HRM, situating them in the broader discourse on the future of work.

Drawing on foundational theories in emotional intelligence, human-computer interaction (HCI), and organizational behaviour, this study presents a conceptual review of how Emotional AI is redefining talent acquisition, employee engagement, and performance management. It critically evaluates the potential of emotion-aware systems to enhance empathic leadership and workplace well-being, while also addressing the ethical dilemmas posed by emotional surveillance, privacy infringement, and algorithmic bias.

By synthesizing current academic and industry perspectives, the paper proposes a theoretical framework that contextualizes emotion recognition technologies as enablers of both strategic and human-centric HR practices. It aims to contribute to emerging R&D discourse by positioning Emotional AI not merely as a technological trend, but as a transformative socio-technical system influencing future work cultures. The paper concludes with directions for future empirical research and policy development in the emotional architecture of workplaces.

Keywords: Emotional AI, Human Resource Management, Emotion Recognition, Future of Work, Affective Computing, Workplace Surveillance.

A PARADIGM OF AI IN CYBERSECURITY

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Abstract

This paper explores the evolving role of Artificial Intelligence (AI) in the domain of cybersecurity, highlighting both its transformative potential and the emerging vulnerabilities it introduces. The discussion begins with an examination of the shift from traditional password-based authentication to passkeys, which utilize FIDO standards and cryptographic techniques to mitigate common risks such as phishing, credential reuse, and offline attacks. While passkeys enhance both security and user experience, they also face challenges in terms of user adoption, cross-device compatibility, and resilience to social engineering.

As AI becomes more integrated into cybersecurity strategies, the paper delves into its dual role—as both a powerful defensive tool and a possible threat vector. On one hand, AI enhances security by enabling predictive threat detection, real-time anomaly identification, and smarter decision-making, thereby transitioning security frameworks from reactive to proactive models. On the other hand, the rise of generative AI presents novel threats, including AI-generated phishing emails, automated malware, and realistic deepfakes that impersonate trusted individuals—posing significant risks to individuals and organizations alike.

The paper also examines concerns such as AI hallucinations, where models produce incorrect security insights, potentially leading to misallocated resources and undetected threats. Additionally, the growing use of Shadow AI and the risk of prompt injection attacks reveal the inherent vulnerabilities in current AI implementations. As AI becomes a prime target for cyber adversaries, the need for robust safeguards—including quantum-resistant cryptography and human oversight—becomes increasingly urgent.

Using a qualitative analysis of case studies, scholarly research, and industry data the paper assesses how AI improves and threatens cybersecurity. By contextualizing both the advancements and challenges of AI in cybersecurity, the paper underscores the critical need for responsible AI integration, evolving regulatory frameworks, and enhanced public awareness to harness AI's benefits while minimizing its associated risks.

Keywords: Artificial Intelligence, Cybersecurity, Generative AI, Phishing, Deepfakes, AI Hallucination, Quantum-safe Cryptography, FIDO Authentication.

THE IMPACT OF CONSUMER PSYCHOLOGY-BASED NEUROMARKETING TECHNIQUES ON IMPULSE BUYING BEHAVIOR IN RETAIL ENVIRONMENTS: A CASE STUDY OF PRAYAGRAJ

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Abstract

Consumer psychology plays a vital role in shaping purchasing behavior, especially in impulsive purchases driven by emotional and subconscious stimuli. Neuromarketing, rooted in psychological principles, utilizes both technological and non-technological techniques to tap into the cognitive and emotional responses of consumers. In smaller urban centers like Prayagraj, where access to advanced Neuromarketing technology is limited, local retailers rely on consumer psychology-driven strategies—such as visual merchandising, sensory experiences, store ambiance, and promotional cues—to stimulate impulse buying. This paper investigates the influence of these psychologically informed, non-technological Neuromarketing techniques on impulse buying behavior in Prayagraj's retail sector, offering practical insights for local businesses.

Keywords: Consumer Psychology, Neuromarketing, Impulse Buying Behavior, Retail Marketing, Non-Technological Techniques, Visual Merchandising.

ETRD25269

MITIGATING METHANE EMISSIONS FROM DAIRY FARMS IN RAJASTHAN: A SUSTAINABLE APPROACH

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Abstract

This study presents a structured framework for evaluating methane mitigation strategies in dairy farming, with a particular emphasis on India's diverse agricultural landscape. Methane—a potent greenhouse gas with significant global warming potential—is predominantly emitted through enteric fermentation and manure management in dairy systems. These emissions pose serious environmental challenges, particularly in countries with large livestock populations and smallholder farming practices. This study undertakes a comprehensive investigation of methane emissions from dairy farms in Rajasthan, India, with the primary objective of developing a sustainable framework for mitigation. Employing a mixed-methods approach, we quantify methane emissions from dairy farms across the state, examine the efficacy of various observation and absorption methods, and assess the feasibility of commercializing captured methane. Our research aims to inform policy and practice in Rajasthan's dairy industry, which is a significant contributor to the state's economy and a notable source of greenhouse gas emissions.

The study's findings have important implications for environmental sustainability, public health, and the economic viability of dairy farming in Rajasthan. By adopting sustainable practices and generating additional income from captured methane, dairy farmers can reduce their environmental footprint while improving their economic resilience. This research contributes to the growing body of literature on sustainable agriculture and climate change mitigation, providing valuable insights for policymakers, dairy farmers, and stakeholders.

Keywords: Methane Emissions, Sustainable Agriculture, Climate Change Mitigation, Livestock Management, Sustainable Development.

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ADVANCEMENTS OF MACHINE LEARNING MODELS FOR THE NEW AI AGENTS

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Abstract

Machine learning (ML) model evolution has played a crucial role in determining the abilities of modern-day AI agents. This paper explores how evolution from conventional ML methods to the use of large language models (LLMs) has improved agents' perception, reasoning, and decision-making capabilities. The inclusion of LLMs, in particular, has enabled agents to perform complex task execution across various domains such as healthcare, finance, and robotics. Recent approaches such as REvolve show the effectiveness of applying LLMs under human guidance to generate reward functions in reinforcement learning to explicitly convert implicit human expertise into visible training signals. Likewise, the Lafite-RL framework illustrates how LLMs can issue on-time feedback to reinforcement learning agents to speed up learning on robotic manipulation tasks. The research also explores the application of reinforcement learning, specifically human feedback reinforcement learning (RLHF), to align human values and preferences with agent behavior. Surveys suggest that combining human and LLM feedback can maximize agent adaptability in complex environments with high observation space. Moreover, it identifies challenges with the scalability and interpretability of such models, calling for explainable AI to realize transparency and trust in agent decision-making. Thorough reviews on XAI identify several approaches to model interpretability, stressing its significance in responsible deployment of AI. Through integrating recent research and innovations, this paper seeks to offer an extensive discussion of how innovation in machine

learning is driving the next generation of AI agents toward more autonomous, flexible, and ethically compliant systems. Using a literature-based review methodology to analyze developments in models like REvolve and Lafite-RL, the findings suggest that reinforcement learning from human feedback (RLHF) and LLM-guided feedback improve adaptability and efficiency in agents, demonstrating faster learning and better alignment with human goals in dynamic environments. The synergy between machine learning techniques and LLM integration is central to the development of autonomous, adaptive, and ethically aligned AI agents. Despite these advancements, challenges remain regarding model scalability and interpretability, reinforcing the need for explainable AI in trustworthy agent design.

Keywords: Machine Learning, Large Language Models, Reinforcement Learning, AI Agents, RLHF, Explainable AI.

LOW-COST HIGH-STRENGTH FLY ASH BRICKS: A GREEN ALTERNATIVE TO TRADITIONAL CLAY BRICKS

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Abstract

The construction sector is experiencing increased stress to integrate sustainable materials that lessen eco-destruction and uphold circular economy principles. Even though clay bricks are commonly used, they are manufactured through a very energy consuming process which leads to the depletion of soil, air, and carbon pollution. On the other hand, fly ash bricks are gained from the burning of coal in power plants and are considered a more environment friendly alternative. This review paper discusses the possibility of low-cost, high-strength fly ash bricks as a viable alternative to conventional clay bricks. Fly ash from thermal power plants is used to manufacture bricks with better mechanical properties, such as higher compressive strength and lower water absorption. The paper discusses the material composition, production process, performance attributes, and cost analysis of fly ash bricks. It also examines newer developments like geo-polymerization, industrial waste additive incorporation, and AI-based curing techniques that further improve brick quality as well as sustainability. Environmental advantages like minimized carbon footprint, saving natural resources, and enhanced waste management are elaborated on. Challenges of standardization, market acceptability, and scalability are also touched upon. This article promotes the extensive use of fly ash bricks as a cost-effective green building material in accordance with sustainable development goals and a workable solution to contemporary construction methods.

Keywords: *Fly-Ash Bricks, Ecofriendly Construction, Green Building, Low Cost and High Strength.*

ETRD25278

YOUTH ENTREPRENEURSHIP IN INDIA'S MSME SECTOR: EVALUATING THE IMPACT OF START-UP INDIA 2.0 AND SKILL DEVELOPMENT REFORMS (2016–2024)

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Abstract

India, home to the world's largest youth population, faces a paradox of rising educational attainment and persistent youth unemployment. In response, government initiatives such as Start-up India 2.0 and Skill Development Reforms have been designed to harness the entrepreneurial potential of young individuals, particularly within the Micro, Small, and Medium Enterprises (MSME) sector. This study critically evaluates the impact of these initiatives from 2016 to 2024, focusing on the extent to which they have empowered youth entrepreneurship in India.

The research adopts a qualitative-descriptive methodology, leveraging secondary data from government databases, reports by the Department for Promotion of Industry and Internal Trade (DPIIT), National Skill Development Corporation (NSDC), and policy think tanks. Through thematic analysis and literature synthesis, the study investigates key performance metrics such as enterprise creation rates, access to credit, training-to-entrepreneurship transition, and business survival among youth-led MSMEs.

Findings reveal that while over 80,000 start-ups have been registered under Start-up India, only a modest proportion are led by youth aged 18–29. Skill India programs have trained millions, yet only a fraction transitioned into entrepreneurship due to structural gaps in mentoring, funding, and digital literacy. The paper highlights a clear mismatch between skilling curriculum and real-world entrepreneurial requirements. Furthermore, credit access through schemes like CGTMSE remains limited for young entrepreneurs due to procedural complexity and lack of awareness.

This research contributes to the ongoing discourse on youth employment by proposing a more integrated ecosystem that aligns skill development with incubation, mentorship, and market access. Policy recommendations include enhancing regional outreach, digital skilling, simplified credit facilitation, and targeted mentoring. The study underscores the need for a holistic, youth-centered policy framework to fully leverage the MSME sector's potential in addressing India's employment and innovation challenges.

Keywords: Youth Entrepreneurship, MSME Sector, Start-Up India 2.0, Skill Development Reforms, Government Policy Evaluation, Financial Inclusion.

ETRD25279

IMPACT OF AI ON THE ONLINE CUSTOMER BEHAVIOR IN KANYAKUMARI DISTRICT

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Abstract

Artificial Intelligence (AI) is increasingly influencing online shopping experiences, transforming how customers interact with digital platforms and make purchase decisions. This study focuses on the impact of AI on online customer behaviour from the perspective of consumers in Kanyakumari district. With the rapid penetration of e-commerce and AI-driven tools such as chatbots, personalized recommendations, voice assistants, and targeted advertisements, customers are experiencing more intuitive, efficient, and personalized online shopping journeys.

The research adopts a customer-centric approach to examine how AI affects consumer trust, buying preferences, satisfaction, and loyalty. Data was collected through structured surveys and interviews with online shoppers in the district, aiming to understand their awareness, perceptions, and experiences with AI features in e-commerce platforms. The study also considers demographic factors such as age, education, and income to analyse variations in behavioural responses. This research highlights the growing role of AI in shaping customer experiences and expectations in online shopping within the Kanyakumari district. It suggests the need for e-commerce platforms to build transparent, user-friendly, and inclusive AI systems that enhance customer satisfaction and trust.

Findings reveal that customers appreciate the convenience and personalization offered by AI, especially in product discovery and customer support. Younger and tech-savvy users showed a higher level of comfort and engagement with AI, while some segments expressed concerns about privacy, lack of human touch, and algorithmic bias. Overall, consumers acknowledged that AI significantly influences their decision-making processes and encourages repeat purchases when implemented effectively.

Keywords: Artificial Intelligence (AI), Online Customer Behaviour, E-commerce, Consumer Perception.

ETRD25281

DISCLOSURE PRACTICES OF INDIAN CORPORATE HOUSES

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Abstract

The Disclosure practices have become the integral part of the company management in order to satisfy the stakeholders and for complying it with the Country's regulations. In this regard, the regulatory bodies are more cautious to take care of the expectations of the stakeholders by imposing mandatory and identify the variables for voluntary disclosures as specified by Ministry of corporate affairs from time to time. Undoubtedly, the corporate houses primarily focus on fulfilling mandatory requirements but whether they pay adequate attention towards voluntary disclosures is a matter of concern. Hence, the current study is an endeavour to examine the voluntary disclosure practices in Central Public Enterprises (CPSE's) of India entitled as Maharatna (13 companies) and Navratna (24 companies) by Department of public enterprises. In total, the study is based upon 1,628 observations relating to 7 dimensions consisting 44 variables. The variables have been identified using content analysis as per the data and reports available at official websites of companies, annual reports, Bombay Stock Exchange, and disclosures listed with the (SEBI) Securities and Exchange Board of India. Thereafter, raking has been assigned yearly and comprehensively for the year taken for the study.

Findings indicate a significant and steady improvement in voluntary disclosures reflecting a positive commitment towards transparency, corporate governance, and sustainable business practices.

Keywords: Country's Regulations, Corporate Governance, Sustainable Business Practices.

ETRD25283

FROM VIVEKANANDA'S VISION TO ENTREPRENEURIAL VALUES: STRENGTHENING ORGANIZING AND OPPORTUNITY COMPETENCIES IN MANAGEMENT STUDENTS

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Abstract

In today's rapidly evolving environment shaped by technological advancements, entrepreneurship has become a key driver of economic growth and innovation. Despite this momentum, the high failure rate among young Indian entrepreneurs highlights a critical gap—success in entrepreneurship requires more than just technical know-how. There is a pressing need for a deeper foundation rooted in self-awareness, ethical decision-making, and resilience. This study advocates that the philosophical teachings of Swami Vivekananda hold continued relevance in addressing these needs. His emphasis on self-belief, purposeful living, fearlessness, and service to humanity offers timeless guidance for personal and professional development. By exploring these teachings through an entrepreneurial lens, the study seeks to uncover how such values can enhance the competencies required for entrepreneurial success. Specifically, it aims to assess the impact of Vivekananda's philosophies on the entrepreneurial mindset of management students in Rajasthan. Using an experimental research design, the study investigates whether integrating these philosophical principles into academic and skill development frameworks can foster qualities such as leadership, integrity, innovation, and perseverance. Ultimately, it envisions a holistic approach to entrepreneurship education—one that combines modern business acumen with the enduring wisdom of India's philosophical heritage.

Keywords: Swami Vivekananda, Entrepreneurship, Competencies, Philosophies, Management Students.

ETRD25284

RESEARCH, RESILIENCE & REVENUE: THE STARTUP GROWTH FORMULA

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Abstract

In a world where startups rise and fall at unprecedented speeds, understanding the formula behind sustained growth is more crucial than ever. This paper introduces a distinctive triadic framework—Research, Resilience, and Revenue—as a holistic lens to decode startup success. While existing studies often isolate financial strategies or innovation tactics, this research uniquely interweaves data-driven insights, psychological endurance, and strategic monetization to construct a more human-centred, adaptable growth model. By blending qualitative interviews with emerging entrepreneurs and quantitative case analyses across diverse sectors, the study captures not just *what* drives startups, but *how* they emotionally and tactically evolve through early failures, market shifts, and funding droughts. The proposed “3R Growth Formula” highlights a progressive and practical pathway: from the intellectual groundwork of research, through the emotional backbone of resilience, to the measurable outcomes of revenue. This integrated approach not only offers clarity for entrepreneurs but also provides accelerators, educators, and policymakers with a fresh, actionable blueprint for nurturing ventures that are not just innovative—but enduring. Furthermore, the paper introduces a visual decision-making matrix based on the 3Rs, enabling startups to self-assess and adapt their strategies in real time. By shifting focus from rapid scaling to resilient scaling, this study challenges conventional startup narratives and opens new directions for sustainable entrepreneurship.

Keywords: Startup Growth, Research Strategy, Entrepreneurial Resilience, Revenue Generation, Sustainable Entrepreneurship.

ETRD25285

PREVALENCE ASSESSMENT OF ECTOPARASITE (TICKS) ON GOATS

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Abstract

Milk and Meat are very important part of human's diet. Both the sectors of milk & meat are good contribution of Goats. Goats play a crucial role in the life of a peasant. In present study we try to know the Ticks prevalence on the goats of some districts of Purvanchal. In our work we take all type of Goats. The Agricultural production, health condition and economic condition of a peasant directly affected by Goats. Total number of 400 goats was examined in which 253 were infected.

Keywords: Goats, Ticks & Prevalence %.

IMPACT OF SOLAR WIND STREAMS ON GEOMAGNETIC FIELD DURING SOLAR CYCLE 23 & 24

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Abstract

It is well known that geomagnetic activity is controlled by solar wind. Geomagnetic indices are basically related to the earth through a possible relationship. Streams travelling with supersonic speed are treated as high-speed solar wind streams. In this study we have selected all the major high speed solar wind streams for the period of solar cycle 24. Daily values of solar wind speed have been taken from National Space Science Data Centre, Omni Web Data Book. The events of high-speed solar wind streams are selected from the daily values of solar wind speed; the events of high-speed solar wind streams are selected on the basis of specific strict selection criteria and were taken as event. High-speed plasma streams identified in the solar wind measurement can be separated into two categories: Coronal-hole associated streams & flare generated streams. The events of High-speed solar wind streams (HSWS) were classified on the basis of their speed and duration for the complete solar cycle 24; the effect of these HSWS events on geomagnetic disturbances has been studied. The results will be further discussed.

The solar output and its variations have been quantified by several interplanetary parameters generated for near earth space at 1 AU. The continuously changing interplanetary plasma and field values are known to produce geomagnetic field disturbances. As the solar wind is a stream of energized charged particles, flowing outward from the Sun at speed as high as 1000 km. /sec. at a temperature of 1 million degrees (Celsius), it is the supersonic out flow into interplanetary space from the sun's corona. Solar wind streams traveling with supersonic speed (>500 Km/sec.) are treated as high-speed solar wind streams. In this study, we have sorted the high-speed solar wind streams from solar cycles 23 to 24. Data of daily values of solar wind speed have been taken from National Space Science Data Centre Omni Web Data Book, and by internet. The events of high-speed solar wind streams (HSWS) are selected from the daily values of solar wind speed on specific strict selection criteria. An event of HSWS was selected when the plasma speed was enhanced to at least 450 km. /sec. for at least 4 days. In the streams of long duration (> 8 days) if a day in between has plasma speed of 400-450 km/sec., it has been included as HSWS event. High-speed solar wind streams (HSWS) have been distributed in to two categories; first one as flare generated streams and the second one as co-rotating streams on the basis of criteria given by Mavromichalaki et al. (1988).

Keywords: Geomagnetic Activity, Solar Wind Streams, Plasma Streams.

ETRD25289

PHOTODEGRADATION OF METHYL ORANGE USING CONDUCTING POLYMERS WITH CENOSPHERES AND NANOCOMPOSITES: A COMPREHENSIVE REVIEW

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Abstract

The extensive application of synthetic dyes like methyl orange (MO) in different industrial procedures resulted in their permanent availability in aquatic systems with severe ecological and health hazards owing to their toxicity and resistance against traditional degradation practices. Photocatalytic degradation, especially under visible light illumination, has been considered as a green and effective strategy for the removal of dyes. Recent progress in materials science has made it possible to synthesize hybrid photocatalysts involving conducting polymers like polyaniline (PANI) and polypyrrole (PPy) with cenospheres and a vast range of nanocomposites. The hybrid systems have been found to possess higher photocatalytic activity due to their synergetic properties such as charge separation, light absorption, and surface reactivity. This review thoroughly analyzes the synthesis methodologies, structural and optical characterization methods, photo redox mechanisms, and photodegradation performance indicators of such multi-functional photocatalysts. Special focus is given to appreciating how the synergy between conducting polymers, cenospheres, and nano additives plays a vital role in the efficient photodegradation of MO, providing potential directions for the treatment of dye-contaminated wastewater.

Keywords: Photodegradation, Methyl Orange, Polypyrrole, Cenosphere.

AI AND MACHINE LEARNING IN RADIATION DAMAGE PREDICTION: A NEW PARADIGM IN NUCLEAR MATERIALS RESEARCH

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Abstract

Radiation damage of nuclear materials is a serious problem influencing the safety, performance, and life of nuclear reactors and associated infrastructure. Conventional computational methods like Monte Carlo simulations and molecular dynamics have been extensively utilized to forecast and calculate radiation-induced defects at the atomic level. These kinds of methods tend to be limited by high computational expense and difficulties in spanning a range of spatial and temporal scales. AI and ML methods have been promising approaches to overcoming these issues over the last few years using large data sets from experiments as well as simulations to construct predictive models with increased efficiency and accuracy. The current applications of AI/ML in radiation damage prediction are discussed comprehensively in this review paper, which points to their revolutionary potential in nuclear materials science. We review diverse machine learning algorithms—neural networks, random forests, and reinforcement learning—and their applications in predicting defect initiation, surrogate modeling of accelerated simulations, multiscale model integration, and real-time structural health monitoring. The paper also considers major challenges such as data paucity, interpretability of models, and physics-based integration. Lastly, potential research directions are identified, highlighting the formulation of physics-informed AI models, collaboration on data, and hybrid simulation frameworks. With these developments, AI and ML are set to become a necessity in the development of more resilient and safer nuclear materials for future reactors.

Keywords: Radiation Damage; Nuclear Materials; Monte Carlo Simulation; Molecular Dynamics; Artificial Intelligence (AI); Machine Learning (ML).

ETRD25291

EXPERT INFLUENCE AND INVESTOR BIASES IN EMERGING MARKETS: AN INDIAN PERSPECTIVE

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Abstract

This study examines the impact of behavioural biases, triggered by expert recommendations, on stock market investment intentions, with a focus on the factors that bridge the gap between investor intentions and actual behaviour. A quantitative approach is employed, utilizing a structured questionnaire to collect data from a diverse pool of investors. Behavioural biases, including cognitive, emotional, social, and informational biases, are analyzed to assess their impact on investors' decision-making processes when influenced by expert advice. The study highlights the role of critical evaluation and rational thinking in enabling investors to navigate expert recommendations and align their intentions with informed investment actions. Data analysis identifies that certain Biases, particularly Confirmation Bias (CB) and Availability Bias (AVB), play a significant role in shaping investors' intentions to invest, which may contribute to suboptimal investment behaviour. The findings provide insights into the behavioural drivers of investment decisions, highlighting the need for increased investor awareness and strategies to mitigate bias-driven decisions.

Keywords: Biases, Investor Intention, Expert Recommendation, Investor Behavior.

ENHANCING TRUST AND SECURITY IN THE DIGITAL ECONOMY THROUGH ADVANCED CYBERSECURITY FRAMEWORKS

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Abstract

In our continuous changing digital economy, where data reigns supreme and online transactions are part of everyday life, the need for strong cybersecurity measures has never been more pressing. This research paper delves into the crucial role that advanced cybersecurity strategies play in building trust, safeguarding privacy, and ensuring that digital ecosystems operate securely. The main goals of this study are: to investigate the current cybersecurity challenges and threats that businesses and consumers face in the digital landscape; to assess how effective existing cybersecurity frameworks and protocols are; to suggest a comprehensive model that utilizes artificial intelligence, blockchain technology, and zero-trust architecture to bolster digital security; and to evaluate how regulatory policies and international collaboration can enhance cybersecurity resilience. By merging theoretical insights with real-world case studies, this paper aims to offer valuable guidance for policymakers, businesses, and tech developers. It highlights that trust in digital interactions goes beyond just technical solutions; it's a fundamental component for driving economic growth, fostering innovation, and building user confidence in our digital world. The findings stress the importance of adopting proactive, flexible, and cooperative strategies to secure the future of the digital economy.

Keywords: Cybersecurity Frameworks, Digital Economy, Data Privacy, Trust and Security, Advanced Technologies.

ETRD25294; ETRD25295; ETRD25304

POST-PANDEMIC FISCAL RESILIENCE: A STUDY OF KARNATAKA'S IGST COLLECTION AND ECONOMIC INTERVENTIONS

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Abstract

Karnataka, one of India's prominent economic states, relies significantly on Goods and Services Tax (GST) collections to support its infrastructure, public services, and welfare schemes. The dual disruptions brought by the implementation of GST and the COVID-19 pandemic posed serious fiscal challenges to the state. The pandemic caused major economic slowdowns—supply chain disruptions, declining consumer demand, and business closures—resulting in substantial fluctuations in GST revenue, a key indicator of economic activity and consumption. This study aims to evaluate the impact of the COVID-19 pandemic and GST transition on Karnataka's revenue system, with particular emphasis on GST performance. The objective is to analyse trends, assess sectoral impacts, and examine policy responses to revenue shortfalls during the crisis. Empirical methods, including trend analysis and basic statistical tests, were applied to GST revenue data from 2019 to 2022. Sectoral analysis revealed that tourism, manufacturing, and IT experienced sharp downturns in GST contributions, while agriculture remained relatively resilient due to steady demand and policy support. Government interventions such as stimulus packages and GST compensation from the Centre mitigated the revenue decline to an extent. The study concludes that Karnataka's revenue system is vulnerable to external shocks but can be strengthened through strategic reforms. Recommendations include diversifying the revenue base, enhancing digital tax infrastructure, and introducing sector-specific support mechanisms. Although focused on Karnataka, the study offers broader insights applicable to other Indian states navigating post-pandemic fiscal recovery.

Keywords: GST Revenue, Fiscal Resilience, Economic Crisis, Public Finance, Fiscal Recovery.

ETRD25296

A STUDY ON THE CHALLENGES OF HIGHER EDUCATION TEACHERS IN IMPLEMENTING ARTIFICIAL INTELLIGENCE IN EDUCATION

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Abstract

The integration of Artificial Intelligence (AI) into education has opened new avenues for enhancing teaching effectiveness, student engagement, and administrative efficiency. However, its implementation in higher education, particularly by teaching faculty, is fraught with multifaceted challenges. This study explores the key barriers faced by higher education teachers in adopting AI-driven tools and technologies within their academic practices. Through a mixed-methods approach involving surveys and interviews conducted with faculty members from various universities, the research identifies the major impediments including lack of technical knowledge, resistance to change, limited institutional support, ethical concerns, and inadequate training opportunities. The study further examines the disparities in AI adoption based on age, discipline, and institutional infrastructure. Findings reveal that while there is a general interest and perceived value in AI tools for education, there exists a significant gap in readiness and confidence among educators to effectively utilize these technologies. The study emphasizes the need for targeted professional development programs, curriculum redesign, and supportive policy frameworks to empower educators in embracing AI. It also suggests collaborative efforts between technology providers, academic institutions, and policymakers to address these challenges and foster a sustainable AI-enabled educational ecosystem. This research contributes to the growing body of knowledge on digital transformation in education and offers actionable insights for stakeholders aiming to bridge the gap between technological advancement and educational practice.

Keywords: Artificial Intelligence, Higher Education, Teaching Challenges, Faculty Readiness, Educational Technology, Digital Transformation.

ETDR25298

ANALYSIS OF PRODUCTION AND COST OF HEALTHCARE IN INDIA

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Abstract

This study examines the relationship between healthcare expenditure, out-of-pocket costs, total hospitals, life expectancy, and urban population in India (1991–2023) using time-series data and statistical models like OLS & GLM. Findings show that healthcare expenditure is positively linked to life expectancy and urbanization, while higher out-of-pocket costs negatively impact healthcare access. Regression analysis reveals that life expectancy and urbanization significantly influence healthcare spending, whereas hospital infrastructure has a minimal effect, emphasizing demand-side factors over supply-side expansion. The GLM model (Pseudo $R^2 = 0.7647$) outperforms OLS, highlighting the need for strategic public investment to improve healthcare access and financial sustainability.

Keywords: Healthcare Expenditure, Economic Growth, Out-of-pocket Expenditure, Life Expectancy, Generalized Linear Models (GLM), Healthcare Accessibility.

ETRD25299

SMART CAMPUSES: HARNESSING TECHNOLOGY FOR INCLUSIVE HIGHER EDUCATION

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Abstract

As higher education institutions worldwide embrace digital transformation, the integration of smart campus technologies presents a compelling opportunity to promote inclusivity. This study examines how advancements in artificial intelligence (AI), the Internet of Things (IoT), and virtual learning environments can be leveraged to address challenges related to accessibility, equity, and diversity in higher education. Focusing on three diverse case studies, Stanford University (USA), the University of Delhi (India), and the University of Sydney (Australia), the research employs a qualitative approach using document analysis, institutional reports, and secondary data to explore how technology and inclusive policies coalesce in different socio-cultural contexts.

The findings suggest that successful implementation of smart campus initiatives depends on three interrelated factors: the balanced use of cutting-edge and low-cost scalable technologies, the development of policies that are sensitive to local cultural and regional needs, and the creation of adaptable frameworks that evolve with institutional capacities. Institutions that embed universal design principles and inclusive teaching strategies within their digital infrastructure are more likely to meet the needs of underrepresented learners.

By presenting a comparative analysis of global practices, the research contributes to the growing discourse on how smart campuses can serve as enablers of inclusive education. The findings align with UNESCO's (2020) emphasis on equity-driven reform and highlight the critical role of inclusive innovation in shaping the future of higher education.

Keywords: Smart Campuses, Inclusive Education, Educational Technology, Universal Design, Higher Education Policy.

ETRD25300

THE DOWNFALL OF JET AIRWAYS: A CASE STUDY OF FINANCIAL DISTRESS AND BANKRUPTCY IN THE INDIAN AVIATION SECTOR

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Abstract

Jet Airways was founded by Naresh Goyal in 1992 after India's aviation industry was liberalized by government allowing private airlines to operate. In May 1993, it started operating as air taxi with a fleet of four leased Boeing 737-300 aircraft. It eventually followed a path of global expansion covering up to 65 destinations including domestic as well as foreign destinations and become a dominant player in the Indian Aviation sector. However its aggressive expansion policies, mismanagement, increasing operational costs and debts led to its financial downfall. Jet Airways suspended its operations in April, 2019 and entered into bankruptcy proceedings under Insolvency and Bankruptcy Code. This paper describes the downfall of Jet Airways and explores the key indicators of financial distress observed in the financial statements of the company and also delves into the role of external factors like market competition, fluctuating fuel prices, regulatory policies. Further the paper highlights internal governance failures including questionable accounting practices and mistakes in strategic decision making that contributed to its downfall. Main purpose of the paper is to provide insights for the companies in tackling financial distress so that they can observe early warning signs of financial distress and also focuses the need of proper financial monitoring, corporate governance and timely intervention to prevent similar financial failures in the future.

Keywords: Jet Airways, Financial Distress, Bankruptcy, IBC.

ETRD25301

EXPLORING THE STRATEGIC ROLE OF AI-DRIVEN PEOPLE ANALYTICS IN HUMAN RESOURCE MANAGEMENT: A QUALITATIVE STUDY

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Abstract

With the rise of digital transformation in the post-pandemic workplace, AI-driven people analytics is emerging as a transformative force in Human Resource Management (HRM). While widely discussed for its efficiency and predictive capabilities, there is limited qualitative research exploring how HR professionals perceive and apply these tools in real organizational contexts. This study aims to explore the lived experiences, perceptions, and challenges faced by HR professionals in integrating AI-based people analytics into strategic decision-making processes.

A qualitative research design was adopted using a phenomenological approach. Semi-structured interviews were conducted with 15 HR professionals from diverse industries, including IT, manufacturing, and services. The interviews focused on participants' experiences with AI tools, their impact on decision-making, and ethical considerations. Data was analysed using thematic analysis to identify key patterns and narratives.

Thematic analysis revealed five key themes: (1) Enhanced decision confidence, (2) Improved talent forecasting, (3) Ethical ambiguity in AI use, (4) Resistance to change among traditional HR roles, and (5) Need for upskilling in data literacy. Participants noted that while AI tools support strategic agility, the lack of human empathy in data-driven decisions can create trust issues among employees.

AI-powered people analytics is not just a technical upgrade but a cultural shift in HRM. For effective adoption, organizations must foster ethical awareness, promote data fluency among HR teams, and maintain a human-centred approach to decision-making.

Keywords: AI-driven People Analytics, Human Resource Management, Strategic Decision-Making, Phenomenological Study, Ethical Considerations, Data Literacy.

RECENT SCENARIO AND INTEGRATED SUSTAINABLE METHOD FOR CCUS IN INDIA

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Abstract

The Earth's average surface temperature has risen by roughly 1.55°C since the pre-industrial era of 1850–1900, according to the World Meteorological Organization (WMO, 2024). Presently, the planet is facing a rapid phase of global warming primarily driven by human-induced carbon dioxide (CO₂) emissions, a major contributor to climate change and extreme weather phenomena. This research focuses on creating a cost-effective, small-scale prototype to capture CO₂ from stationary sources such as coal-fired power plants, cement manufacturing plants, and steel industries. The captured carbon is then converted into calcium carbonate (CaCO₃), a versatile compound with practical applications in construction, cement production, and as a filler in paper and plastic industries. The method relies on solvent-based absorption—an established post-combustion carbon capture method within the broader Carbon Capture, Utilization, and Storage (CCUS) paradigm. In addition to capture, the study explores long-term underground geological storage options such as saline aquifers and depleted gas fields, as well as utilization pathways that transform CO₂ into valuable industrial products. This integrated approach not only prevents CO₂ emissions from reaching the atmosphere but also promotes sustainable reuse and permanent containment. The proposed strategy has the potential to contribute significantly to climate mitigation efforts and help India advance toward its Net Zero Greenhouse Gas (GHG) emissions target by 2050.

Keywords: Capturing CO₂, CCUS, Post-combustion, Climate Change Mitigation, CO₂ Utilization, WMO.

ETRD25303

PREDICTIVE HR ANALYTICS FRAMEWORK FOR JOB SATISFACTION IN REMOTE AND HYBRID WORK: A SYSTEMATIC LITERATURE REVIEW

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Abstract

This systematic literature review investigates the evolving relationship between remote/hybrid work arrangements and employee job satisfaction through the lens of predictive HR analytics. The COVID-19 pandemic accelerated the adoption of flexible work models, transforming traditional workplace paradigms and necessitating deeper understanding of their impact on employee well-being and organizational performance. This research synthesizes findings from 43 peer-reviewed studies published between 2018 and 2024, applying novel feature selection techniques to reduce the dimensionality of the collected datasets. The analysis reveals that while remote and hybrid work arrangements generally correlate positively with job satisfaction, this relationship is moderated by several key factors: technological infrastructure, leadership approaches, work-life balance capabilities, and individual personality traits. The study develops a predictive framework that enables HR professionals to anticipate job satisfaction outcomes based on specific work arrangement variables. Key implications for organizational policy development and managerial practices are discussed, alongside recommendations for creating sustainable work models that optimize both employee satisfaction and productivity in the post-pandemic era.

Keywords: Remote work, hybrid work arrangements, job satisfaction, predictive analytics, HR analytics, feature selection.

ETRD25305; ETRD25311

BIODEGRADABLE PLASTICS: ROLE AND CHALLENGES**Neha Sharma¹, Ayush Sharma², Dr. Komal Arora³**^{1,2,3}S.S. Jain Subodh P.G. College, JaipurEmail: komalarora2106@gmail.com

Abstract

In response to escalating plastic pollution and environmental degradation, Biodegradable Plastics have emerged as a critical innovation in material science. These bioplastics align with global sustainability goals and offer potential in industries and sectors like agriculture, packaging and biomedical devices.

The increasing demand for environmentally friendly and sustainable consumer goods has spurred additional investment and research in biodegradable materials. Bioplastics represent a transformative shift in materials science, offering a sustainable alternative to traditional plastics that persisted in the environment for centuries. Biodegradable plastics are composed of renewable materials and hence they break down into natural substances, reducing pollution and promoting sustainability. They also contribute and help in waste reduction, energy conservation, lower environmental toxicity, minimizing dependence on fossil fuels, and decreasing greenhouse gas emissions.

Biodegradable plastics have several limitations also, like fragility, low heat resistance and low mechanical properties, which can limit their applications. They are more expensive; their degradation tendencies are different in various environments as they require specific conditions for degradation. Some of these can break down into microplastics, which can persist in the environment and potentially enter the food chain. The raw materials required for biodegradable plastics (corn and sugarcane etc.) can compete with food crops for land and water resources which further can impact food production.

By increasing use of biodegradable plastics, we can effectively reduce pollution, protect wildlife and mitigate the impacts of climate change. As we make conscious choices, it's equally important to be mindful of the potential ripple effects of our decisions, ensuring that our solutions don't inadvertently create new problems.

Keywords: Biodegradable, Degradation, Sustainability, Energy Conservation

ETRD25306

STUDY OF INTERPLANETARY MAGNETIC FIELD AND SOLAR WIND PARAMETERS ASSOCIATED WITH GEOMAGNETIC STORM DURING SOLAR CYCLE 24

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Abstract

We have studied about geospheric environment which has caused by the interplanetary magnetic field (IMF) and solar wind plasma parameter during the period of 2018 to 2019. In this solar cycle (SC) 24 geomagnetic storms index range $Dst \leq -90nT$ respectively data collect during the period, we have found 27 geomagnetic storms data. Coronal mass ejection (CME) associated with frequency of geomagnetic storms rate are 74% there the Halo CME and Partial Halo CME association rate 65% and 35% determined. Analysis of X-ray solar flare (SF) associated with majority of geomagnetic storms are 69.23% respectively, there linked solar flare (SF) classified X-class, M-Class, C-Class and B-Class relative association rate 20%, 40%, 30% and 10% determined. We have examined positive co-relation with co-relation coefficient 0.509 between magnitude of geomagnetic storms and The peak value of IMF, 0.495 between magnitude of geomagnetic storms and the magnitude of IMF, 0.22 between the magnitude of geomagnetic storms and the peak value of solar wind plasma speed (SWPS), 0.298 between the magnitude of geomagnetic storms and the magnitude of solar wind plasma speed (SWPS), 0.619 between the magnitude of geomagnetic storms and the peak value of flow pressure, 0.58 between the magnitude of geomagnetic storms and the magnitude of flow pressure, 0.402 between the magnitude of geomagnetic storms and the peak value of solar wind proton density (SWPD), 0.275 between the magnitude of geomagnetic storms and the magnitude of solar wind proton density (SWPD). We have examined this statistical relation and concluded that the Earth's magnetosphere disturbance is caused by the coronal mass ejection, X-ray solar flare, interplanetary magnetic field, and solar wind plasma parameter.

Keywords: Interplanetary Magnetic Fields (IMF), Coronal Mass Ejection (CME), Solar Flare (SF), Solar Wind Plasma Parameter, Magnetosphere.

ETRD25307

THE SOUND OF INNER STRUGGLES: THE EMOTIONAL AND PSYCHOLOGICAL LANDSCAPE OF WOMEN IN INDIRA GOSWAMI'S WRITINGS

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Abstract

This work's primary focus is described in the title "The Sound of Inner Struggles: The Emotional and Psychological Landscape of Women in Indira Goswami's Writings." It aims to interpret the deep emotional worlds of women and how they are portrayed in Indira Goswami's *The Moth-Eaten Howdah of the Tusker* and *Pages Stained with Blood*. These works expose the woman's psyche in the context of severe sociocultural constraints—where silence functions as both an adaptive mechanism and a form of resistance. This research analyses the trauma and violence of social widowhood and marginalization which has shaped Indira Goswami's female characters. Within the framework of feminist literary analysis and psychoanalytic approaches, the author outlines a movement from silence to a complete emotional breakdown, which culminates in active shouting protest. The work also concentrates on the experience of silencing as an act that transforms one's psychological injuries into a source of undeniable power. From this perspective, the work illustrates how psychological susceptibility can be reclaimed as a fierce declaration of self.

The Indira Gowsami female character analysis research examines how Indira Gowsami renders emotional and psychological landscapes of the female characters using setting, symbols, and narrative voice. Vulnerability is portrayed by her as an area of deep suffering, introspection, and resiliency coexisting, rather than a weakness. This depiction captures the self-awareness and silent strength of women's vulnerability that is often overlooked. The argument of the study is from this perspective that Gowsami transforms the literary imagination of Indian women by depicting them as emotionally complex, engaged, and grappling with harsh realities of life instead of docile and secondary participants in the narrative.

Keywords: Female Psychoanalysis, Turmoil, Resistance, Silence, Patriarchy, Empowerment.

ETRD25308

ANTAGONIZING THE PRECONCEPTIONS: THE GURUKUL AS A QUINTESSENTIAL AVENUE FOR INTRAPERSONAL EVOLUTION

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Abstract

Education plays vital role in every individual's life. The system of education has undergone several changes over the ages and generations. The pre-historic and pre-colonial period had the Gurukul System of Education while, in the post-colonial era modern schools and institutions were established. The efficacy and beauty of the Gurukul system faded because of preconceptions and prejudices that were wrapped in the layers of colonial ideologies. These prejudices have deep rooted to an extent that it is reflected in previous research conducted about the affinities of Gurukul Education with Modern Education. This research aims at elucidating the efficacy of the Gurukul system and address the stereotypic notions weaved around it. The study was conducted on some ancient texts of Bharath to understand the nature of the Gurukuls. Some secondary sources were studied to comprehend the modern education. The data obtained was analysed and compared in accord to answer the research question. This analysis demonstrated that the Gurukul system is highly efficient when compared with modern techniques. Some studies suggest that Gurukul system had certain anomalies. However, the texts studied explicated that these anomalies are mere prejudices and not the truth of the Gurukul. The Gurukul System of education is a predominant source of knowledge not just for skills but also for life. There are no demerits featured around the Gurukul system.

Keywords: Gurukul Education, Stereotypes, Efficiency, Modern Education, Knowledge, Skills.

ETRD25309

FORBUSH DECREASES IN COSMIC RAY INTENSITY WITH SOLAR AND INTERPLANETARY ACTIVITY PARAMETERS DURING DECAY PHASE OF SOLAR CYCLE 24

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Abstract

We have analyzed Forbush decreases (Fds) observed at Oulu Super Neutron Monitor (NM) during the period of decline phase of solar cycle 24 with solar and interplanetary phenomena, coronal mass ejections (CMEs), solar flares (SFs), magnetic clouds (MCs) and disturbances in solar wind plasma velocity (SWPV). We have observed that majority of the Forbush decreases (Fds) are associated with halo, partial halo coronal mass ejections (CMEs) and magnetic clouds (MCs). Large positive correlation with correlation coefficient 0.82 has been found between magnitude of Forbush decreases (Fds) and speed of associated CMEs. Moreover, disruptions in solar wind plasma velocity (SWPV) and other types of X-ray solar flares (SFs) are linked to all of the Forbush declines. Large positive correlation with correlation coefficient 0.60 has been found between magnitude of Forbush decreases (Fds) and peak value of associated disturbances in SWPV and 0.58 between magnitude of Fds and magnitude of associated disturbances in SWPV. We have also observed that all the Fds are associated with geomagnetic storms (GMs). The magnitude of Fds and the corresponding geomagnetic storms (GMs) have been found to positively correlate, with a correlation coefficient of 0.41. We have concluded that coronal mass ejections (CMEs) associated with hard X-ray solar flares (SFs) and magnetic clouds (MCs) are much more effective to generate Forbush decreases (Fds) in cosmic ray intensity.

Keywords: Forbush decreases (Fds), Coronal Mass Ejections (CMEs), Solar Flares (SFs), Magnetic Clouds (MCs), Geomagnetic Storms (GMs) and Solar Wind Plasma Velocity (SWPV).

ETRD25310

RASA AND CATHARSIS: A COMPARATIVE INQUIRY INTO INDIAN AND ARISTOTELIAN AESTHETIC THEORIES

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Abstract

This paper investigates the philosophical and aesthetic foundations of two seminal concepts in global aesthetic theory—Rasa, as articulated in the Indian Natyashastra tradition and refined by Abhinavagupta, and Catharsis, as formulated by Aristotle in the poetics. Even though they originated from different civilizational, metaphysical, and dramaturgical backgrounds, both theories attempt to describe the psychological and emotional impact of dramatic art on its viewers. Using a comparative approach, this research intends to outline not only the convergences and divergences between these two theories but also their implications for modern aesthetic and intercultural discussions.

The Rasa theory of the Sanskrit tradition holds that aesthetic experience (rasānubhava) is a process of distillation and universalization of the emotion. Through empathetic identification and imaginative engagement, the audience savours the “flavor” (rasa) of an emotion free from ego and personal desire, according to Bharata and his commentators. The performance thereby allows the viewer to access elevated levels of consciousness—levels Abhinavagupta characterizes as Ananda or bliss. Aristotle’s Catharsis, on the other hand, imagines the function of tragedy as purging (or cleansing) pity (eleos) and fear (phobos) for a consequent moral and psychological balance. Though catharsis is understood differently—cited as medical, ethical, and cognitive models—the Aristotelian model is still based on a mimetic, action-based poetics that conceives of the dramatic spectacle as a means of ethical education and affective control.

The article comparatively contrasts the metaphysical foundations (non-dualist vs. Rationalist), ontologies of emotion (universalized aesthetic emotion vs. individual moral emotion), and the **aesthetic goals** (transcendental relish vs. ethical catharsis) embedded in the two traditions. Drawing on primary texts as well as modern scholarship (Sheldon Pollock, V.K. Chari, Martha Nussbaum, Rustom Bharucha), the study also reflects on the applicability of these concepts in contemporary cross-cultural performance theory and literary criticism.

The paper concludes that Rasa and Catharsis are two differing but conceivably complementary ways of aesthetic perception and affective experience, providing a pluralistic framework for the understanding of the function of emotion in art throughout the cultural divide.

Keywords: Rasa, Catharsis, Aesthetic Emotion, Natyashastra, Comparative Aesthetics, Sanskrit Poetics.

ETRD25312

EVALUATING THE EFFECT OF EDUCATION INFRASTRUCTURE ON STUDENT DROPOUT RATES IN UTTAR PRADESH: A DISTRICT-LEVEL ANALYSIS

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Abstract

This study seeks to explore the connection between educational infrastructure and student dropout rates in Uttar Pradesh, India. The main goal is to assess whether a significant correlation exists between the quality of infrastructure in schools and the dropout rates at the district level. The research will rely on secondary data drawn from official government sources, including the Unified District Information System for Education (UDISE) and the Census of India. Using a linear regression model, the study will analyze how different aspects of educational infrastructure influence student dropout rates across various districts. In this analysis, the dropout rate will be treated as the dependent variable, while indicators of educational infrastructure will serve as independent variables. The anticipated results of the study include identifying districts where dropout rates are high and infrastructure is lacking. These findings are expected to provide valuable insights that could guide future policy interventions aimed at improving school infrastructure and reducing dropout rates in the state.

Keywords: Education Infrastructure, Student Dropout Rates, Educational Inequality.

ETRD25313

REGIONAL DISPARITIES IN EDUCATIONAL SPENDING: A STUDY OF THE NORTH-SOUTH DIVIDE IN INDIA

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Abstract

This study explores the imbalance in educational funding across different regions of India, with a particular emphasis on the contrast between northern and southern states. While southern regions like Kerala, Tamil Nadu, and Karnataka demonstrate stronger performance in literacy, school enrollment, and student retention, many northern states—including Uttar Pradesh, Bihar, and Rajasthan—continue to face challenges despite receiving public education funds. The paper analyzes how variations in budgetary allocations, administrative effectiveness, and socio-cultural contexts influence these educational outcomes. Through a mix of data analysis and policy evaluation, it investigates the relationship between government spending and its real-world impact on education systems. The findings suggest that funding alone does not guarantee success; the broader socio-political environment, governance quality, and public perception of education—especially in marginalized and female populations—are equally significant. Deep-rooted societal norms, regional governance structures, and the prioritization of education at the state level all play a crucial role in determining outcomes. The study recommends adopting region-specific strategies, enhancing transparency in public spending, and implementing incentive-based funding mechanisms. Addressing these regional disparities is critical to achieving inclusive growth and fostering national development through a more equitable and effective education system.

Keywords: Socio- Economic Development, Public Education Spending, Regional Disparities.

ETRD25314

CHARTING THE COURSE TOWARD A SUSTAINABLE ENERGY FUTURE: THE IMPORTANCE OF RENEWABLE RESOURCES

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Abstract

This study explores the potential of renewable energy sources to combat climate change and support sustainable development. It reviews various green energy technologies, their benefits, and the barriers to widespread adoption. The paper emphasizes the urgency of transitioning from fossil fuels to renewables to reduce carbon emissions, enhance energy security, and minimize environmental degradation. It highlights the promise of green energy in delivering clean, reliable, and accessible energy while lowering fossil fuel dependence.

The research incorporates both qualitative and quantitative data collection methods, including literature reviews, policy document analysis, and statistical evaluation of renewable energy trends. Data from international energy agencies and climate reports were analyzed to assess the current state and growth potential of green technologies.

The study also identifies key barriers, such as market inefficiencies, lack of awareness, and limited access to raw materials. To address these, it proposes strategic policy recommendations, such as increased investment in clean technologies, emission reduction targets, international cooperation, and innovation-focused research.

In conclusion, the research affirms that while renewable energy offers significant opportunities for sustainable growth and climate resilience, overcoming existing challenges and implementing effective, data-informed policies is essential for a successful transition to a renewable energy future.

Keywords: Green Energy, Climate Disruption, Fossil fuels.

ETRD25315

SUSTAINABLE SCHOOL NUTRITION: STRENGTHENING VILLAGE ECONOMIES THROUGH LOCAL MILLETS INTEGRATION IN THE MID-DAY MEAL SCHEME

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Abstract

In order to support sustainable school nutrition, this study explores the possibility of adding locally cultivated millets and grains, such as Makka (maize), jowar (sorghum), and bajra (pearl millet), to Rajasthan's Mid-Day Meal (MDM) program. Indian pupils continue to suffer from anaemia, malnutrition, and vitamin deficiencies in spite of the extensive use of MDM. The comparative nutritional advantages of millet-based meals, their effects on health metrics like body mass index and cognitive development, and their cultural acceptability among students are all investigated in this study.

The study also looks at the environmental and economic effects of decentralized procurement models, such as increased food sovereignty, lower logistical costs, and higher farmer revenue. The study proves that millet-based MDM meals are more nutrient-dense, economically feasible, and environmentally sustainable through pilot interventions, taste-testing sessions, and comparative analyses. In line with the objectives of agrobiodiversity, climatic resilience, and rural development, the results encourage a change in policy toward the inclusion of regionally suitable crops in national school food programs.

Keywords: Mid-Day Meal (MDM), Sustainable Nutrition, Millets (Bajra, Jowar, Makka), Child Malnutrition, Micronutrient Deficiencies, Decentralized Procurement.

ETRD25316

IMPACT OF DIGITAL TECHNOLOGY IN SUSTAINABLE ENTREPRENEURSHIP

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Abstract

Digital technologies are converting the entrepreneurial scenario and enabling the self-governing part of entrepreneurship. The rigorous advancements of digital technologies have transformed business surroundings and created an extensive range of prospects that have led to innovative ways to pursue entrepreneurship. The impact of digital technologies on entrepreneurship, entrepreneurship as a field of practice, and enterprise establishment has lent a helping hand in strategic growth of work environment and agency. To boost the reliability of management techniques and to guarantee that the business operates flawlessly along with maintaining a standard management mode in the functioning of an enterprise, there is a need be put into practice a form of management process for smooth running of an enterprise. The implementation of digital information technology is necessary for achieving effective company management. Digitizing of an enterprise is essential to increase the efficiency and sustainable functioning through dramatic changes in the quality of management, thereby increasing technological and decision making at all levels of management. Digital information technology classically reflects an organization's level of expansion, which influences both the administration and management of the organization. Advanced technological potentials enable businesses enterprise function to comprehend market conditions more speedily, take hold to the initial chance and maintaining stable business functions. The present research paper, therefore focus the impact of digital technologies on sustainable entrepreneurship development.

Keywords: Sustainable Entrepreneurship, Digital Information, Digital Technologies.

ETRD25317

CHALLENGES IN IMPLEMENTATION OF INTEGRATED REPORTING

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Abstract

Integrated Reporting has been launched in year 2013 by International Integrated Reporting Council (IIRC) previously international integrated reporting committee. It's aims to create a globally accepted framework for a process that results in communications by an organization over time. This framework provides principle-based guidelines for the companies creating an integrated reporting to meet the expectation of the stakeholders such as shareholders, suppliers and creditors. This research study is important how challenges implementation in integrated reporting by the prepares. This study aims to current state issue and identity the potential challenges when the organization is changing to adopt integrated report. The Data used in this research will be primary data. Therefore, a set of questionnaires are distributed to the accounting professionals in order to collect the primary data. The questionnaire will be set in order to test the variables and the information of the respondents including their personal profile and company Information will be recorded. Likert Scale will be used for measuring the attitudes by asking the respondent to respond to a statement about the research

Keywords: IIRC, Integrated Reporting, Challenges, Adoption by the Firm.

ETRD25318

CHALLENGES FACED BY AGRI-TECH STARTUPS IN RAJASTHAN

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Abstract

Agri-tech startups in India offer innovative solutions such as digital marketing platforms, advisory services, and transparent pricing to transform the agricultural sector. These startups leverage modern technologies to enhance productivity, profitability, and efficiency in agriculture. With increasing investments and government support, the agri-tech sector is poised for growth, redefining Indian agriculture and attracting more investments.

The purpose of this study was to analyze the challenges for agri-tech startups in Rajasthan. The co-founder of agri-tech startups operating in Rajasthan were involved in the present study for in-depth investigation. The startups identified were divided in categories like upstream supply chain, downstream supply chain, agri-fintech, precision agriculture and farm mechanization. Out of these, a total of 10 agri-tech startups were selected from the upstream and downstream supply chain categories because they had the highest number of startups operating in the study area.

The Rajasthan Startup Policy 2022 supports the entire startup ecosystem, including agri-tech, providing incentives, training, and enabling conditions. However, awareness of certain initiatives within the policy was limited among startups. Slow digital technology adoption by farmers, small land-holding size, low awareness of agri-tech solutions and problems in last mile delivery as well as procurement are the biggest problems faced by the agri-tech startups in Rajasthan. This paper will discuss on the different challenges being faced by these startups and the way forward to help them overcome these challenges.

Keywords: Agri-Tech Startups, Rajasthan, Challenges.

ETRD25320

CLIMATE CHANGE AND ENVIRONMENTAL SUSTAINABILITY

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Abstract

Climate change and other threats to environmental sustainability are expected to exert an increasingly significant impact on financial systems. However, the transmission channels and potential spillover effects remain insufficiently explored. This review paper offers a comprehensive overview of recent literature at the intersection of climate-related risks, environmental sustainability, and financial stability—particularly focusing on implications for banks and insurance companies. While considerable attention has been given to the financial risks posed by climate change, other environmental challenges—such as biodiversity loss, depletion of nonrenewable resources, pollution, deforestation, soil degradation, and water misuse—have received comparatively less focus. Recognizing this imbalance, the paper highlights the need for broader research that encompasses the full range of environmental sustainability threats. This work aims to contribute to a more integrated understanding of how climate and environmental risks intersect with financial systems and to encourage future research in underexplored areas.

Keywords: Climate Change, Environmental Sustainability, Financial Risk, Biodiversity Loss, Pollution, Banking Sector.

ETRD25321

DESIGNING HUMAN-AI TEAMS: LEADERSHIP APPROACHES FOR EFFECTIVE COLLABORATION

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Abstract

In various sectors, we've seen the rise of hybrid human-AI teams, thanks to the rapid adoption of artificial intelligence (AI) in organizational workflows. Managing these collaborative environments calls for strong leadership, especially as machines and humans tackle increasingly complex tasks together. This study aims to explore effective leadership strategies for building and guiding human-AI teams, focusing on enhancing productivity, trust, and ethical collaboration. The premise is that traditional leadership models fall short when it comes to addressing the cognitive, emotional, and ethical nuances of human-AI interactions. The research will look into how leaders can cultivate trust, ensure fair task distribution, and maintain team morale while working alongside AI agents, drawing insights from transformational and adaptive leadership theories. It will also investigate how communication, feedback loops, and shared mental models can be redefined in teams that incorporate AI in their decision-making processes. By employing a mixed-methods approach—combining qualitative interviews with organizational leaders and employees and quantitative surveys measuring team performance and satisfaction—this study seeks to identify the key factors that promote effective human-AI collaboration. It will emphasize the importance of digital empathy, ethical transparency, and the humanization of AI within workplace culture. Furthermore, the research proposes a leadership framework that blends digital fluency, emotional intelligence, and a human-centered design philosophy. The findings aim to inform leadership training, shape organizational policies, and influence AI system design, ultimately fostering more inclusive and efficient team structures in the ever-evolving landscape of Industry 4.0. As workplaces continue to evolve, understanding and enhancing the relationship between human and artificial collaborators will be crucial for driving sustainable innovation, ensuring employee well-being, and maintaining a positive work environment.

Keywords: Human-AI Collaboration, Leadership Strategies, Digital Empathy, Team Dynamics, Industry 4.0.

ETRD25322

ECONOMICAL GREEN TIRE TRADE CAP COMPOUND DEVELOPMENT WITH LOW PCA BASED FORMULATION

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Abstract

The rheological behavior of the sample is studied using a parallel plate rheometer and the rheological material functions. The object of this study is to investigate the relaxation time ($\bar{\epsilon}k$) and the viscosity index ($\bar{\epsilon}k$) Min TQ. (lb-in) and Max's. (lb-in) of a tyre tread cap compound. In this work two types of low PCA and one regular high PCA Petroleum oils are Rheologically, analyzed. These low PCA oils can act as the best alternative processing aids for rubber industry. The rheological, properties of SSBR loaded with different LPCA & HPCA oils have been studied. in order to obtain similar properties. Rubber Process Oils are used during the processing and production of rubber compounds. These help in improving the dispersion of fillers and flow characteristics of the compound during further processing. Certain highly aromatic oils as such are classified as carcinogenic. we are replacing HPCA oils by LPCA oils and study is drawing attention to on economical green tire trade cap compound development

Keywords: Low down PCA Oils, Polycyclic Aromatics, Carcinogenesis, PAH, Hazard Assessment.

ETRD25325

FOOD TECHNOLOGY FOR ENSURING NUTRITIONAL AND SECURITY IN INDIA

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Abstract

Agricultural science is a broad field that combine knowledge from crop, soil, animal, engineering, economic, and environmental sciences to enhance farming efficiency and promote sustainability. It is essential to address global issues like climate change and rising food consumption. By utilizing scientific and engineering techniques to guarantee food safety, prolong freshness, and enhance nutritional value, food technology supports agriculture. In order to serve a growing population, innovations in processing, preservation, and packaging minimize wastage and maximise resource utilization.

In order to create safe and nutritious foods, food technology encompasses food processing, safety, microbiology, chemistry, nutrition, packaging, along with quality monitoring. In order to provide a sustainable and effective food system that tackles the issues of global food security, these disciplines collaborate to boost yields, avoid contamination, prolong shelf life, and stimulate innovation.

Although India is a major food producer, it faces significant food security challenges. With a sobering score of 27.3, it comes in at number 105 on the 2024 Global Hunger Index. Widespread undernutrition is indicated by high rates of stunting (35.5%) and child wasting (18.7%). Despite adequate production, access to nutrient-dense food is limited by poverty, ineffective supply networks, and climatic consequences (Concern Worldwide & Welthungerhilfe, 2024).

In India, where over half the employees depends on agriculture, advancements in agricultural science and food technology are crucial. Through value-added goods, they promote rural livelihoods, improve food security, and lessen post-harvest losses. To fulfill the rising need for safe, wholesome, and easily accessible food worldwide, these interrelated sectors expand food availability, decrease waste, and encourage sustainable practices. This paper highlights the role of food technology in enhancing nutritional security of ever-increasing population in the present time.

Keywords: Food Technology, Nutritious Foods, Food Processing.

ETRD25327

GREEN BANKING IN INDIA: A CONCEPT FOR SUSTAINABLE DEVELOPMENT

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Abstract

This research paper analyzes the green banking practices with more knowledge about the products and services cover under the green banking. This paper finds out the process for implementing in green banking. The current research paper also covers the recent developments are made by Indian banks for sustainable developments and challenges faced by banks in implementations. This paper is conceptual in nature and based on secondary data, literature reviews and websites of financial institutions.

“Sustainability is important because we all are responsible for nourishing our planet.”

This paper finds out that there is utmost need to create awareness, implement and adopt green banking as much as possible in today’s business era of innovative technologies so as to make our environment human friendly and enrich the sustainability development.

Keywords: Green Banking, Sustainable Development, Green Products, Environmentally Friendly, Financial Institutions.

ETRD25329

WORK-LIFE BALANCE CHALLENGES AND COPING STRATEGIES AMONG PROFESSIONAL WOMEN IN INDIA'S NATIONAL CAPITAL REGION

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Abstract

The growing participation of women in the Indian workforce has significantly contributed to economic development, while simultaneously introducing challenges in balancing professional and personal roles. In fast-paced regions like the National Capital Region (NCR), working women frequently encounter burnout, time constraints, and psychological stress due to demanding job roles and entrenched societal expectations. This study presents an empirical investigation into the work-life balance (WLB) challenges faced by professional women in the NCR and the coping mechanisms they employ. Drawing on data from 300 respondents across sectors such as IT, healthcare, education, and government services, the research combines quantitative and qualitative analyses. Findings highlight inflexible work schedules, insufficient institutional support, childcare responsibilities, and the gendered division of labor as key stressors. The paper concludes with strategic recommendations to enhance work-life integration and organizational support for women professionals.

Keywords: Work-Life Balance, Gender Roles, Professional Women, NCR, Occupational Stress, Dual Burden, Coping Strategies.

ETRD25330

IMPACT OF YOGA ON NON-SPECIFIC LOW BACK PAIN: A REVIEW

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Abstract

Back pain is a common condition among people nowadays. Once in a lifetime, everyone goes through this phase. Things became more critical when the pain was nonspecific. Because the pathology for the same is still unknown. That's why NSLBP doesn't have any exact treatment, but yoga as an intervention seems to make a difference and seems to be beneficial. This study aims to investigate whether or not yoga is an effective way to reduce back pain or show any improvement in the condition of people suffering from Non-specific Low Back Pain. Yoga effects on physiological, behavioral, and psychological factors of the spine. Another benefit is improving flexibility, strength, relaxation, and body awareness. There is evidence to suggest that yoga reduces oxidative stress and tissue inflammation. It increases the release of certain neurotransmitters in the brain that decrease anxiety and increase pain tolerance. Our study aims to assess the effect of various yoga practices, such as Hatha Yoga and Kundalini Yoga, on NSLBP patients. We aim to identify the specific benefits of yoga in reducing pain, stress levels, depression, and improving the functionality of the body. Our findings indicate that Yoga seems to reduce stress and depression among people and also shows a positive outcome in reducing back pain. But adherence can make things better. Regular Yoga practices for a long duration of time may bring a big change.

Keywords: Low Back Pain, Yoga, Nonspecific Low Back Pain, Lower Back Pain.

ETRD25331; ETRD25332

TECHNOLOGY ADOPTION ORIENTATION AMONGST THE TRADITIONAL SMES OF NORTH EAST INDIA: A CASE STUDY OF BELL METAL INDUSTRY

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Abstract

In the present time, technology has been a “panacea” for all types of firms, especially for the SMEs. The present paper explores the different benefits that technology- adoption provides to the SMEs. It also examines the level of “technology adoption” orientation of the Bell Metal Industry which is one of the traditional MSME Cluster of North – East India as recognised by the Government of India. The study uses both primary and secondary data. Primary data were collected from the owners of Bell Metal Units situated in Sarthebari through the help of a structured interview schedule. An index is constructed to measure their level of “technology-adoption “orientation. The findings reveal that “technology adoption” provides multi fold benefits to the SMEs in creating a niche for them. However, in the context of Bell Metal industry, majority of the artisans portray a low level of orientation in technology adoption. Suggestion is made for a holistic approach on the part of different stakeholders to ensure that proper training can be provided to the artisans to make them capable of adopting technology in their business operations.

Keywords: “Technology adoption” orientation, Bell Metal Industry, SMEs.

ETRD25333

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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Abstract

Artificial Intelligence (AI) and Machine Learning (ML) represent two of the most transformative technologies of the 21st century. AI refers to the simulation of human intelligence by machines, enabling them to perform tasks such as reasoning, learning, and problem-solving. ML, a subset of AI, involves the development of algorithms that allow systems to learn from data and improve their performance without explicit programming. This study aims to survey the foundational principles of AI and ML, evaluate their diverse applications across industries, examine the methodological advances that underpin them, and address the ethical implications arising from their rapid deployment. By conducting a multidisciplinary review of recent literature, the paper explores how AI and ML are being applied in fields such as healthcare, finance, transportation, agriculture, and governance.

The findings indicate that these technologies have significantly enhanced efficiency, enabled large-scale automation, and improved decision-making processes. From early disease detection to predictive maintenance in smart factories, AI/ML systems are reshaping operational paradigms. However, the analysis also reveals persistent challenges, including algorithmic bias, data privacy concerns, lack of transparency in decision-making (black-box models), and vulnerabilities to adversarial attacks.

As society becomes increasingly dependent on intelligent systems, understanding their design, impact, and governance becomes crucial. The paper concludes by emphasizing that AI and ML are not merely tools of automation—they are foundational technologies that will define the trajectory of future innovation, requiring ethical foresight and interdisciplinary collaboration to harness their full potential responsibly.

Keywords: Artificial Intelligence (AI), Machine Learning (ML), Efficiency, Automation, Decision-Making, Ethical Implications.

ETRD25336

INFLUENCE OF ENVIRONMENTAL EMPATHY ON ETHICAL REASONING AND DECISION-MAKING FOR ENVIRONMENTAL SUSTAINABILITY AMONG ADOLESCENT LEARNERS

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Abstract

The 21st century's environmental problems require not only scientific solutions but also a shift in individual's moral behaviours and feelings towards the environment. The growing urgency of environmental issues has underscored the need to understand the psychological and ethical dimensions that drive sustainable behaviour, particularly among adolescents. The importance of promoting environmental sustainability in all spheres of society has been brought to light in recent decades by the pressing need to address worldwide sustainability problems such as pollution, deforestation, biodiversity loss, and climate change. Education is vital for developing beliefs, attitudes, and behaviours that foster sustainable development, especially in adolescent learners. This study explores the influence of environmental empathy on ethical reasoning and decision making for environmental sustainability among adolescent learners aged between 15 to 17. The population of the study comprises all adolescent learners across Kerala. Utilizing a normative survey method, data were collected from a representative sample of 200 higher secondary school students drawn from various educational institutions across Thiruvananthapuram. The data was collected using Environmental Empathy scale, Ethical Reasoning test and Decision-making test through random sampling. The analysis revealed a positive and significant relationship between environmental empathy and both ethical reasoning and decision making and Environmental Empathy influences significantly on Ethical Reasoning and Decision-making abilities of adolescent learners. The findings suggest that adolescents with higher levels of empathy towards the environment are more likely to make ethical and sustainable choices. Also, Environmental Empathy is a significant predictor of Ethical Reasoning and Decision-making abilities of adolescent learners for Environmental Sustainability. The study highlights the importance of integrating emotional and ethical components into environmental education to foster responsible and sustainability-oriented behaviour among young learners.

Keywords: Ethical Reasoning, Environmental Sustainability, Environmental Education.

ETRD25337

MARKETING OF TRIBAL-BASED HANDLOOM PRODUCTS WITH REFERENCE TO THE BODO TRIBE OF ASSAM

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Abstract

The main objective of the present paper is to explore the marketing of 'tribal-based handloom products' regarding Bodo tribe of Assam. An investigation is made to find out the Product Lines of select products and the Channels of Distribution of those products. The findings reveal that though handloom products are made from various fabrics including wool and silk, the widely used fabrics of Bodo traditional attire are cotton, mercerised cotton, and Eri silk. Four channels of distribution are also revealed from the findings. The present paper follows exploratory research design, and primary data were collected from the weavers from the Bodoland Territorial Region, Assam through personal interviews. The biggest challenge of the handloom weavers is the time consumed in the production process and price fixation; hence, a suggestion is made to provide technological orientation and proper marketing strategies among the handloom weavers of Assam.

Keywords: Handloom, Marketing, Product Lines, Channel of Distribution.

INFLUENCE OF ECO ANXIETY AND DEDUCTIVE REASONING ON DISASTER RISK REDUCTION OF HIGHER SECONDARY SCHOOL STUDENTS

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Abstract

Disaster Risk Reduction (DRR) education is essential for equipping higher secondary school students with the knowledge and skills necessary to respond effectively to natural and environmental hazards. In recent years, the rising concern over climate change and environmental issues has contributed to increased Eco Anxiety—a persistent fear of environmental doom—among youth. This emotional stress may influence students' ability to reduce the risk of disaster. At the same time, Deductive Reasoning, a fundamental cognitive skill, enables students to analyze information logically and make informed decisions during emergencies. The key purpose of the study is to examine the influence of Eco Anxiety and Deductive Reasoning on Disaster Risk Reduction of higher secondary students. The population of the study consists of higher secondary school students of Kerala. A total of 160 students were selected through simple random sampling for this quantitative study and a normative survey method was adopted for collecting data. Data were collected using an Eco Anxiety Scale, a Deductive Reasoning Test, and a Disaster Risk Reduction Test. Statistical analyses including correlation and regression analysis were conducted to explore relationships and predictive effects. The Result of the study indicated that there exists a negative correlation between Disaster Risk Reduction and Eco Anxiety, signifying that higher anxiety reduces students' ability to reduce risk of disaster. On the other side, Deductive Reasoning showed a significant positive relationship with Disaster Risk Reduction, indicating that stronger deductive reasoning enhances students' ability to reduce the risk of disaster. Furthermore, Deductive Reasoning moderated the impact of Eco Anxiety, partially offsetting its negative effects. The study concludes that fostering Deductive Reasoning and addressing Eco Anxiety through education can significantly improve ability of disaster risk reduction among higher secondary students. Integrating emotional support and critical thinking development into Disaster Risk Reduction education supports to build resilient and well-prepared youth.

Keywords: Influence of Eco Anxiety, Disaster Risk, Deductive Reasoning Test.

ETRD25339; ETRD25340

A COMPARATIVE STUDY OF AWARENESS ABOUT SELF-APPRAISAL AND ITS IMPACT ON CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD) AMONG COLLEGE TEACHERS AFFILIATED TO UNIVERSITY OF CALICUT AND KARNATAK UNIVERSITY

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Abstract

Self-appraisal plays a crucial role in the capacity building and continuous professional development (CPD) of college teachers. This self-appraisal system of self-assessment allows the teachers to think about their strengths and weaknesses, which may consequently lead to a discussion on barriers to effective teaching and allied career. Besides that, in Indian context, UGC, AICTE, and NAAC-like bodies governing higher education have a very clear say on the self-appraisal of college teachers.

Now, this study aims to determine the gap and compare the awareness about self-appraisal and its practices among two groups of commerce teachers belonging to Karnataka and Kerala state. Also, it aims to estimate the effect of self-appraisal on continuous professional development of teachers in both the groups

The Management of Institutions offering higher education will have to devise or adopt proper self-appraisal-based performance evaluation of teachers and to monitor their continuous professional development periodically. On the other hand, teachers serving in colleges must have known the importance and uses of self-appraisal towards the evaluation of their individual performance and its allied benefits.

Researcher, examines how performance appraisal contributes to capacity building by identifying skill development areas, training needs, and institutional support among college teachers. A sample survey of selected teachers is conducted in both the geographical region to unleash the details regarding awareness about performance appraisal among college teachers in both the cities with a suitable research design. The first among the two groups under study being commerce teachers employed at colleges linked to University of Calicut and the second being Karnatak University Dharwad.

Keywords: Continuous Professional Development, Faculty Reflection, Higher Education, Institutional Support, NEP 2020, Self-Appraisal.

ETRD25341; ETRD25342

IMPACT OF SUSTAINABLE MARKETING STRATEGIES ON PURCHASING BEHAVIOR OF CONSUMERS

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Abstract

Consumers of today are understanding marketing strategies and now it has become difficult to market products with the traditional concept of selling, so marketers have come up with the new concept of sustainable marketing strategies like, green marketing which includes, Marketing with continuous tracking mobile applications and videos, natural ingredients, Reusable packaging, donating profit percentages, partnering with charities. Many companies have initiated these marketing strategies and this paper aims to study the impact of these strategies on repeat purchase behavior, psychological aspect and consumer satisfaction. To get clear insights a consumer survey on a 5-point likert conducted on a sample of approximately 168 consumers and to test the hypothesis chi-square method used which stated that continuous tracking options, natural ingredients, reusable packaging, donating profits have a significant impact and partnering with charities does not have much effect on the purchasing behavior of the consumers.

Keywords: Sustainable Marketing Strategies, Purchasing Behavior of Consumers and Consumer Satisfaction.

ETRD25343

INTERNATIONAL TRADE AND MULTIDIMENSIONAL POVERTY IN INDIA: A STATE-LEVEL PANEL ANALYSIS

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Abstract

Traditional income-based poverty metrics often fail to capture the nuanced and overlapping deprivations that define poverty in developing contexts. This study addresses this limitation by exploring the relationship between international trade and multidimensional poverty across Indian states from 2005 to 2023. Drawing on the capability approach and using the Multidimensional Poverty Index (MPI) developed by NITI Aayog, this paper investigates whether state-level export intensity correlates with reductions in both the incidence and depth of multidimensional poverty. The study employs a panel dataset covering 30 Indian states and union territories, with MPI indicators as the dependent variable and exports as the key independent variable, alongside controls for per capita income, educational attainment, labor force participation, and income inequality. The findings reveal a negative association between exports and multidimensional poverty, indicating that greater trade engagement contributes to improved living standards. Importantly, the study finds that the impact of exports is more effective in reducing poverty when complemented by inclusive growth, particularly through enhanced education and equitable income distribution. Conversely, high levels of inequality tend to undermine the poverty-reducing potential of trade. The analysis also shows that trade not only lowers the incidence of poverty but also mitigates its intensity, offering a more comprehensive understanding of welfare improvements. These results highlight the importance of integrating trade policy with broader development strategies aimed at expanding capabilities and reducing structural disparities.

Keywords: Multidimensional Poverty, Exports, International Trade, Inclusive Growth.

MATHEMATICAL ANXIETY AND SCIENTIFIC LITERACY OF SECONDARY SCHOOL STUDENTS

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Abstract

Mathematical Anxiety refers to a feeling of tension, apprehension, or fear that interferes with mathematical performance (Ashcraft, 2002). It can make it hard to concentrate, solve problems, or even try mathematical tasks. It can lead to avoidance of mathematical-related tasks, poor performance, and low self-confidence. Scientific Literacy is the “ability of students to use their Scientific knowledge and skills in different areas and life situations PISA (2006). It includes understanding scientific concepts, processes, and the ability to think critically, interpret data, and apply scientific reasoning (OECD, 2019). This paper intends to find out the relationship between the Mathematical Anxiety and Scientific Literacy of secondary school students. The investigator used the normative survey method for the present study. The population of the present study comprises all the secondary students in Kerala. A sample of 150 secondary students was selected from Thiruvananthapuram district. The investigator used the Mathematical Anxiety Scale, which included components of mathematical test anxiety and numerical anxiety, and the Scientific Literacy Test, which assessed science content, context of science, science processes, and scientific attitudes to collect the data. Descriptive statistics, t-test and coefficient of correlation were used for interpreting the data. The investigator analysed a negative correlation between Mathematical Anxiety and Scientific Literacy of secondary school students. The study found that high Mathematical Anxiety can significantly impact Scientific Literacy, as students may struggle with quantitative scientific tasks, such as interpreting graphs, solving equations, and analysing data (Ashcraft & Krause, 2007). This outcome of the study is consistent with Khoule, Ayub, and Mahmud's (2020) research, which showed that lower Mathematical Anxiety correlates with more positive attitudes toward science and improved performance in science-related tasks, highlighting a critical emotional link between mathematical comfort and scientific understanding.

Keywords: Mathematical Anxiety, Scientific Literacy, Mathematical Comfort.

ETRD25345

IMPACT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN DIGITAL ERA ON AGRICULTURE

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Abstract

Artificial Intelligence (AI) and Machine Learning (ML) are at the forefront of the technological revolution, reshaping the way humans interact with machines and data. AI refers to the broader concept of machines simulating human intelligence, while ML, a key subset of AI, involves algorithms that enable systems to learn from data and improve over time without being explicitly programmed. This paper explores the evolution, core techniques, and diverse applications of AI and ML across agriculture. It highlights emerging trends such as deep learning, natural language processing, and computer vision, which are driving intelligent automation and decision-making. The research also addresses the ethical challenges and societal impacts posed by these technologies, such as data privacy, algorithmic bias, and the future of employment. The study concludes that AI and ML, when applied responsibly, have the potential to enhance efficiency, foster innovation, and solve complex real-world problems.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Automation, Data Privacy, Language Processing.

ETRD25346

SOLAR ENERGY AND URBAN PLANNING

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Abstract

Sustainable development necessitates urban planning strategies that harmonize environmental preservation, economic growth, and social equity. Integrating solar energy into urban infrastructures emerges as a pivotal approach. The rapid urbanization observed globally necessitates a paradigm shift towards sustainable development. Integrating solar energy into urban infrastructures emerges as a strategic approach to mitigate environmental impacts, enhance energy security, and promote economic growth.

Rajasthan, endowed with high solar irradiance and expansive arid lands, illustrate this integration. The state has launched the Integrated Clean Energy Policy 2024, targeting 125 GW of renewable energy capacity by 2030, including 90 GW from solar power. Notably, the Bhadla Solar Park, spanning 56 square kilometres with a capacity of 2,245 MW, stands as India's largest solar park, contributing significantly to the nation's renewable energy goals.

Urban centres like Jaisalmer and Pushkar are being developed as solar cities, incorporating rooftop solar systems, solar-powered street lighting, solar water pumps, solar-Powered Drip Irrigation and electric vehicles, aiming to meet all energy requirements through solar sources.

Solar technologies, such as rooftop photovoltaic systems, solar-powered public amenities, and building-integrated photovoltaics (BIPV), have demonstrated efficacy in reducing greenhouse gas emissions and alleviating the strain on conventional power grids. As cities continue to expand, embedding solar energy solutions within urban planning is imperative to achieve sustainable development goals and foster environmentally responsible urban growth.

Keywords: Sustainable Development, Urban Planning, Urban Growth.

ETRD25347; ETRD25352; ETRD25385

ENVIRONMENTAL JUSTICE AND DECISION MAKING TOWARDS SUSTAINABILITY OF HIGHER SECONDARY SCHOOL STUDENTS

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Abstract

In the current scenario, environmental justice and decision making towards sustainability have emerged as crucial and interconnected concepts, particularly in the education of higher secondary school students. Environmental justice refers to the equitable treatment and meaningful involvement of all people in environmental policies, ensuring that no group bears a disproportionate share of environmental harm or is denied access to environmental benefits. On the other hand, decision making towards sustainability involves the ability to make responsible choices that balance environmental, social, and economic needs for the well-being of current and future generations. For students, integrating awareness of environmental justice into their decision-making processes equip them to become informed, empathetic, and active citizens capable of contributing to sustainable development in a just and inclusive manner. This study explores the relationship between Environmental Justice and Decision Making towards Sustainability of Higher Secondary School Students. Utilizing a normative survey method, data were collected from a representative sample of 245 higher secondary school students. The data was collected using Awareness test on Environmental Justice and Test on Decision making through random sampling. The analysis revealed a significant positive relationship between Environmental Justice and Decision Making towards Sustainability of Higher Secondary School Students. The findings suggest that this relationship can provide insights into how students' sense of justice informs their choices and actions regarding sustainable living; aims to support the ongoing development of educational practices by fostering socially and environmentally conscious decision-making in our next generation. The findings will support the integration of justice-oriented environmental education in teaching learning process.

Keywords: Environmental Justice, Decision Making, Higher Secondary School Students.

ETRD25349; ETRD25355

REMOTE WORK AND THE START-UP GROWTH FORMULA: AN EMPIRICAL STUDY OF BUSINESS PROCESS INNOVATION IN RAJASTHAN'S SERVICE SECTOR

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Abstract

The rapid evolution of digital technologies and changing work paradigms has positioned remote work as a transformative business process innovation, particularly in the service industry. This study explores the strategic potential of remote work practices in enhancing employee productivity, with a special focus on service sector organizations in Rajasthan. Anchored in empirical analysis, the research applies linear and hierarchical regression techniques to evaluate the direct influence of remote work practices (RWP) on employee productivity (EP), and further investigates the mediating role of employee engagement (EE) in this relationship. The findings reveal that RWP significantly predicts EP, explaining 28% of the variance. EE fully mediates this relationship, highlighting its critical role in translating remote work structures into improved performance outcomes. The study underscores the importance of integrating technological innovation with human engagement to achieve sustainable productivity gains. These insights offer valuable implications for managers, policymakers, and researchers aiming to design effective remote work strategies tailored to the dynamic needs of the service sector.

Keywords: Start-up Growth Formula, Business Process, Remote Work Practices.

ETRD25357

INFLUENCE OF SUNSPOT NUMBERS AND SOLAR RADIO FLUX ON GEOMAGNETIC STORM ACTIVITY DURING SOLAR CYCLES 24 AND 25

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Abstract

The Earth's geomagnetic field is significantly influenced by solar activity, particularly by sunspot numbers (SSN) and solar radio flux (F10.7). Sunspots, which appear as dark, irregular patches on the Sun's photosphere, are cooler regions indicative of intense magnetic activity. Solar Radio Flux (F10.7) refers to the measurement of solar radio emissions at a wavelength of 10.7 centimeters (or a frequency of 2800 MHz). It is a key index used to monitor solar activity and is closely associated with the number of sunspots and other solar phenomena such as solar flares and coronal mass ejections. This study investigates the relationship between sunspot numbers, solar radio flux, and the occurrence of geomagnetic storms during solar cycles 24 and 25. A total of 231 peak Dst events, 214 geomagnetic storm events during initial phase and 201 geomagnetic storm events during recovery phase for $Dst \leq -50$ nT were analyzed. Statistical analysis reveals a positive correlation between peak Dst events and solar activity indicators, with correlation coefficients of 0.67 for sunspots and 0.72 for solar radio flux. Similarly, geomagnetic storm events during the initial phase show positive correlations with sunspot numbers ($r = 0.69$) and solar radio flux ($r = 0.73$). A comparable positive correlation is also observed during the recovery phase, with coefficients of 0.69 for sunspots and 0.73 for solar radio flux. Furthermore, an exceptionally high correlation (0.98) was found between the yearly average sunspot number and yearly average solar radio flux, underscoring the interconnected nature of these solar parameters. These findings highlight the predictive potential of sunspot numbers and solar radio flux in forecasting geomagnetic storm activity and contribute to the broader understanding of space weather dynamics.

Keywords: *Disturbance Storm Time Index (Dst), Solar Activity, Sunspot Number, Solar Radio Flux, Geomagnetic Storm.*

ETRD25358

RENEWABLE ENERGY AND SUSTAINABLE DEVELOPMENT IN INDIA: A THEORETICAL ANALYSIS OF EMERGING OPPORTUNITIES AND CHALLENGES

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Abstract

It is becoming more widely acknowledged that switching from traditional energy systems to renewable resources is crucial for sustainable growth, especially in a nation like India that is developing quickly. The present state of renewable energy in India is examined in this theoretical article, along with its importance in attaining energy security and environmental sustainability. The study examines the body of research on renewable energy sources like solar, wind, hydro, and biomass as well as international trends and governmental regulations.

This essay's goals are to emphasize the significance of incorporating renewable energy into national energy systems, evaluate the obstacles to widespread acceptance, and examine the long-term advantages for social, economic, and environmental advancement. This study's approach is entirely theoretical and is based on secondary data gathered from journal papers, policy documents, and published reports.

Although India has made great strides in the fields of solar and wind energy, the results indicate that obstacles like as grid integration, policy implementation, funding, and public awareness still prevent widespread adoption. The study comes to the conclusion that reaching India's sustainability objectives requires a strong and inclusive framework for energy policy, as well as technology advancement and public involvement.

By offering a systematic knowledge of how renewable energy may transform energy systems and promote sustainable development in the Indian setting, this work adds to the scholarly conversation.

Keywords: Renewable Energy, Sustainable Development, Energy Systems, Solar Power, India, Environmental Policy.

ETRD25359

IMPACT OF WORKLOAD ON PERSONAL LIFE: A STUDY ON PRIVATE BANKERS IN CHITTORGARH

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Abstract

This study explores the effects of workload on private bankers' personal lives in Chittorgarh. It examines the changing job conditions and working environment of private bankers. Employees have to perform multiple tasks, accept high sales target, comply with deadlines, bear with career uncertainties, compromise with family and personal care due to time constrain. "Emotion focused coping is aimed at making oneself feel better about the situation, without changing the problem itself. It involves accepting the situation. It involves accepting the situation and trying to survive it as best as possible." (Lazarus & Folkman, 1984)

The research aims to identify the challenges faced by private bankers in managing their workload and insights into the strategies that can help mitigate the negative effects. The population selected for this particular study is employees from private banks in Chittorgarh. A survey questionnaire was distributed and interviews were used for data collection. The total sample size was 50 bankers in different private banks. The survey was based on the variables with a likert scale, used a five points liquid scale where 1 is "strong disagree" and 5 is "strong agree". Statistical analysis conducted using SPSS (Statistical Package for the Social Sciences) to perform descriptive statistics, such as frequencies, means and standard deviation. This helped in summarizing and interpreting the main characteristics of the data.

The findings can guide policies and practices that promote the well-being of private bank employees.

Keywords: Workload, Personal Life, Work Life Balance, Stress, Private Bankers, Chittorgarh.

ETRD25360

अनुसंधान में किशोर विद्यार्थियों के लिए समालोचनात्मक चिंतन विकसित करने की रणनीतियाँ

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सारांश

यह रिपोर्ट 21वीं सदी में किशोर विद्यार्थियों के लिए समालोचनात्मक चिंतन कौशल के बढ़ते महत्व पर प्रकाश डालती है, विशेष रूप से सूचना के अत्यधिक प्रवाह और कृत्रिम बुद्धिमत्ता के बढ़ते उपयोग के युग में। यह समालोचनात्मक चिंतन की बहुआयामी प्रकृति को परिभाषित करती है, जिसमें विश्लेषण, संश्लेषण, मूल्यांकन और तर्क जैसे उच्च-स्तरीय संज्ञानात्मक कौशल शामिल हैं, साथ ही खुले विचारों और निष्पक्षता जैसे बौद्धिक स्वभाव भी शामिल हैं। रिपोर्ट पारंपरिक शिक्षण पद्धतियों से जुड़ी चुनौतियों की पड़ताल करती है जो अक्सर रटने पर जोर देती हैं और समालोचनात्मक चिंतन के विकास में बाधा डालती हैं। यह जांच-आधारित शिक्षा, परियोजना-आधारित शिक्षा, प्रश्न पूछने के कौशल को विकसित करना, सूचना साक्षरता को बढ़ाना, मेटाकॉग्निटिव प्रतिबिंब को बढ़ावा देना, विविध दृष्टिकोणों को शामिल करना, सहयोगात्मक शिक्षा और वास्तविक दुनिया के अनुप्रयोग जैसे प्रभावी शैक्षणिक रणनीतियों का विस्तृत विश्लेषण प्रस्तुत करती है। रिपोर्ट में कैम्ब्रिज लाइफ कॉम्पटेंसीज फ्रेमवर्क और ACER स्किल डेवलपमेंट फ्रेमवर्क जैसे प्रासंगिक ढाँचों पर भी प्रकाश डाला गया है, जो शिक्षकों को समालोचनात्मक चिंतन को पाठ्यक्रम में एकीकृत करने के लिए व्यावहारिक उपकरण प्रदान करते हैं। अंत में, यह समालोचनात्मक चिंतन के मूल्यांकन के लिए प्रभावी तरीकों पर चर्चा करती है, जिसमें रूब्रिक्स का उपयोग और मूल्यांकन के महत्व पर जोर दिया गया है जो उच्च-स्तरीय सोच को प्रोत्साहित करते हैं। यह रिपोर्ट शैक्षणिक पेशवरों, पाठ्यक्रम डेवलपर्स और शिक्षकों के लिए एक व्यापक, साक्ष्य-आधारित मार्गदर्शिका के रूप में कार्य करती है, जिसका उद्देश्य किशोरों में अनुसंधान-आधारित शिक्षा के माध्यम से इस महत्वपूर्ण कौशल को बढ़ावा देना है।

ETRD25361

ACCELERATING ENVIRONMENTAL INNOVATION: THE ROLE OF RESEARCH IN COMBATING CLIMATE CHANGE

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Abstract

The growing threat of climate change demands urgent and innovative responses from the global research community. As environmental challenges intensify, there is an increasing emphasis on research and development (R&D) to deliver practical and sustainable solutions. This paper investigates the latest advancements and trends in climate-focused R&D, concentrating on areas such as clean energy systems, carbon reduction technologies, sustainable agricultural practices, and resource-efficient economic models. It also explores the supportive role of policy frameworks, green finance, and interdisciplinary collaboration in advancing environmental innovation. By analysing recent initiatives and success stories across sectors and regions, the study highlights existing limitations and provides forward-looking strategies to enhance the effectiveness of climate-related research. Ultimately, the paper advocates for a more integrated and proactive approach to innovation, essential for tackling the climate crisis and building a more resilient, sustainable future.

Keywords: Climate Change, Environment, Sustainability, Innovations, Clean Energy, Future.

BARRIERS AND DRIVERS OF CROSS-BORDER E-COMMERCE: INSIGHTS FROM AN INTERNATIONAL SURVEY

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Abstract

Cross-border e-commerce has surged worldwide, creating new opportunities for consumers and businesses to buy and sell beyond domestic borders. This study investigates two key hypotheses: (H1) that consumer trust in payment systems and data security is a primary driver of cross-border online shopping adoption, and (H2) that regulatory complexity significantly deters businesses from participating in cross-border e-commerce. Lacking proprietary survey data, we synthesize evidence from international surveys, academic literature, and industry reports spanning multiple regions. The findings support both hypotheses. Consumers' willingness to shop abroad is strongly influenced by trust factors – secure payment options and data protection – alongside traditional drivers like price and product availability. At the same time, small and large businesses face substantial barriers in navigating foreign regulations, customs procedures, and compliance costs, which often discourage or complicate cross-border expansion. A comprehensive literature review highlights how trust and risk perceptions affect consumer behavior, while empirical data from global surveys underscore persistent regulatory pain points for firms. We present charts and case studies illustrating these patterns, including regional comparisons. The discussion offers insight into how building consumer trust (through secure payment solutions, transparency, and guarantees) and simplifying regulatory frameworks (through international cooperation and digital facilitation) can unlock the full potential of cross-border e-commerce. We conclude with recommendations for stakeholders – e-commerce platforms, businesses, and policymakers – to enhance trust and streamline regulations, thereby fostering more inclusive and robust growth in global digital trade.

Keywords: E-Commerce, Payment Systems, Cross-Border.

ETRD25365; ETRD25369

ROLE OF INFLUENCER MARKETING STRATEGY – A STUDY ON RURAL STARTUP ENTERPRISES OF SHIVAMOGGA DISTRICT

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Abstract

Recently, influencer marketing has emerged as a transformative strategy in the digital marketing landscape, offering businesses a direct and engaging way to connect with their target audiences. Traditional marketing methods have dominated rural markets for decades, the rise of social media penetration and local digital influencers have presented fresh opportunities for startups in remote areas to build brand awareness, drive customer engagement, and enhance credibility. The major objective of the study is to understand the significance of influencer marketing strategy on rural start up enterprises and also to explore their challenges and opportunities while implementing influencer marketing strategies. The study employs descriptive statistical tools such as simple percentages and one-sample T-tests to test the set hypotheses. The study selected 61 respondents from Shivamogga district and employed a questionnaire as its instrument. The findings suggest that influencer marketing, when aligned with local culture, language and community values significantly contributes to customer trust and business growth in rural regions. The study concludes that localised influencer marketing has strategic potential as a cost-effective and impactful tool for rural entrepreneurship development.

Keywords: Digital Marketing, Influencer Marketing, Rural Market, Rural Start-up Enterprises.

THE LANDSCAPE OF MSME FINANCE IN INDIA: A STUDY OF FUNDING SOURCES AND EXISTING BARRIERS

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Abstract

Access to finance for Micro, Small and Medium Enterprises (MSMEs) continues to be an obstacle in India, impacting their growth and sustainability. This study examines the landscape of MSME financing, focusing on the various funding sources available and the key barriers entrepreneurs face at different stages of their business life cycle. The findings reveal that MSMEs predominantly rely on informal sources, such as personal and family wealth, rather than formal institutions like banks. The major obstacles to accessing formal finance include inadequate collateral and limited financial literacy among entrepreneurs. The study aims to fill a gap in existing literature by analysing the financial needs of MSMEs at various stages of their life cycle, specifically investigating the sources of finance utilized and the challenges encountered in accessing these funds.

Keywords: MSMEs, Existing Barriers, Funding Sources.

ETRD25370; ETRD25373

ANALYZING THE ROLE OF JOINT FOREST MANAGEMENT IN MANGROVE CONSERVATION AND SUSTAINABLE DEVELOPMENT IN INDIA

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Abstract

Joint Forest Management is a collaborative approach between local communities and government agencies for the sustainable management and conservation of forest resources. This study examines the significant role of Joint Forest Management in promoting mangrove conservation and sustainable development in India. It relies solely on secondary data sourced from various official reports and publications etc. According to data, India's mangrove cover increased from 4,244 sq km in 1991 to 4,992 sq km in 2023, demonstrating the positive impact of Joint Forest Management and community participation in conservation efforts. The steady growth in mangrove cover highlights the success of community-driven forest conservation in safeguarding coastal ecosystems. By involving local communities in afforestation, mangrove protection, and sustainable use of forest resources, Joint Forest Management fosters a strong sense of responsibility and ownership. Revenue-sharing mechanisms, promotion of alternative livelihoods, and active involvement of women's groups have further strengthened both ecological preservation and socio-economic development.

In conclusion, Joint Forest Management has emerged as an effective model for conserving India's mangrove ecosystems. Through meaningful community engagement and shared responsibility, Joint Forest Management contributes to environmental sustainability while supporting the well-being and livelihoods of people living in coastal regions.

Keywords: India, Joint Forest Management, Mangrove, Sustainable Development.

ETRD25371; ETRD25372

AN EXPLORATION OF ANCHORING EFFECT AMONG YOUNG CONSUMERS FOR NEUROMARKETING STRATEGY TESTING

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Abstract

Technology innovation has led to applications in interdisciplinary fields of study. Neuromarketing is such a field of study that combines marketing with neuroscience, termed as consumer neuroscience. The objective is to test a strategy derived from neuromarketing research, i.e. Anchoring effect. Tested the influence of anchoring among young consumers in three variables - price anchoring, value anchoring effect and brand anchoring. The study is an attempt to understand neuromarketing awareness among young consumers. Results show very little awareness among young consumers about neuromarketing, its tools and strategies and the anchoring effect is only influenced by some factors of purchase behavior. To understand consumers' responses at both the conscious and unconscious levels, neuromarketing tools and techniques are more effective. If the awareness level increases about neuromarketing among consumers, it may contribute towards insightful information on consumers' perception, behavior and decision-making using neuromarketing research. New entrepreneurs, before launching the products or creating advertisements, can use this neuromarketing technology to get valuable data about consumer preferences, perceptions and behavior.

Keywords: Anchoring Effect, Consumer Awareness, Neuromarketing, Young Consumers.

MEDICAL IMAGE SEGMENTATION USING NATURE-INSPIRED ALGORITHMS: A REVIEW

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Abstract

Medical image segmentation is critical for precise disease diagnosis, treatment planning, and monitoring, especially in MRI, CT, and ultrasound imaging. The traditional segmentation methods, such as thresholding, edge detection, and region evolving, to deal with complex images is often limited by the need for high accuracy, anatomical variability, and noise.

Genetic Algorithms (GA), Particle Swarm Optimization (PSO), Ant Colony Optimization (ACO), and Artificial Bee Colony (ABC) are a few such nature-inspired algorithms (NIAs) which have received significant attention for their capacity to effectively optimize segmentation tasks. These algorithms offer solutions to these challenges. The goal of this review is to examine the applications, strengths, limitations, and possibilities of NIAs in the segmentation of medical images. It analyses the algorithms' efficiency in improving segmentation accuracy and examines their contributions across a number of medical imaging fields.

This paper measures the effectiveness of GA, PSO, ACO, and ABC, and it describes the optimization strategies for segmentation roles. It centers on the ability to efficiently handle noise, improve computational efficiency, and attain high precision in complex medical images.

Results: The results suggest that NIAs have improved the segmentation of complex regions, such as tumours, blood vessels, and organs, particularly in MRI, CT, and retinal images. The algorithms persist to encounter challenges in terms of cost of computation and scalability.

NIAs demonstrate promising solutions for medical image segmentation; still further analysis is required. A potential approach for real-time medical devices is the combination of deep learning techniques with NIAs in hybrid models. The primary goal of future research should be to improve the scalability and efficiency of these algorithms across a variety of imaging techniques.

Keywords: Medical Image Segmentation, Artificial Bee Colony, MRI.

ETRD25375; ETRD25376

A QUANTITATIVE STUDY ON WORKPLACE STRESS AND COPING MECHANISMS AMONG EMPLOYEES IN INDIAN START-UPS

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Abstract

Although start-ups are recognized for their innovation and fast-paced growth, they often expose employees to demanding workloads, unclear roles, and high-performance pressure. These challenges can contribute significantly to workplace stress, yet limited research has explored this phenomenon within start-up ecosystems in India. The present study aims to measure the level of workplace stress among employees working in Indian start-ups and to examine the coping strategies they adopt. Additionally, it will explore associations between stress levels and variables such as job role, work experience, gender, and working hours. A descriptive quantitative research design will be employed. Primary data will be collected from approximately 100–120 start-up employees using convenience sampling, via structured online questionnaires. The survey will incorporate the Perceived Stress Scale (PSS-10) developed by Cohen et al. (1983) to assess stress, and the Brief COPE Inventory by Carver (1997) to identify coping mechanisms. Statistical analysis, including descriptive statistics, Pearson's correlation, and ANOVA, will be conducted using SPSS. Based on prior research, it is expected that a majority of participants will report moderate to high stress levels, with workload, job uncertainty, and lack of work-life balance being prominent stressors. Employees employing problem-focused coping mechanisms are anticipated to report lower stress levels. This study aims to provide actionable insights for start-up founders and HR professionals to design healthier work environments and stress-reduction strategies.

Keywords: Start-Up Employees, Workplace Stress, Coping Strategies, Mental Health, India.

ETRD25377; ETRD25382

ROLE OF GREEN INNOVATION PRACTICES IN GREEN ENTREPRENEURSHIP WITH SPECIAL REFERENCE SHIVAMOGGA DISTRICT

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Abstract

The world is shifting toward green innovation practices to balance sustainable development for the future. Green innovation practices are eco-friendly practices involved in the production of a product, service, or process and business model beneficial to the environment in one way or another. Green entrepreneurial businesses are those that dedicate themselves to safeguard the environment while maintaining the enterprise's profitability. Green entrepreneurship is quite different from the ideal concept of green entrepreneurs/ecopreneurs. Green entrepreneurship refers to the activity of being financially sound while fulfilling environmental and social goals. The objective of the study is to understand the role of green innovation practices for sustainable business development in Shivamogga district. The study is descriptive in nature; for the analysis purpose, simple statistical tools like descriptive statistics, such as simple percentages, frequencies are used. To analyse the hypotheses, a one-sample T-test is used. We have selected a total of 32 respondents from the study area, using a questionnaire as survey instrument. Opinions were collected from existing businesses in different categories viz., sole proprietorship, limited liability partnership and limited corporation entrepreneurs. The study concludes that green innovation practices have strategic potential for business sustainable development.

Keywords: Green Innovation, Enterprises, Entrepreneurship, Sustainability.

ETRD25378; ETRD25379; ETRD25380

DIGITAL FINANCIAL INCLUSION: WOMEN'S INTENTION AND ADOPTION OF DIGITAL PAYMENT METHODS

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Abstract

Digital financial inclusion has emerged as a critical enabler of economic empowerment, particularly for women in developing and emerging economies. Women plan, allocate, meet expenditures and save the available funds for their family as per their current and future financial obligations. Women are considered the manager of household finances and responsible to manage resources for valued financial health and economic outcome. Women workforce participation is also higher in the present era based on women empowerment and becoming independent. According to the RBI's digital payments index in India, the growth of 13.24% has been registered in the usage of digital payments across the country in March, 2023. Also, a large number of women are currently using digital payments due to convenience that has positively impacted their mental and financial health to enjoy life. Hence, this study explores the factors influencing women's intention and adoption of using digital payment methods like UPI, online banking, mobile wallets etc. in an emerging market India. 300 women are surveyed for the purpose of this study through a self-structured questionnaire. In this study, TAM, TPB and TRA theories have been integrated to analyze how perceived convenience, perceived ease of use, perceived behavioral control, subjective norms and perceived security affect women's behavioral intention and adoption of digital payment methods. The collected responses are analyzed through Structural equation modeling (SEM). The findings of the study have established significant association of perceived convenience and perceived ease of use with behavioral intention to use digital payments.

Keywords: Digital Financial Inclusion, Digital Payment Methods, Women, Structural Equation Modelling (SEM), Behavioural Intention and Adoption.

ETRD25381

AURIE-NET: ADAPTIVE RETINEX-BASED FRAMEWORK FOR UNDERWATER IMAGE RESTORATION

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Abstract

Underwater image enhancement is a vital task in computer vision due to severe image degradation caused by wavelength-dependent light absorption and scattering in aquatic environments. This paper presents a novel enhancement framework, AURIE (Adaptive Underwater Retinex Image Enhancement), which integrates Retinex theory with adaptive color correction and frequency-based decomposition for robust underwater image restoration. The proposed method decomposes the input into low- and high-frequency components, enabling illumination correction in the HSI color space and detail refinement via edge-preserving filters. A customized RetinexNet is introduced to perform gamma-based illumination adjustment and feature-preserving reflectance enhancement using attention-guided refinement. The network is optimized using perceptual, structural, and color consistency losses. Extensive experiments on benchmark datasets (UIEB, EUVP) demonstrate superior performance in UCIQE, UIQM, PSNR, and SSIM compared to existing techniques. The architecture is also lightweight and computationally optimized, making it suitable for real-time deployment in autonomous underwater systems for applications in marine exploration and underwater robotics.

Keywords: Underwater Image Enhancement (UIE), Retinex Theory, HSI Colour Space, Image Decomposition, Illumination Correction, Retinexnet.

ETRD25383

ANALYSING GOA'S AGRICULTURAL FUTURE: A SECONDARY DATA PERSPECTIVE ON THE 2025 AMRITKAL POLICY

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Abstract

Historically, Goa's agriculture has been a key component of rural life. However, land fragmentation, urban expansion, water scarcity, a falling labour force, and most significantly, declining participation by women and youngsters, have caused the industry to stagnate significantly over the past few decades. The Goa State Amritkal Agriculture Policy 2025 was created in response to these enduring issues in order to revitalize the industry by encouraging inclusive development, sustainable practices, and technology integration.

by analysing long-term trends in Goa's agricultural indicators and determining how well the goals of the policy fit with current gaps in agricultural performance and regional inequities, this study seeks to examine the possible effects of the Amritkal Agriculture Policy 2025.

From 2010 to 2020, government documents and agriculture statistics were used in a thorough secondary data analysis. Indicators including net area sown, cropping patterns, and regional productivity were evaluated across North and South Goa using methods like descriptive statistics, correlation analysis, and trend evaluations.

The investigation found that there were still differences in cultivation intensity and land use efficiency, as well as a noticeable shift in agricultural activity from North to South Goa. These trends point to the necessity of focused interventions and planning that is region-specific.

Although the Amritkal Policy provides a strong foundation for reviving Goan agriculture, local farming communities' active involvement, improved institutional support, and customized regional strategies are essential to its effective execution.

Directorate of Planning, Statistics & Evaluation, Goa; Department of Agriculture Statistics, Government of Goa (2023).

Keywords: Amritkal Policy, Goa's Agricultural Indicators, Agriculture Statistics.

ETRD25384

THE ROLE OF WOMEN ENTREPRENEURSHIP IN SOCIO-ECONOMIC DEVELOPMENT OF TRIBAL COMMUNITIES

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Abstract

This study focuses on how women entrepreneurship is important for the progress of tribal communities. Using a systematic secondary data analysis method, the research has three key aims: first, to review the impact women's entrepreneurial ventures have on the socio-economic lives of tribal households and communities; second, to highlight the main problems and critical supports experienced by tribal women entrepreneurs described across various references; and third, to support the development of practical policies and suggest important future research topics. Drawing from multiple sources of literature, policy papers and different reports, this paper describes the present situation, celebrating the positive changes and looking at the strengths and weaknesses for women's economic advancement in tribal areas. This study makes it clear that extra support and community efforts are important to fully develop women entrepreneurship and benefit these communities.

Keywords: Women Entrepreneurship, Tribal Communities, Socio-Economic Development of Tribal Women's, Women Empowerment, and Tribal Women.

ETRD25386; ETRD25387

AN EVALUATION OF DIGITALIZATION CHALLENGES OF MSMES IN SHIVAMOGGA DISTRICT

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Abstract

Micro, Small and Medium Enterprises (MSMEs) are the greater source for economy. Despite of facing many hurdles in their entrepreneurial journey, entrepreneurial transition towards fully integrated digital workflows is essential for sustaining competitiveness in today's global economy. The study is aimed to address and evaluate the challenges faced in digitalization of Micro, Small and Medium enterprises. Against this backdrop, the present research is carried out with a simple random sample size of 50 MSMEs, considering manufacturing and service sector units in Shivamogga district, Karnataka. The collected data was analysed and the hypotheses was tested using one sample T-test. The study's findings indicate the challenges faced by MSMEs in the region through the digitalization process. Also, it suggests few measures for effective digitalisation of the same in the study area.

Keywords: Challenges, Digital Transformation, Digitalization, MSMEs.

ETRD25389

TEMPERATURE AND ELECTRON CONTENT CORRELATIONS IN THE IONOSPHERE DURING SOLAR FLARE EVENTS

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Abstract

This study investigates the interrelationships between Ion Temperature (T_i), Electron Temperature (T_e), and Total Electron Content (TEC) during C-class, M-class, and X-class solar flare events, employing Spearman, Kendall, and Pearson correlation methods. The analysis reveals consistent positive correlations across all flare intensities, with T_i -TEC exhibiting the strongest monotonic relationships (Spearman: 0.67 for C-class, 0.64 for M-class) and T_e -TEC showing stronger linear correlations in M-class (Pearson: 0.57) and C-class (Pearson: 0.61) events. In X-class flares, T_i and T_e display near-perfect rank correlations (Spearman and Kendall: 1.0), with T_i -TEC showing a stronger linear correlation (Pearson: 0.71) than T_e -TEC (Pearson: 0.52). These findings highlight complex, nonlinear ionospheric responses to solar flares, with ion temperature playing a significant role in electron density variations. The results underscore the importance of multi-method correlation analyses for understanding ionospheric dynamics and enhancing space weather forecasting models, particularly for mitigating impacts on telecommunications and navigation systems.

Keywords: *Ionosphere, Solar Flares (SF), Correlation Analysis, Ion Temperature (T_i), Electron Temperature (T_e), Total Electron Content (TEC).*

ETRD25391

CONSUMER TRIBALISM: A HYBRID SYSTEMATIC LITERATURE REVIEW AND FUTURE DIRECTIONS

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Abstract

Tribalism unites consumers based on their similar interests, shared values, and benefits of self-expression. Tribalism plays an important role in achieving brand outcomes based on the unique consumption patterns of consumers. Consumers with pro-environmental and social consumption values show tribalism among them to boost the production and promotion of sustainable products. Tribalism has gained a good amount of attention in the literature, yet the literature is scattered and fragmented. The present research aims to synthesise the literature available on tribalism and consumer behaviour. The study reviewed 323 papers published between 1951 and 2025 to present bibliometric trends, thematic analysis, content analysis, and future research agenda. The study used software like R Studio, biblioshiny, and Vos viewer to present its bibliometric findings. The thematic analysis uncovered five themes: tribal consumption behaviour, brand outcomes, marketing strategies, consumer-based entrepreneurship, and virtual tribalism. The content analysis based on the TCCM framework presented key theories, contextual elements, characteristics, variables, and methodology used in the literature. The study also presented future research directions based on TCCM factors to build a foundational brick for future researchers.

Keywords: Tribalism, Consumer Behaviour, Hybrid review, TCCM.

IMPACT OF DIGITAL TRADE AND FOREIGN DIRECT INVESTMENT ON THE ECONOMIC GROWTH OF BRICS+ NATIONS

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Abstract

This article aims to investigate the moderating role of digital trade (DT) on the association among foreign direct investment (FDI) and economic growth in BRICS+ nations over the period 1996 to 2022. For empirical analysis, this research employed a Panel quantile regression (PQR) approach, and for robustness, the Two-stage least squares (2SLS) model is incorporated.

The findings depict that the direct influence of both FDI and DT substantially and favourably enhances economic growth in BRICS+ nations. Together, they stimulate innovation, enhance infrastructure, and foster equitable and sustainable economic development, making them essential foundations of long-term prosperity. However, the moderating influence of DT on the association among FDI and economic growth is found to be insignificant at all quantiles (except the 25th and 50th). The analysis of the literature uncovers a substantial knowledge vacuum about the moderating effect of digital trade on measuring the influence of FDI on economic growth. This significant gap offers a crucial field for exploration, considering the significance of these elements in determining the sustainable economic growth of BRICS+ Nations. The study recommended that policymakers should lower trade barriers, reduce tariff rates, and form investor-friendly policies to attract FDI and promote DT by fostering digital literacy and investment in digital infrastructure for the economic advancement of BRICS+ nations.

Keywords: Foreign Direct Investment, Digital Trade, Economic Growth, BRICS+ nations, Panel Quantile Regression.

ETRD25393

AGRICULTURE AS THE BACKBONE OF INDIA: A GANDHIAN PHILOSOPHICAL PERSPECTIVE

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Abstract

Agriculture remains India's economic backbone, cultural identity, and social fabric, providing livelihoods for all but half the population, food security, rural livelihood, and ecological balance. Mahatma Gandhi's idea of Gram Swaraj (village self-management) located agriculture at India's moral and material heart of freedom and development. Gandhi advocated ecologically balanced small-scale cultivation, dignity of labour, and strong village communities—values foresightful of modern agroecology and sustainable development paradigms. This paper re-examines Gandhi's agrarian ideas, outlining its values and moral imperatives. It critically reflects upon contemporary Indian agriculture problems: degradation of soil health, water shortages, market volatility, farmer indebtedness, and environmental degradation. In contrast, we outline "Reclaim Gandhian Agriculture" strategies through revitalized village economies, large-scale adoption of agroecology, empowered cooperatives, and value-oriented education (Nai Talim). Case studies demonstrate how Gandhian values may be implemented, from Sikkim's organic revolution to Andhra Pradesh's Zero Budget Natural Farming. A mix of Gandhi's moral vision and contemporary policy tools provides a transformational model for India's twenty-first-century sustainable, inclusive, and resilient agriculture.

Keywords: Gram Swaraj, Natural Farming, Agroecology, Zero Budget Natural Farming, Nai Talim, Bread Labour, Ecological Balance.

ETRD25395

THE DOUBLE-EDGED SWORD: IMPACT OF AI AND AUTOMATION ON EMPLOYMENT AND PRODUCTIVITY

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Abstract

Artificial Intelligence (AI) and automation are revolutionizing modern economies, offering immense potential to boost productivity while simultaneously raising concerns about employment displacement. This study investigates the paradoxical nature of these technologies—their ability to drive economic efficiency and innovation, alongside their disruptive impact on traditional labour markets. The primary objective is to assess the dual influence of AI and automation on productivity enhancement and employment trends across key sectors such as manufacturing, services, and information technology. A mixed-methods approach is employed, combining global datasets from the International Labour Organization (ILO), World Bank, and OECD with industry case studies and expert interviews. Quantitative analysis evaluates productivity growth, labour force participation, and job displacement trends, while qualitative insights highlight policy responses and workforce adaptation strategies.

Results reveal that AI and automation significantly increase output and efficiency, particularly in high-tech and capital-intensive sectors. However, they also lead to structural shifts in employment, with low-skilled and repetitive jobs declining and demand rising for high-skilled, tech-savvy roles. The findings underscore the importance of proactive reskilling, education reform, and adaptive labour policies to mitigate adverse employment impacts. In conclusion, AI and automation represent a double-edged sword—capable of driving growth but requiring thoughtful governance to ensure inclusive and sustainable development.

Keywords: Artificial Intelligence, Automation, Productivity, Employment, Economic Transformation

ETRD25396

ZERO-WASTE CHEMISTRY: A GREENER FUTURE THROUGH SMARTER REACTIONS

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Abstract

In modern chemical science, zero waste chemistry has emerged as an essential concept which aims at minimizing waste in chemical production and usage. It is a forward-looking approach that aligns modern chemical processes with sustainability goals by eliminating the generation of waste at every stage of production. Rooted in the principles of Green Chemistry, zero-waste chemistry seeks to redesign chemical processes where all materials are converted into useful products thereby minimizing environmental impact.

The foundation of zero-waste chemistry lies in strategies such as atom economy, use of renewable feed stocks, real-time monitoring to prevent waste, solvent recycling, and catalytic processes. Advanced techniques like flow chemistry, microwave-assisted synthesis, and solvent-free reactions have made significant contributions toward achieving near-zero waste in laboratories and various industries such as pharmaceuticals, agrochemicals, and polymers industry which help in reducing energy consumption, improving yields, and cut down toxic emissions. For instance, using biomass as a raw material instead of petroleum derivatives can produce valuable chemicals while utilizing agricultural waste. In addition, designing biodegradable products that can re-enter the biological cycle ensures a sustainable materials lifecycle. Industries are also adopting innovative techniques such as continuous-flow reactors, recyclable catalysts, and green solvents like supercritical CO₂ and ionic liquids. These advancements reduce hazardous byproducts, energy usage, and raw material costs while enhancing product purity. For instance, pharmaceutical companies are increasingly using zero-waste protocols to avoid multi step reactions that traditionally generate large volumes of chemical waste. Despite its promise challenges like high costs, technological limitations, and lack of infrastructure hinder full-scale adoption. However, continuous innovation, supportive policy frameworks and public awareness are paving the way for its integration across sectors.

Keywords: Zero-Waste Chemistry, Chemical Waste, Smarter Reactions.

ETRD25397; ETRD25398

EFFECT OF SOLAR FLARES ON IONOSPHERIC TEC AT JAIPUR, DURING SOLAR MAXIMUM PERIOD

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Abstract

A solar flare is a sudden release of energy usually near a complex group of sunspots. The interaction of solar flare radiations with constituents of ionosphere produces immediate increase in the electron density in the ionosphere. The present paper describes the effect of solar flare on ionospheric total electron contents (TEC) using International Reference Ionosphere (IRI) data recorded at Jaipur, during solar maximum period. In this study, total two solar flares have been selected to study the effect of solar flares on ionosphere during the year 2012 on solar cycle 24, which is a solar maximum period. The enhancements on ionospheric TEC have been observed during the period of solar flares. The maximum enhancement of TEC during solar flare compared to quiet mean TEC up to 12-16 TEC units have been observed. A significant enhancement in TEC is observed at regions around the EIA crest region during the flare in association with: (a) the flare related EUV flux enhancement and consequent increased production of ionization, and (b) changes in the equatorial electrodynamics. The magnitude of enhancement in ionospheric TEC appears to be dependent on the class of the solar flare.

Keywords: *Ionosphere, Solar Flares (SF), Correlation Analysis, Ion Temperature (T_i), Electron Temperature (T_e), Total Electron Content (TEC).*

ETRD25399

ATMANIRBHAR BHARAT AND THE INDIAN KNOWLEDGE SYSTEM: A SYNERGISTIC APPROACH TO SELF-RELIANCE

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Abstract

Atmanirbhar Bharat or Self-Reliant India is one of the pillars of India that is being developed in the twenty-first century. Coming from the vision of Prime Minister Narendra Modi, Atmanirbhar Bharat aims at propelling the natural resources, skills, and knowledge systems of India in making the country self-sufficient and world-competitive. The paper tries to unveil the link between Atmanirbhar Bharat and IKS, showing how the integration and revival of ancient knowledge systems could aid in India's claim to independence. The paper comprehensively views the background of IKS, applicability as it is now, and the possibility of solving modern problems in areas such as technology, education, healthcare, and agriculture.

Given this, the paper examines specific case studies and constructs a policy framework, as it is argued that a synergistic strategy of harmonizing traditional knowledge with modern innovation must be adopted for successful Atmanirbhar Bharat.

Keywords: Indian Knowledge System, Atmanirbhar Bharat, innovation, self-sufficiency, traditional knowledge, sustainable development.

ETRD25400

SYMMETRY ANALYSIS OF MAGNETOHYDRODYNAMIC (MHD) EQUATIONS: EXPLORING INVARIANT STRUCTURES IN CONDUCTING FLUID SYSTEMS

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Abstract

Magnetohydrodynamic (MHD) equations describe how electrically conducting fluids behave when magnetic fields are present, playing a important role in understanding phenomena across astrophysics, geophysics, and fusion energy. This study explores how Lie symmetry analysis can be applied to MHD equations, with the goal of revealing hidden symmetries and making these complex, nonlinear systems easier to analyze. By finding continuous symmetry groups and their invariants, we can derive similarity solutions and simplify the equations considerably. Our approach considers both classical and nonclassical symmetries, clarifying the internal structure and dynamics of MHD flows under different physical conditions. To demonstrate the practical impact of this method, we include selected case studies and examples showing how symmetry techniques can simplify MHD problem-solving and improve analytical understanding. Overall, this work supports the expanding use of geometric and algebraic methods to deepen our theoretical and practical grasp of MHD phenomena.

Keywords: Magnetohydrodynamics, Lie symmetries, Symmetry analysis, Invariant solutions, Conducting fluids, Nonlinear PDEs

ETRD25401

MICROPLASTICS IN SOIL: UNSEEN CONTAMINANTS THREATENING TERRESTRIAL ECOSYSTEMS AND FOOD SECURITY

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Abstract

The growing presence of microplastics in terrestrial environments has emerged as a critical yet under-researched environmental concern. While the impacts of microplastics in marine ecosystems are well documented, recent studies indicate that soil—particularly in agricultural and peri-urban regions—is rapidly becoming a major sink for plastic debris. This paper investigates the origins, dispersion mechanisms, and ecological consequences of microplastic contamination in soil systems.

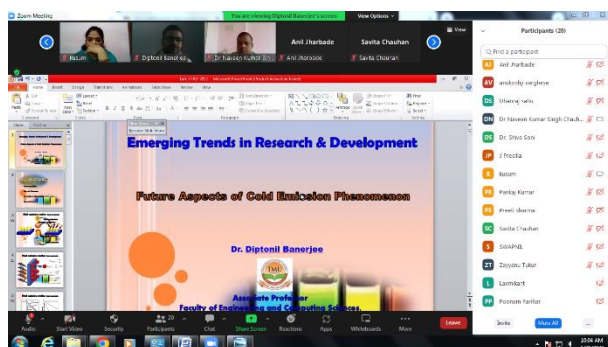
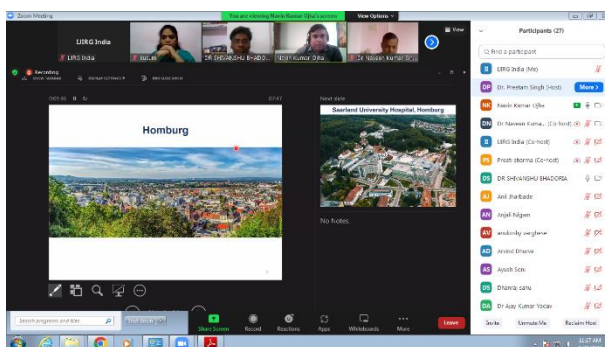
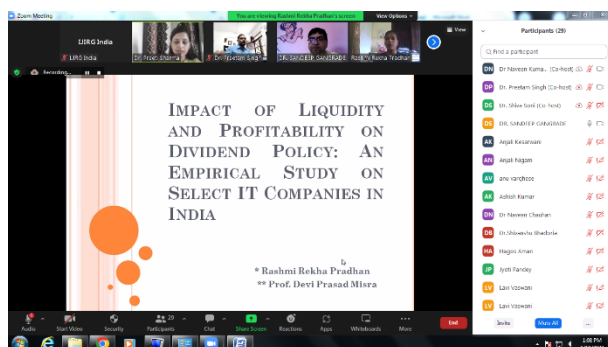
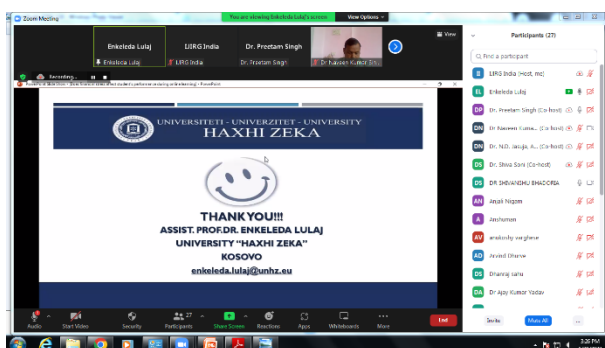
Drawing upon current scientific literature, case studies, and experimental findings, this research explores how microplastics affect key soil properties including porosity, microbial activity, nutrient retention, and plant development. The study also highlights the role of agricultural practices such as plastic mulching, wastewater irrigation, and the use of sewage sludge as fertilizers in intensifying microplastic accumulation in soils.

The potential for microplastics to enter the food chain through crop uptake or soil fauna is also examined, raising concerns about long-term risks to food safety and public health. The paper further discusses the limitations of current monitoring methods and emphasizes the need for robust policy interventions, public awareness, and sustainable material alternatives.

This research aims to inform environmental scientists, policymakers, and agricultural stakeholders about the urgent need to address microplastic pollution at the soil level—an invisible but growing threat to ecosystem sustainability and food security.

Keywords: Soil pollution, Microplastics, Agricultural sustainability, Ecosystem disruption, Food safety, Environmental governance

Glimpses of 1st Global Conference ETRD - 2022



Glimpses of 2nd Global Conference ETRD - 2023

Initial Value Problem

Consider a fractional-order differential equation

$${}^C D_t^\alpha y(x) = f(x, y(x)), \quad (44)$$

where $0 < \alpha \leq 1$, $y(0) = y_0$.
Using the two basic properties¹⁴ for $n-1 < \alpha \leq n$ and $f \in L_1[a, b]$,

$$({}^C D_t^\alpha D_t^\alpha f)(x) = f(x) \quad (45)$$

¹⁴Kumar, S., Ahmadian, A., Kumar, R., Kumar, D., Singh, J., Balamani, D. and Salimi, M. (2020). An efficient numerical method for fractional SIR epidemic model of infectious disease by using Bernstein wavelets. *Mathematics*, 8(4) 558.

1. Citrus limon (lemon)
2. Azadirachata indica (neem)
3. Ocimum sanctum (tulsi)
4. Zingiber officinale (ginger).

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