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**INTERNATIONAL CONFERENCE  
ON  
MANAGEMENT, ENGINEERING, SCIENCES, AND  
HUMANITIES 2026  
(MESH - 2026)**

**23<sup>rd</sup> – 28<sup>th</sup> February 2026**

**Organized by**



**At**

**The Pan Pacific Hanoi  
Hanoi, Vietnam**

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**Asso. Prof. Madan Singh, Christ (Deemed to be  
University) NCR, Uttar Pradesh, India**

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**Humanities and Education**

**Management and Business Administration**

## **SPEAKERS**



**Dr. Dimitrios M. Mihail**

**Professor**

**Business Administration Department, University of Macedonia, Greece**

**Talk Title: Guidelines for Professional Presentations**



**Dr. Rakesh Kumar Sharma**

**Associate Professor**

**Department of Humanities & Social Sciences, Thapar Institute of Engineering & Technology (Deemed to be University), Patiala, India**

**Talk Title: Artificial Intelligence in Financial Decision-Making**



**ABSTRACTS OF PAPERS OFFERED TO THE  
CONFERENCE MESH – 2026**



## **Message from Organising Secretary**

**On behalf of the Organising Committee, it is my great pleasure to extend a warm and cordial welcome to all of you to the International Conference on Management, Engineering, Sciences and Humanities 2026 (MESH-2026). The conference brings together a rich spectrum of interdisciplinary themes encompassing Engineering & Technologies, Sciences & General Studies, Humanities & Education, and Management & Business Administration. The Organising Committee has been working diligently, and all arrangements are well underway to ensure that MESH-2026 is a resounding success. Distinguished keynote and plenary speakers will share their insights and perspectives across diverse domains, enriching the intellectual discourse of the conference. We are confident that the Conference Proceedings will serve as a valuable and comprehensive repository of contemporary knowledge and professional experience, benefiting academicians, researchers, engineers, and practitioners alike. The success of this conference is the result of the collective efforts of numerous individuals who have contributed tirelessly to the planning and organization of the technical program. The Organising Committee has left no stone unturned to ensure that MESH-2026 becomes a memorable occasion, one that combines scientific excellence with warm hospitality and cultural enrichment.**

**We cordially invite academicians, researchers, industry professionals, and students working in the fields of Management, Engineering,**



**Sciences, and Humanities to participate in and contribute to this prestigious event, and to help make it a grand success. We look forward to welcoming you to Hanoi, Vietnam, in February 2026, for an engaging and rewarding conference experience.**

**Regards**

**Dr. Vishal Vasistha PhD**

**Organising Secretary**

**MESH - 2026**

**Laescuela Education**

**MESH\_2026\_002**

**INTEGRATING GREEN HUMAN RESOURCE  
MANAGEMENT AND EXPLAINABLE AI: A SUSTAINABLE  
APPROACH TO ETHICAL EMPLOYEE PERFORMANCE**

**Aarathi K. Krishna\***

**Postgraduate in Management, NMIMS, Trivandrum, India**

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**In the era of Industry 5.0, organizations face mounting pressure to balance technological advancement with environmental responsibility and ethical workforce management. This conceptual study explores the integration of Green Human Resource Management (GHRM) practices with Explainable Artificial Intelligence (XAI) to enhance employee performance while fostering sustainability and transparency. Drawing from the Resource-Based View (RBV) and Socio-Technical Systems Theory, the proposed framework highlights how eco-centric HR policies - such as green recruitment, environmental training, and sustainable performance appraisals - can be synergistically supported by AI-driven decision-making systems that prioritize explainability. By embedding XAI into HR analytics, organizations can mitigate risks of algorithmic bias, improve employee trust, and strengthen environmental and social governance (ESG) commitments. This study contributes to HRM literature by bridging two emerging domains - GHRM and XAI - offering a strategic model for sustainable, ethical, and data-driven employee management. The findings aim to guide both scholars and practitioners in reimagining HRM as a driver of sustainability and responsible AI adoption in workplaces.**

**Keywords: Green HRM, Explainable AI, Employee Performance, Sustainability, Ethical HRM**

**MESH\_2026\_003**

**GUIDELINES FOR DEVELOPING DIGITAL LEADERSHIP OF  
SCHOOL ADMINISTRATORS IN THE SICHON-KHANOM  
EDUCATIONAL NETWORK TOWARD BECOMING  
PROFESSIONAL ADMINISTRATORS**

**Wisarinee Wichaikun\*, Nantapong Mihelaeman, Jirasak Saekow  
Suratthani Rajabhat University, Thailand  
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**The objectives of this research were: (1) to examine the current and desirable states of digital leadership among school administrators in the Sichon-Khanom Educational Network under the Nakhon Si Thammarat Secondary Educational Service Area Office, (2) to develop guidelines for enhancing digital leadership of school administrators, and (3) to evaluate the developed guidelines for fostering digital leadership toward professional school administrators. This study employed Research and Development (R&D) with a mixed-methods approach. The sample consisted of 16 school administrators in the Sichon-Khanom Educational Network and 5 experts. The research instruments included questionnaires, interview forms, and guideline evaluation forms. Data were analyzed using descriptive statistics, including mean and standard deviation, as well as content analysis. The findings revealed that the current state of digital leadership among school administrators was at a moderate level, whereas the desirable state was at a high level. The developmental needs were identified across six domains: digital vision, digital competency, digital communication, digital leadership behavior, digital structural management, and digital culture. The developed guidelines were found to be highly appropriate and feasible. They can serve as a practical framework for enhancing digital leadership of school administrators in the digital era, thereby improving educational quality and strengthening sustainable professional school leadership.**

**Keywords: Digital Leadership, Development Guidelines, School Administrators, Professional Leadership**



**MESH\_2026\_004**

**CONSTRUCTING ART CONVERSATIONS IN A CLIL COURSE**

**Craig William Mertens\***

**Kwansei Gakuin University, Nishinomiya, Japan**

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**This presentation explores the language and structures used to help Japanese university EFL students express observations and opinions about Western art. The presentation begins with a brief overview of the presenter's past EFL courses that used art as content, highlighting both successes and failures. These reflections help explain the rationale behind the current course objectives. Next, the presenter will outline the course structure, including a scope and sequence of the curriculum, a sample lesson with materials and tasks, examples of student work, and feedback from both students and the teacher. Finally, the presentation will address challenges in adapting materials and tasks for students with varying English proficiency levels. It will also suggest strategies for modifying the course to better meet diverse learner needs.**

**Key words: Content, Dialogue, EFL/ESL, Language, Vocabulary**



**MESH\_2026\_005**

**KNOWLEDGE MANAGEMENT TO IMPROVE THE EFFICIENCY  
OF SCOUT ACTIVITIES AT BAN UTAPAO SCHOOL**

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**Suratthani Rajabhat University, Thailand**  
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**The objectives of this study were: (1) to investigate the current conditions and problems of scout activities at Ban Uthapao School, (2) to develop and implement a Knowledge Management (KM) process to enhance the effectiveness of scout activities, and (3) to evaluate the effectiveness of the developed KM process on the quality and efficiency of scout activities. This research employed Participatory Action Research (PAR) involving nine teachers as the target group and the school principal as the key informant. Data collection instruments included interviews, questionnaires, and observation forms. The findings revealed that the current practice of scout activities lacked a systematic KM framework. Applying the seven-step KM process enhanced scoutmasters' competencies, improved skills in designing and organizing activities, and strengthened the management system for scout activities. Consequently, the scout activities became more effective, aligning with the school's goals and stakeholders' expectations.**

**Keywords: Knowledge Management, Scout Activities, Participatory Action Research, Educational Administration**



**MESH\_2026\_006**

**HOW TO BE YOU IN YOUR MARKETING FOR BETTER  
REVENUE, WORK SMARTER, NOT HARDER: LEVERAGE AI  
FOR BUSINESS GROWTH**

**Kimberly Weitkamp\***

**Audience Converter LLC, United States**

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**In today's competitive business environment, entrepreneurs, coaches, and speakers face the dual challenge of standing out authentically while keeping pace with rapidly evolving technology. This workshop addresses both by demonstrating how authenticity and AI can be combined to create a sustainable marketing strategy. Participants will discover how to harness their unique voice as a powerful differentiator while integrating AI tools to streamline tasks, save time, and increase impact. Through interactive discussion and actionable frameworks, the session equips attendees with the skills to craft compelling messaging, simplify lead generation, and grow revenue without burnout. By balancing authenticity with automation, participants will leave with practical tools to work smarter, not harder, and scale their business with confidence.**

**MESH\_2026\_007**

**MODELING THE IMPACT OF WORKPLACE OSTRACISM ON  
EMPLOYEES' EXTRA-ROLE BEHAVIORS: AN EMPIRICAL  
APPROACH**

**Dimitrios Mihail<sup>1\*</sup>, Panagiotis Kloutsiniotis<sup>2</sup>, Flora Klarouda<sup>3</sup>**

**<sup>1,3</sup>University of Macedonia, Greece**

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**There is hidden performance cost of employee isolation. This empirical study investigates workplace ostracism's impact on employee's extra-role behaviors through the mediation of thriving at work and organization-based self-esteem. In this study the dependent variable of employees' extra-role behaviors is considered as "bundles" of proactive and creative behaviors. For the needs of the research, Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied to test the model hypotheses and the statistical analysis was based on a sample of 234 employees across 12 pharmaceutical companies in Greece. The research findings underlined workplace ostracism's significant and negative impact on employees' proactive and creative behaviours. There are important theoretical and practical implications for both scholars and HR practitioners, regarding the implementation of more nuanced and holistic interventions that lead to High Performance Work Systems (HPWS) without ostracism. Indeed, in such workplace environments, employees tend to thrive, develop high levels of organizational self-esteem, and thus, participate in behaviors outside of their in-role spectrum that, in turn, enhance corporate performance.**

**Keywords: Workplace Ostracism, Employee Extra-Role Behaviors, Greece**

# MESH\_2026\_008

## DEVELOPMENT OF A NEW LIGHTWEIGHT, ATTRACTIVE, AND EFFICIENT BIKE

**António B. Pereira<sup>1\*</sup>, Gabriel Constantinescu<sup>1</sup>, Syed Tahir Shah<sup>1</sup>, J. P. Santos<sup>1</sup>, J. M. Fernandes<sup>2</sup>, Mário Sousa Henriques<sup>3</sup>**

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**This work explores the design and development of an intelligent electric scooter that embodies innovation, sustainability, and digital integration. The main objective is to produce a mobility solution that not only addresses the growing demand for eco-friendly urban transportation but also redefines user experience through intelligent systems and sustainable design practices. The scooter's structural concept prioritizes the use of low environmental impact or recycled materials, promoting circular economy principles while maintaining mechanical strength and aesthetic appeal. The design process emphasizes a visually distinctive and ergonomic form, ensuring comfort, safety, and modern styling aligned with current mobility trends. The propulsion and braking systems will be fully electric and optimized for energy efficiency, integrating regenerative braking technologies to extend battery life and reduce waste energy. A key innovation of the project is the inclusion of an intelligent software platform - a mobile application that enables real-time monitoring and optimization of the scooter's performance, consumption, charging cycles, and maintenance needs. This digital interface will enhance user interaction, allowing personalized mobility management and contributing to the broader development of smart city ecosystems. By combining sustainable materials, advanced electric propulsion, and intelligent digital systems, the project represents a comprehensive approach to next-generation personal mobility. The outcome is a prototype that demonstrates technological innovation, environmental responsibility, and a new paradigm of connectivity and user-centered design in urban transportation.**



**MESH\_2026\_009**

**FINANCIAL RESILIENCE IN THE AGE OF AI: EMPOWERING  
WOMEN IN THE WORKFORCE**

**Josette Mandela\***

**Brindled Butterfly Investments Inc, United States**

**\*agent+josette.mandela@speakergigs365.com**

**In an era defined by automation and AI disruption, financial stability isn't just about income - it's about adaptability, strategy, and mindset. In this empowering session, Josette Mandela, a financial resilience expert and Amazon best-selling author, explores how women can thrive financially in a workforce transformed by technology. Attendees will discover practical tools to build financial confidence, future-proof their income, and overcome mindset blocks that limit economic potential. Whether navigating career shifts, entrepreneurship, or personal finance, this session offers actionable insights designed for women ready to take control of their financial destiny - no matter how the world changes around them.**

# MESH\_2026\_010

## NAVIGATING MOBILE COMMERCE: A CONTENT ANALYSIS OF COMMUNICATION, USABILITY, AND TRUST IN SHOPPING APPLICATIONS

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The rapid growth of mobile commerce has positioned shopping applications as central tools in consumer purchasing behavior, with over 90% of smartphone users in India installing at least one shopping app and mobile retail sales projected to surpass 6.8 trillion by 2025. This study evaluates 32 Google Play Store shopping applications using a structured quantitative content analysis to examine communication strategies, interface usability, trust, and engagement features. The coding instrument addresses six domains: app metadata, product presentation and promotional messaging, navigation and interface clarity, personalization and interactivity features, credibility/trust indicators, and user support/accessibility elements. Engagement and interface effectiveness are examined through the lens of the Uses and Gratifications Theory (UGT) and the Technology Acceptance Model (TAM), accounting for how digital affordances satisfy user needs for convenience, efficiency, and perceived ease of use. Credibility/trust is operationalised through observable items: developer verification, visible contact/support pathways, transparent privacy and permissions, product information clarity, and trust badges or endorsements. Usability and engagement are measured by navigation structure, visual clarity, personalisation features, notifications, and clear call-to-action elements. Supplementary metrics include app ratings, download counts, and review sentiment. Apps were purposively selected from top-performing shopping apps (balancing global and regional, free and paid titles), with access dates and sampling rules documented for reproducibility. Two trained coders conducted pilot testing on 20% of the sample, targeting intercoder reliability (Cohen's  $k > 0.70$ ). Descriptive statistics, cross-tabulations, and basic inferential tests (SPSS) were applied to test hypotheses. (H1) Apps with cohesive interface design, clear product presentation, and intuitive navigation will score higher on usability and engagement metrics. (H2) Apps with transparent product information, visible support pathways, and trust credentials will record higher credibility scores. The findings aim to inform app designers, marketers, and policymakers on creating user-centered, trustworthy, and engaging mobile shopping experiences, enhancing both digital consumer satisfaction and commerce efficiency.

**Keywords: Mobile Commerce, Shopping Applications, Content Analysis, User Interface (UI), Communication Features, Google Play Store, Uses and Gratifications Theory (UGT), Technology Acceptance Model (TAM), Mobile Retail Communication, User Engagement, App Design, Digital Consumer Behavior, Persuasive Communication**





**MESH\_2026\_011**

**GAMIFIED ENGAGEMENT: A CONTENT ANALYSIS OF  
COMMUNICATION AND PERSUASIVE STRATEGIES IN  
MOBILE GAMING APPS**

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**This research study conducts a content analysis of 32 popular mobile gaming apps, including casual titles like Candy Crush and Temple Run, to explore how communication and persuasive strategies are used to engage users. Guided by the Uses and Gratifications Theory (UGT), this study examines how specific in-game elements such as rewards, notifications, visual prompts, social sharing, and feedback mechanisms are employed to fulfil user needs such as entertainment, escapism, and achievement. The research is structured around two key hypotheses: (1) that games with a higher presence of persuasive design features correlate with increased user engagement (measured via downloads and ratings), and (2) that casual games prioritise gratification-driven communication strategies more than complex gaming genres. With mobile gaming apps constituting over 45% of global app downloads and projected revenues exceeding \$136 billion by 2025, the need to analyse how these games communicate with users is both timely and significant. The findings aim to provide insights for game developers, marketers, and communication scholars into how user attention is captured and sustained through specific design choices. This study not only contributes to digital media and communication research but also raises questions about user autonomy, addiction potential, and ethical design in the mobile gaming industry.**

**MESH\_2026\_012**

**DIGITAL RADIO APPS AS CONVERGENT MEDIA: A CONTENT ANALYSIS OF MOBILE RADIO PLATFORMS IN INDIA**

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**With the rapid expansion of digital communication ecosystems, mobile radio applications have transformed the traditional broadcast experience into an interactive, global, and personalized medium. The online radio audience is projected to exceed 8.2 billion global listeners by 2025, illustrating the rise of portable, on-demand audio consumption. In India, apps such as Gaana Radio, Pocket FM, Radio Garden, and Kuku FM have redefined user engagement through content personalization, podcast integration, and cultural localization. The present study draws on Uses and Gratifications Theory to explore how listeners actively seek entertainment, cultural connection, and informational fulfilment through these digital radio platforms. The need for this study arises from the limited comparative analysis of content diversity and interactive affordances within the Indian digital audio ecosystem, despite its growing influence on communication habits. The hypothesis posits that while personalization and entertainment dominate audience use, informational reliability and cultural depth remain inconsistent across platforms. The aim is to evaluate how digital radio applications bridge traditional broadcasting values with interactive digital affordances to serve diverse audience needs. This research employs a content analysis of 32 mobile radio applications available on Google Play Store, examining parameters, in terms of its content related to technology, station variety, user interface, integration of podcasts, offline accessibility, and cross-device compatibility. Findings illuminate how convergent mobile media enhance accessibility (65%), foster cultural exchange (56%), and reshape listener engagement (87%) in the modern communication era.**

**Keywords: Digital Radio Applications, Convergent Media, Content Analysis**

**MESH\_2026\_013**

**NAVIGATING GROCERY SHOPPING PREFERENCES: A  
COMPARATIVE ANALYSIS OF ONLINE APPLICATIONS AND  
TRADITIONAL STORES**

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**Digital technologies have rapidly reshaped consumer grocery purchasing, positioning mobile applications as key facilitators of convenience, efficiency, and engagement. This study examines consumer preferences between online grocery shopping through mobile apps and traditional in-store shopping, focusing on usability, trust, and satisfaction factors. Data were collected via a structured Google Form questionnaire from a diverse demographic sample to assess usage patterns, perceived convenience, pricing, product quality, delivery speed, and trustworthiness. The study draws on the Uses and Gratifications Theory (UGT) and Technology Acceptance Model (TAM) to interpret how app features satisfy user needs for efficiency, reliability, and ease of use. Trust is operationalized through secure transactions, transparency in product information, privacy measures, and accessible customer support. Usability and engagement indicators include navigation clarity, product categorization, search functionality, personalization features, and clear call-to-action controls. Findings suggest a generational and lifestyle divide: younger, urban consumers favor app-based shopping for time efficiency and accessibility, while other segments prefer traditional stores for product assurance and personal interaction. The study confirms that apps with intuitive navigation, clear product presentation, and trustworthy features enhance user satisfaction and engagement. These insights provide practical guidance for retailers, app developers, and policymakers to optimize mobile grocery experiences, build consumer trust, and enhance overall engagement in an increasingly competitive digital grocery market.**

**Keywords: Online Grocery Shopping, Traditional Grocery Shopping, Consumer Behavior, Grocery Apps, Usability, Trust, Digital Transformation, User Engagement**

# MESH\_2026\_014

## A CONTENT ANALYSIS OF MOBILE VIDEO-EDITING APPLICATIONS: EXAMINING USER ENGAGEMENT AND FEATURE DIVERSITY

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The goal of the current study is to perform a thorough content analysis of mobile applications related to video editing, with an emphasis on features, usability, user experience, and market trends. Since more than 30% of the world's 3.5 billion smartphone users regularly use video editing apps, it is imperative for app developers and marketers to comprehend user preferences and functionality. The study is based on the Uses and Gratifications Theory, which holds that people actively look for particular media to satisfy their needs for communication, creativity, and entertainment. Video editing apps have become indispensable tools for both professional and amateur creators due to the rise of content creation platforms like Instagram, YouTube, and TikTok. This study is necessary because there is a dearth of research on the systematic assessment of these applications in terms of feature richness, accessibility, and security. According to the study's hypothesis, "video editing applications with higher customization options and user-friendly interfaces are more likely to achieve greater user engagement and satisfaction." Using a mixed-method content analysis approach, 32 video editing apps from the Apple App Store and Google Play Store will be coded across predetermined variables like privacy settings, in-app purchases, export formats, and editing tools. Frequency distribution and correlation metrics will be used for statistical analysis of quantitative data, and user reviews and interface evaluations will yield qualitative insights. Finding trends in user preferences, feature gaps, and privacy issues is one of the anticipated results; this will enable developers to make practical suggestions. By providing a systematic framework for assessing video editing apps, improving user experience, and directing app development tactics, this study will advance both scholarly research and industry practice.



**MESH\_2026\_015**

**“KISKA BAJA” (KB) CAMPAIGN’S ROLE IN SHAPING  
XIAOMI’S CONSUMER PERCEPTION IN INDIA (2018-2021)**

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**This study analyses how the campaign transformed the brand identity from a cost-performance disruptor to a market leader. The analysis utilizes the Brand Equity framework (Awareness, Association, Loyalty, Esteem) and brand communication strategy models. To understand the long-term branding challenge of moving a successful mass-market identity toward premiumization, the KB campaign effectively converted Xiaomi's high market volume (30.3% in Q1 2018) into a cultural mnemonic, enhancing ubiquity and trust, but simultaneously creating a barrier to high-end migration. A case study approach leveraging secondary market data and creative strategy analysis of its multi-channel deployment (TV, Radio, OOH) was implemented. KB successfully linked the standardised ringtone to constant, unaided brand awareness and reframed the core brand association to "inescapable presence". However, this success is now an impediment, as the "nostalgia trap" limits current premium efforts amid a sharp market share decline to 7-8% (Q1 2025). KB was a tactical zenith for volume assertion, but its mass-market legacy necessitates rigorous brand separation (Redmi vs. Xiaomi) to achieve sustainable premium growth.**

**MESH\_2026\_016**

**DIGITAL STORYTELLING AND AUDIENCE ENGAGEMENT: A  
CONTENT ANALYSIS OF 32 BLOGGING APPLICATIONS FROM  
THE GOOGLE PLAY STORE**

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**This study aims to analyze the communication features of blogging applications and assess how they enhance user engagement and brand visibility in the digital era. Since their inception in the 1990s, blogs have evolved from personal diaries into strategic digital communication platforms that blend text, visuals, and interactive features to engage audiences. Today, blogging applications, especially on mobile platforms, enable seamless content creation, SEO optimization, and audience interaction, making them crucial for both personal expression and corporate communication. Drawing on Uses and Gratifications Theory, this study examines how blogging applications integrate multimedia features to fulfill user needs for information, self-expression, and social interaction. Blogging applications that integrate multimedia, SEO, and interactive features generate higher levels of audience engagement compared to text-dominant applications. A quantitative content analysis of 32 blogging applications from the Google Play Store was conducted. The apps were coded based on variables such as interactivity (comments, polls, live updates), multimedia integration (images, videos, infographics), SEO features, and usability. A coding manual was developed, and intercoder reliability was tested. Descriptive and inferential statistics were applied to identify trends in communication features and their potential influence on user engagement. The study demonstrates that blogging apps with advanced multimedia integration (xx%), SEO support (xx%), and interactive features (xx%) provide greater visibility. Findings highlight the growing role of blogs as participatory communication platforms and offer insights for developers, digital marketers, and communication scholars in understanding mobile-mediated blogging as a socio-digital practice.**

**Keywords: Blogging, Communication, Mobile Applications, Interactivity, Uses and Gratification**

**MESH\_2026\_017**

**TOUCH, CREATE, ENGAGE: A CONTENT ANALYSIS OF  
FEATURE RICHNESS AND USABILITY IN MOBILE GRAPHIC  
DESIGN APPLICATIONS**

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In order to comprehend the state of design functionality, usability, and visual affordances, this study intends to perform a content analysis of mobile graphic design applications. The objective is to map the distribution of features across top mobile design apps, including vector and raster drawing tools, layer management, color selection, brush customization, and UI layouts. The research is theoretically based on the aesthetic-usability effect, which suggests that users find more visually appealing interfaces to be more usable, and visual saliency theory (e.g., attention models in UI design). Using these frameworks, the study looks into the design elements of mobile graphics apps as well as how their presentation may affect user engagement and perceived usability. The market for mobile digital illustration apps is expected to reach a size of USD 10.62 billion in 2024 and grow at a compound annual growth rate (CAGR) of 9.08% by 2035, making this study imperative. Future of Market Research Despite this expansion, the design affordances and usability trade-offs across various apps have not been thoroughly coded by empirical research. We predict that: (1) Mobile graphics-design apps with more aesthetically pleasing feature sets (such as layering and brush customization) will have higher usability scores, and (2) Apps aimed at casual or non-professional users will have simpler, less complex user interfaces. The research methodology entails the following steps: (1) Selecting a sample of the top 20 mobile graphic-design apps based on popularity or rating; (2) Creating a codebook based on design categories derived from usability heuristics and saliency theory; and (3) Performing a content analysis to code the features of each app. A brief usability assessment through expert review will be added to quantitative measurements (such as feature count and saliency layout metrics). A typology of mobile design apps based on feature richness and interface style, insights into how real-world apps balance usability and aesthetic trade-offs, and design suggestions for developers that strike a balance between creativity and usability are among the anticipated results. These results can help educators, developers, and designers create mobile tools that are both user-friendly and empowering.

# MESH\_2026\_018

## AN ANALYTICAL STUDY OF THE 32 MOST USED E-BOOK APPLICATIONS AND THEIR ROLE IN TRANSFORMING DIGITAL READING PRACTICES

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The study aims to analyze the thirty-two most widely used e-book applications to understand their impact on reading habits, accessibility, and the evolving digital learning environment. The primary objectives are: (1) To identify the key features, usability factors, and technological strengths of the top 32 e-book apps (2) To examine user preferences and engagement patterns across different demographic groups (3) To evaluate how these apps contribute to digital literacy, accessibility, and knowledge consumption (4) To compare the apps based on format support, personalization tools, cloud integration, and reading analytics. It is hypothesized that e-book applications with multi-format support, strong ecosystem integration, and advanced personalization tools significantly enhance user adoption and reading engagement compared to basic or limited-function apps. The study is grounded in Technology Acceptance Model (TAM) and Media Richness Theory, which explain how perceived usefulness, ease of use, and content diversity influence user acceptance. Elements of Digital Literacy Theory are also applied to understand how these apps reshape reading practices and knowledge access. As digital reading becomes central to education, entertainment, and professional learning, understanding how leading e-book apps function is essential for educators, developers, and policymakers. This study is needed to assess which app features best support inclusive, efficient, and engaging digital reading experiences. The study recommends integrating stronger accessibility tools, multilingual support, AI-driven personalization, offline reading capabilities, and data privacy safeguards into e-book platforms. Developers should focus on inclusive design, while educators should incorporate versatile apps into digital learning environments. The analysis reveals that the most successful e-book apps provide seamless cross-device synchronization, flexible format compatibility (EPUB, PDF, MOBI), rich customization features, and intuitive user interfaces. These elements significantly enhance user satisfaction and engagement. The study concludes that the top 32 e-book apps play a pivotal role in democratizing reading, supporting digital literacy, and shaping the future of global knowledge consumption.

# MESH\_2026\_019

## FROM PAPER TRAILS TO DIGITAL TRANSPARENCY: REVOLUTIONIZATION OF RTI APPS OVER THE YEARS FOR THE PUBLIC

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Over time, the Government of India and Indian citizens have witnessed a significant transition from paper-based systems to digital technology, and from lesser-known facts hidden in files to information readily available at the touch of a screen. In the past, citizens were far removed from government leaders, with communication hindered by slow, bureaucratic channels. The arrival of digital tools, especially RTI (Right to Information) applications, has bridged this divide by allowing information to be disseminated promptly, transparently, and cost-effectively. It has empowered ordinary Indians with an effective instrument to assert their sovereignty questioning, requesting answers, and holding authorities accountable. The RTI Act, enacted by the Parliament in 2005, provided a legal framework for obtaining access to information under the control of public authorities. Through the evolving digital integration of this legislation into mobile platforms, panchayats, states, and the Centre have been compelled to release information more proactively, marking a new chapter in citizen-led transparency and accountability. RTI apps are now an integral medium, channeling the enthusiasm of public-spirited citizens into the arena of democratic governance. In the smartphone era, downloading and using mobile applications has become second nature not only for entertainment and services but also for participatory citizenship. RTI apps extend this convenience to governance, offering direct access to filing systems, departmental contacts, application forms, and real-time status updates. Citizens are assured of receiving credible and current information without navigating cumbersome physical channels. From an information perspective, these apps ensure that data is accurate, updated, and readily accessible. Looking at the educational perspective, they raise public awareness regarding transparency laws, civic rights, and democratic engagement by providing multilingual support, FAQs, case studies, and simplified guidelines. This empowers citizens to participate actively in governance and decision-making processes. Even the entertainment factor plays a role through interactive interfaces, gamified experiences, and immersive visuals that make the process more engaging and less intimidating, particularly for younger audiences. The shift from paper trails to digital transparency has not only modernized the RTI process but also strengthened the citizen-state relationship. By integrating technology with the aims of communication information, education, and entertainment, RTI applications have made public

**information more inclusive, participatory, and dynamic, thereby reinforcing the foundations of India's democracy.**



# MESH\_2026\_020

## A STUDY CENTERED ON EXPLORING UX AND DESIGN DRIVERS IN 32 INDIAN BEAUTY-COMMERCE APPS

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**This research study conducts a content analysis of 32 popular Indian beauty apps, including casual titles like Nykaa and Purplle, to explore how beauty-commerce mobile applications have proliferated, combining traditional e-commerce with virtual try-on, expert advice, and personalized recommendations. In India, Nykaa stands out as a leading beauty app with vast product catalogs, virtual-makeover tools, and chat-based advisor services. These apps increasingly rely on refined user experience (UX) and engaging design to differentiate themselves in a competitive digital beauty market. Guided by the Uses and Gratifications Theory (UGT), this study examines how specific in-app elements and user interfaces are employed to fulfil user needs. The research is structured around two key hypotheses: (1) Higher visual aesthetics (color, layout, imagery) positively affect perceived usability. (2) Media richness (e.g., AR/virtual try-on) strengthens user trust in product efficacy. The findings aim to examine and demonstrate the user-experience (UX) and design characteristics that drive user satisfaction, trust, and retention.**



**MESH\_2026\_021**

**DIGITAL DECEPTION: INVESTIGATING THE IMPACT OF  
MISINFORMATION AND DEEPAKES ON PUBLIC TRUST  
IN NEWS MEDIA**

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**Misinformation and AI-generated deepfakes in news are growing concerns for authenticity and credibility. This research examines the impacts of exposure to deceptive digital content on public trust in news media. The study, based on surveys, content analysis, and expert opinions, reveals that manipulated information significantly reduces confidence in traditional news sources and those found online. Greater media literacy, stronger verification systems, and platform accountability are critical. In all, the study provides a better understanding of how digital deception challenges news reliability in today's information environment.**



**MESH\_2026\_022**

**THE IMPACT OF POETRY APPS ON STUDENTS' CREATIVE  
EXPRESSION**

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The widespread adoption of poetry apps among students is transforming the landscape of creative writing and artistic self-expression. Popular platforms including Poetizer, Kavishala, Pankti, Writco, and All Poetry offer new opportunities for students to write, share, and engage with poetry in a digital environment. This study explores the effect of these applications on student creativity, participation, and confidence. With a mixed-methods research design, data was collected using quantitative surveys from 40 students. The operational parameters included app ratings, user feedback, accessibility, privacy features, interactive elements, and security standards. Self-Determination Theory and the Technology Acceptance Model informed the theoretical base, framing the study's focus on intrinsic motivation, ease of use, and perceived usefulness. SPSS statistical analysis revealed a mild positive correlation between frequency of app usage and creative writing output ( $p=0.320$ ), indicating that although students benefit from poetry apps, the relationship is not highly significant. Qualitative findings emphasized that privacy controls, feedback systems, and small supportive communities are valued most by students, fostering a safe space for vulnerability and experimentation. However, some students remain reserved about sharing personal work due to concerns around data privacy and cyberbullying. In summary, poetry apps encourage creative expression and engagement among students, albeit with moderate statistical significance. The findings suggest further enhancement of privacy features and user support could increase participation and creative output. These insights contribute to the understanding of digital platforms in shaping modern poetry practices and indicate promising directions for blending educational technology with creative arts pedagogy.

**MESH\_2026\_023**

**AWARENESS AND USE OF AI IN EDUCATION WITH  
REFERENCE TO MANAGEMENT EDUCATION**

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**Education is not the only sector where Artificial Intelligence (AI) has become a transformative force. AI tools are being increasingly used in management education to improve learning results, expedite administrative procedures, and provide individualized student experiences. With an emphasis on identifying potential and limitations for its successful application, this study examines the awareness and use of AI in education, particularly in management institutions. A systematic questionnaire was used to acquire statistics from 225 respondents. The results show that even as there's an affordable degree of awareness, the usage of AI tools continues to be relatively new and has a whole lot of room to develop. The findings also emphasize the crucial elements affecting AI adoption, such as perceived advantages, simplicity of use, and institutional support.**

**Keywords: Artificial Intelligence, Management Education, Awareness, Adoption, Educational Technology**

**MESH\_2026\_024**

**DETERMINANTS OF HOMEOWNERSHIP SATISFACTION IN  
URBAN INDIA: A COMPARATIVE EVALUATION ACROSS  
HOUSING TYPOLOGIES IN LUCKNOW**

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Housing satisfaction is a multidimensional concept shaped by physical, social, psychological, neighbourhood, and socio-demographic factors that collectively influence residents' perceptions of their living environment. The habitability of a dwelling depends not only on its engineering and physical attributes but also on behavioural, cultural, interpersonal, and community characteristics. This study examines homeownership satisfaction across three major housing categories-private builder-constructed, government-constructed, and self-constructed houses-in Lucknow, India. Using an analytical research design, primary data were collected from 450 homeowners through semi-structured interview schedules, complemented by secondary data from national housing reports, census documents, and sector publications. The study investigates differences in satisfaction based on the built environment, socio-psychological environment, and neighbourhood conditions, while also analysing demographic influences. Findings indicate that a majority of respondents report medium to low levels of satisfaction across psychological environment (63.55%), neighbourhood environment (66.0%), dwelling unit features (62.44%), support services (70.22%), public facilities (70.89%), and neighbourhood facilities (72.0%). Significant differences in satisfaction were observed across age groups, gender, type of construction agency, income groups, educational status, and period of stay. However, some variables, such as household occupation in specific domains, showed no significant association with satisfaction. The study highlights critical gaps in built and social environments that affect homeownership satisfaction and offers recommendations for improving residential design, neighbourhood planning, and support services. The findings may guide policymakers, urban planners, and housing agencies in developing more responsive and resident-centric housing environments.

**Keywords: Homeowner Satisfaction, Built Environment; Neighbourhood Facilities, Psychological Well-being, Urban housing, India, Residential Typologies**

## MESH\_2026\_025

### EFFECT OF PLEUROTUS OSTREATUS (JACQ. EX FR.) KUMM. EXTRACT ON ANTIOXIDANT ACTIVITY, DIGESTIVE ENZYME INHIBITION, AND INFLAMMATION ON LPS-INDUCED RAW 264.7 MACROPHAGE CELLS

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*Pleurotus ostreatus* (Jacq. ex Fr.) Kumm. is an edible mushroom valued for its nutritional and bioactive properties. This study investigated the antioxidants, digestive enzyme inhibitory and anti-inflammatory properties of an ethanolic extract of *P. ostreatus* (EPE). EPE demonstrated antioxidant activities with IC<sub>50</sub> values of 174.05 µg/mL (ABTS), 275.41 µg/mL (DPPH) and 147.22µg/mL (NO). It inhibited digestive enzymes, with IC<sub>50</sub> values of 6.33, 1.32 and 4.07 mg/mL for α-amylase, α-glucosidase, and pancreatic lipase, respectively. HPLC confirmed ergosterol presence. EPE was non-toxic to RAW 264.7 macrophage cells up to 2 mg/mL and suppressed LPS-induced NO production in a dose-dependent manner, achieving 96.29% at 2 mg/mL. It also significantly reduced pro-inflammatory cytokines TNF-α and IL-6 to 101.17 and 37.56 pg/mL, respectively. These results suggest that *P. ostreatus* has potential for the development of natural therapeutic agents targeting oxidative stress, metabolic disorders, and inflammation, and may be developed into functional foods or dietary supplements.

**Keywords:** *Pleurotus Ostreatus*, Mushrooms, Secondary Metabolites, Anti-Inflammation, RAW 264.7 Macrophage Cell, Ethanolic Extracts

**MESH\_2026\_026**

**THE EFFECT OF SOCIAL MEDIA REELS ON CULTURAL COMMUNICATION**

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**Recent reports highlight that India had over 462 million social media users by 2023, with short-form video platforms witnessing a 118% growth between 2020-2023. Instagram Reels alone accounts for over 40% of all video content consumed by Indian users aged 18-34. Despite this explosive growth, limited research has examined how such platforms influence intercultural communication and perceptions of traditional cultural practices. This gap underscores the need to explore the cultural implications of India's digital transformation. This study investigates how 60-second reels and short-form content shape intercultural dialogue and responses to traditional practices, such as northern Kerala's Theyyam ritual, by introducing them to national and global audiences. Grounded in intercultural communication theory and digital media studies, it hypothesizes that algorithmic amplification and viral micro-content foster cultural curiosity and hybridization but risk oversimplification and commodification of complex traditions. A mixed-method design integrates content analysis of 50 representative reels, digital ethnography of online discussions, interviews with 30 content creators and cultural practitioners, and surveys with 50 viewers using descriptive and inferential statistics for audience reception patterns. Preliminary findings indicate that the "reelification" of culture increases visibility and engagement with local traditions but reduces nuanced understanding, turning practices into consumable fragments. This study contributes to debates on cultural preservation, identity negotiation, and the digital public sphere in India's rapidly evolving media ecosystem.**

**Keywords: Cultural Communication, Cultural Preservation, Audiences Reception**

**MESH\_2026\_027**

**REPRESENTATIONS OF WOMEN IN TEXTILE FASHION  
ADVERTISEMENTS: A CONTENT ANALYSIS OF VISUAL AND  
INFORMATIONAL NARRATIVES**

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**The global textile and fashion industry is one of the largest contributors to media advertising, with women constituting nearly 70% of its target demographic. Despite this dominance, the portrayal of women in fashion advertising often reinforces traditional beauty ideals and consumerist narratives rather than empowerment and diversity. This study aims to analyze how women are represented in textile fashion advertisements in terms of visual imagery, informational content, and communicative strategies across digital and print media. The need for this research arises from the growing influence of fashion communication on gender identity and social perception, particularly in the post-digital era where advertisements function as cultural texts. Grounded in Stuart Hall's Encoding/Decoding Theory (1980) and the Framing Theory of communication, the study hypothesizes that textile fashion advertisements for women primarily encode idealized beauty and consumerist values rather than promoting inclusivity or authenticity. Using quantitative and qualitative content analysis, a purposive sample of 100 international fashion advertisements from 2020-2025 will be examined for variables such as model diversity, message framing, visual tone, and informational content. Statistical coding and thematic categorization will be applied to identify dominant trends. The content analysis study demonstrated that visual communication in textile advertising continues to privilege aesthetics (87%) over agency, influencing both consumer perception (67%) and gender (65%) discourse. The study holds implications for ethical fashion communication and inclusive branding strategies.**

**Keywords: Textile Fashion, Women, Advertising, Content Analysis, Communication Theory, Gender Representation, Media Framing**

**MESH\_2026\_028**

**INCOME INEQUALITY AND ITS STRUCTURAL IMPACT ON  
INDIA'S POLITICAL ECONOMY: A CONTEMPORARY  
ANALYSIS**

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**Income inequality in India has greatly increased over the last two decades, driven by sectorally uneven growth, unequal access to education and technology, and geographically concentrated economic opportunities. This paper provides a multidimensional examination of the rising income gap and undertakes an assessment of its implications for India's evolving political economy. The structural inequalities, through a political-economic analytical framework, are examined to see how they shape patterns of electoral behavior, welfare expectations, and state capacity to provide for inclusive development. The research identifies that persistent disparities-measured by Gini indices, consumption expenditure patterns, and wealth concentration data-heighten socio-political fragmentation and condition redistributive policy choices. The paper contends that widening inequality reshapes the contours of state-citizen relations by strengthening the case for targeted welfare programs, informing political mobilization, and deepening regional asymmetries in public investment. It examines the effects of income concentration among the top decile on labour market conditions, entrepreneurship systems, and the long-term sustainability of the growth trajectory. The findings contribute to contemporary debates on democracy, development, and the political economy of emerging economies, while emphasizing the imperative for equitable policy intervention in balancing economic efficiency with social justice.**

**Keywords: Income Inequality, Political Economy, India, Redistribution, Development, Democracy, Welfare Politics**

# MESH\_2026\_029

## A DEI BRIDGE TO SERVICE QUALITY IN HOMESTAY TOURISM: WHEN GUESTS EXPECT AUTONOMY AND RESPONSIBILITY FROM HOSTS

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Homestay tourism is hailed as an equitable enterprise and a major contributor to the Tourism SDGs (Sustainable Development Goals). However, social sustainability of a homestay is compromised when the visitors carry socially unacceptable marks. These marks are the identity markers such as being a female, LGBTQs, physically deformed, etc. Such visitors face the brunt of hosts in the form of inflated prices, denied entries, spatial restrictions, negative attitudes, host-guest distancing, etc., which leads to a lower service quality perception during service encounters. The research evidence has started growing in this direction, however, an inquiry into guests with tainted identities and their perceptions of hosts and homestays remain missing. It is happening in the face of DEI (Diversity, Equity, Inclusion) movement shaping industries and sectors all around the world. A homestay, if remains non-inclusive, it can cast a shadow on homestay tourism and impair the equitable nature of homestay enterprise. To address this gap, this research proposes a theoretical framework proposing how a higher guest autonomy at a homestay and a higher responsibility attribution to hosts can enhance service quality perceptions among guests with marginalized social identities. Building on social identity theory, service quality and DEI literature, the service quality is further proposed to increase guests' revisit intentions. Furthermore, the role of self-stigma (based on tainted identity trait) is proposed to moderate the direct effect of perceived autonomy and responsibility attribution on service quality. This research is a work in progress, and we plan to conduct it among tourists with socially devalued identities and process the data to test the theoretical model. To summarise, DEI is redefining the business landscape, and we need to showcase how hosts can navigate these social movements to ensure service quality and thereby enhancing homestay revisit intentions. This work will have implications on tourism SDGs and contribute to the better marketing for better world paradigm in the tourism context.

**Keywords:** Homestay Tourism, Responsibility Attribution, Perceived Autonomy, Guest-Host Interactions, Service Quality, Revisit Intentions, Tourists



**MESH\_2026\_030**

**A STUDY ON AI MODEL FOR DOCUMENT FORGERY  
DETECTION**

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**This paper proposes a robust document forgery detection framework that integrates traditional image processing with an attention-based stacking ensemble model. Structural, visual quality, and texture features are extracted from differences between original and LTHe-processed document images. A stacking ensemble composed of XGBoost, Random Forest, and AdaBoost classifiers with an attention-based meta-model is employed. Experimental results on multiple datasets demonstrate superior performance and robustness compared to state-of-the-art methods.**

**Keywords: AI, Model, Digital Forgery, Detection**



**MESH\_2026\_031**

**SOCIAL MEDIA AS A TOOL FOR SUSTAINABLE  
DEVELOPMENT IN INDIA**

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**Despite innovations around social media, we know relatively little about whether and how social media facilitates sustainable development. Sustainable development has emerged as a critical concept in global discourse, reflecting the need to balance economic growth, environmental protection, and social equity. However, there is a lack of empirical research uncovering the potential of social media in promoting sustainable development. To address the research objective, this study develops a research model by contending that social media use by individuals can positively influence their education and learning experience, healthcare and well-being, and awareness of gender equality and women empowerment. As part of the empirical validation of hypotheses, this study will adopt a mixed methodology to collect data through interviews and surveys from citizens of India. The results are expected to enrich our understanding of social media's potency in the UN's 2030 Agenda for Sustainable Development.**

**Keywords: Social Media, Sustainable Development, Education, Well-being, Gender Equality**

**MESH\_2026\_032**

**INVESTIGATION OF WASTEWATER TREATMENT METHODS  
CONTAINING CYANIDE FROM GOLD MINES**

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**One well-known hazardous chemical that negatively impacts living things is cyanide. However, it is one of the active ingredients used by businesses across the globe in the food processing, pharmaceutical, mining, and cosmetics sectors. A significant amount of cyanide-containing pollutants are produced during the beneficiation of gold and other precious metals from ore and are released into the environment. Since the beginning of metal extraction from ore, the prevalence of cyanide contaminants from these industries has raised concerns about public health. Worldwide, the production, use, transportation, and disposal of pollutants containing cyanide are subject to stringent regulations. This study discusses a variety of techniques, including new, chemical, biological, and natural ones, for cleaning the waste water from gold mines.**

**Keywords: Gold Mine Wastewater, Cyanide, Treatment, Environment**

**MESH\_2026\_033**

**DISABLED WOMEN ARTISANS: ANALYZING THE  
STRUCTURAL DISABLEMENT OF WOMEN IN THE CREATIVE  
ECONOMY OF TRADITIONAL CLOTHING IN BANDAR ABBAS,  
IRAN**

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**This qualitative research, grounded in the framework of social and structural disablement theory, investigates the central question of how political, economic, social, and cultural mechanisms in the creative crafts city of Bandar Abbas, Iran drive healthy and capable women artisans active in traditional clothing and embroidery towards a state of disability. In other words, this study focuses not on inherent disability, but on the "process of becoming disabled" imposed by exclusionary structures. Data for this study was collected through in-depth, semi-structured interviews with eight women artisans, each with a minimum of two decades of experience, across four historic neighbourhoods of Bandar Abbas (Nakhle Nakhoda, Soro, Derakht-e Sabz, Khajeh Ata). The data was analyzed using thematic analysis. The findings reveal that the prevailing system entraps these women in a vicious cycle of disablement. The lack of access to capital, fair markets, insurance and retirement support, coupled with the non-recognition of their profession, gradually transforms them-despite their physical health-into an economic burden and second-class citizens. The outcome is the creation of a socio-economic disability where the individual is made disabled. This research argues that this process not only constitutes a clear violation of the artisans' economic and cultural rights but also, by threatening the intergenerational transmission of knowledge, seriously jeopardizes the survival of one of Iran's most significant eco-cultural handicrafts. In conclusion, the paper emphasizes the imperative to redefine local development policies based on enabling justice and an inclusive creative economy.**

**Keywords: Structural Disablement, Creative Economy, Traditional Clothing and Embroidery, Women Artisans, Bandar Abbas, Iran, Creative City**

**MESH\_2026\_034**

**LINKING AGRICULTURAL SUBSIDIES, INFRASTRUCTURE,  
AND INCOME: A CORRELATION ANALYSIS FOR ROMANIA**

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**This study investigates the relationship between agricultural subsidies, farming practices, infrastructure development, and economic well-being in Romania between 2010 and 2024. During this period, the country experienced substantial changes in agricultural policy and funding, largely driven by the European Union's Common Agricultural Policy (CAP). The analysis focuses on key variables such as natural fertilizers, insecticides, irrigated area, average income per person, and total agricultural subsidies. Using descriptive statistics and Pearson's correlation analysis, the study explores how financial support and infrastructure investments have influenced rural income and sustainability. The results reveal strong positive correlations between subsidies, irrigation, and average income, indicating that public financial support and improved agricultural infrastructure have played a crucial role in enhancing rural welfare. Conversely, the negative relationship between natural fertilizers and insecticides suggests a gradual shift toward more ecological and sustainable farming practices. These findings highlight the importance of coherent agricultural policies and long-term investment strategies in promoting both economic development and environmental sustainability in Romania's rural regions.**

**Keywords: Agricultural Subsidies, Small Farms, Labor Productivity in Agriculture, European Union**

**MESH\_2026\_035**

**SMART FARMING IN ROMANIA: CHALLENGES AND FUTURE  
OUTLOOK**

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**The transition toward Agriculture 4.0 in Romania represents a complex process, influenced by the structural disparities of agricultural holdings. This paper analyzes the integration of precision technologies, such as multispectral drones and IoT sensor networks, evaluating their impact on economic efficiency and ecological sustainability. By corroborating field data with yield simulation models, the research demonstrates that digitalization can compensate for labor shortages and climate volatility, providing a competitive advantage for Romanian farmers within the European single market.**

**Keywords: Drones, IoT Sensors, Sustainability, Digital Agriculture, Smart Farming, Big Data**

## MESH\_2026\_036

# BIOMOLECULE EMBEDDED $Cd_xZn_{1-x}S$ SOLID SOLUTION FOR HIGHLY EFFICIENT PHOTOCATALYTIC HYDROGEN PRODUCTION FROM WATER

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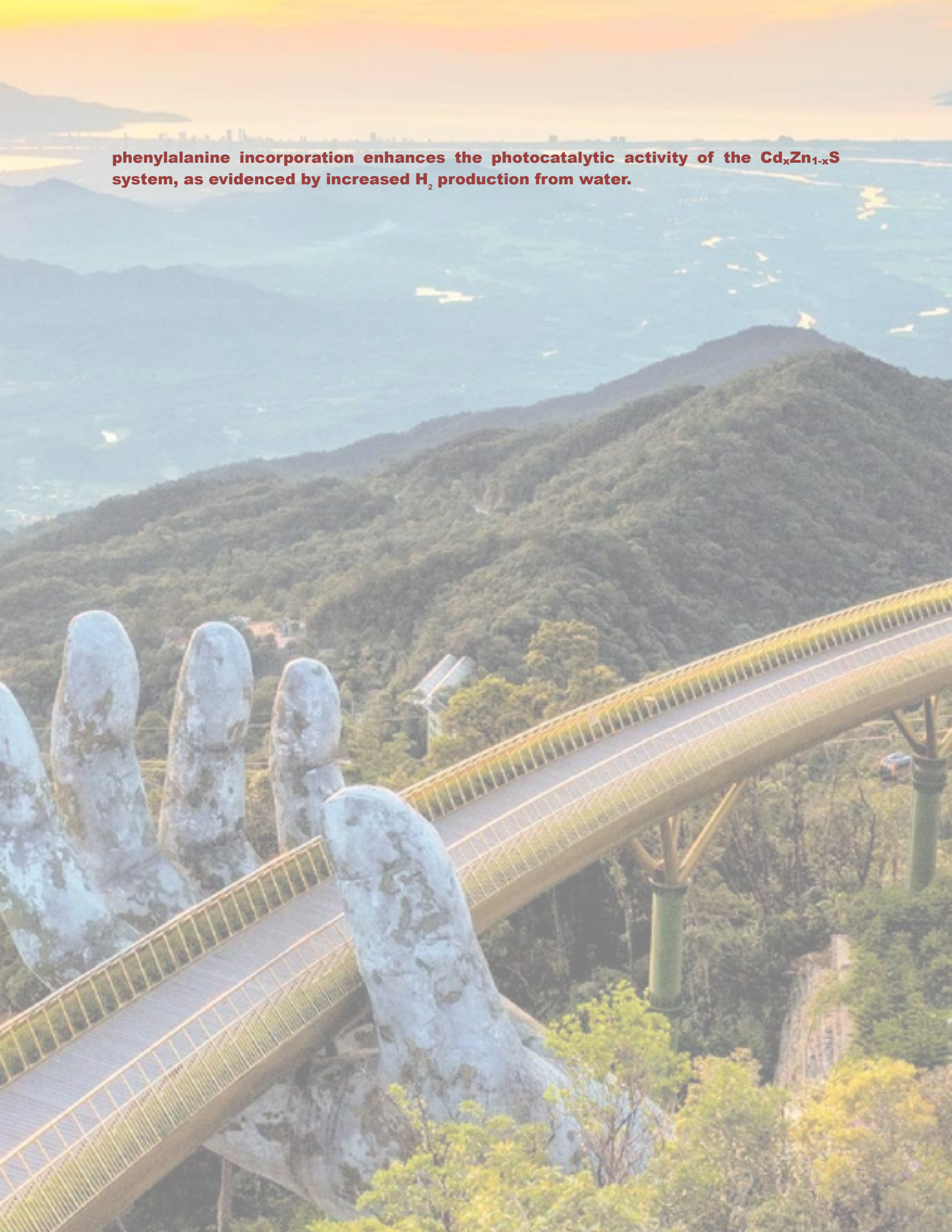
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Photocatalytic water splitting is a promising approach for producing clean energy, namely hydrogen ( $H_2$ ). To achieve efficient hydrogen production from water, various visible-light-active photocatalysts and their solid solutions have been extensively investigated.  $Cd_xZn_{1-x}S$  is one of the most widely studied solid solutions of CdS and ZnS; however, its  $H_2$  evolution efficiency remains insufficient for practical applications. In our previous study, we demonstrated that the incorporation of biomolecules (histidine) into CdS can dramatically enhance its photocatalytic activity. Here, we report that the incorporation of a biomolecule, phenylalanine (Phe), significantly improves the photocatalytic performance of the  $Cd_xZn_{1-x}S$  solid solution.  $Cd_xZn_{1-x}S$  ( $x = 0.0, 0.25, 0.50,$  and  $0.75$ ) nanocomposites were synthesized using a hydrothermal method. The hexagonal crystal structure of the  $Cd_xZn_{1-x}S$  samples without phenylalanine incorporation was confirmed by XRD analysis. SEM observations indicate that the particle sizes of  $Cd_xZn_{1-x}S$  range from 200 to 500 nm. UV-visible absorption spectra show that all samples exhibit absorption edges in the visible-light region. Evaluation of the photocatalytic performance reveals that the  $Cd_{0.25}Zn_{0.75}S$  sample exhibits the highest hydrogen evolution rate under visible-light irradiation. Phenylalanine was subsequently incorporated into the  $Cd_{0.25}Zn_{0.75}S$  sample, and the resulting material was characterized by XRD, SEM, and UV-visible spectroscopy. No significant changes were observed in the crystal structure, particle size, or absorption edge; however, a decrease in XRD peak intensity was observed after phenylalanine incorporation. The incorporation of phenylalanine increased  $H_2$  production by more than twofold. This enhancement is attributed to improved charge separation resulting from the interaction of incorporated phenylalanine with photogenerated holes in  $Cd_{0.25}Zn_{0.75}S$ , thereby enhancing the photocatalytic activity. We successfully synthesized a nanocomposite based on a phenylalanine-embedded  $Cd_xZn_{1-x}S$  solid solution. The results demonstrate that

**phenylalanine incorporation enhances the photocatalytic activity of the  $\text{Cd}_x\text{Zn}_{1-x}\text{S}$  system, as evidenced by increased  $\text{H}_2$  production from water.**



**MESH\_2026\_037**

**INCLUSIVE PHYSICAL EDUCATION AND SOCIAL JUSTICE  
FOR SUSTAINABLE DEVELOPMENT: LIVED EXPERIENCES  
AND POLICY IMPLICATIONS IN THE CENTRAL REGION OF  
GHANA**

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Ghana has made its educational policies more inclusive. However, inclusive physical education frequently lacks consistency in implementation. Nonetheless, evidence from senior high school physical education (PE) is scarce. This study examines the experiences of teachers and students regarding inclusion and exclusion in physical education, yielding social justice and policy implications for Ghana's educational system. This hermeneutic phenomenological study was executed in five public senior high schools located in the Central Region of Ghana. Purposive sampling comprised 30 participants, consisting of 13 physical education teachers and 17 students, both with and without disabilities. Data were gathered through semi-structured interviews, classroom visits, and field observations conducted over four-week periods. Thematic analysis, based on hermeneutic interpretation, was employed to examine transcripts and field notes. Four themes emerged. Participants recounted instances of significant engagement that fostered peer relationships, drive, and a sense of efficacy. However, inclusion was not always present and often fell apart during sports and activities between schools. Most of the barriers were systemic, including facilities that weren't accessible, equipment that was not adapted, insufficient guidance on the curriculum, and teachers who were not properly trained to change tasks, rules, and tests. These circumstances worsened marginalisation and compromised the dignity, belonging, and involvement of students with disabilities. Inclusive physical education (IPE) can help make schools in Ghana more fair, but it needs clear policies and funding. To close the gaps in implementation, we suggest that the Ghana Education Service should have a clear IPE policy, improve pre-service and in-service training, make the curriculum and assessments more inclusive, upgrade basic facilities and equipment, and keep an eye on things regularly. These goals will help us move closer to SDGs 3, 4, and 10.

# MESH\_2026\_039

## GUIDE FOR FARMERS IN THE CENTRAL REGION ACCESSING FUNDING FOR FARM SUSTAINABILITY

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The agricultural sector of the Republic of Moldova is a key component of the national economy, having a significant impact on the population in rural areas and contributing to the development of other economic sectors. Although it faces major challenges due to economic and political transformations, modernizing this sector is crucial for ensuring its proper functioning, improving efficiency and competitiveness, and enhancing the well-being of the population. In the context of EU integration and alignment with the Common Agricultural Policy (CAP), the Republic of Moldova has the opportunity to support farmers through financial measures that promote sustainability and the modernization of agriculture. The research aims to provide a comprehensive guide for farmers in the Central Region of Moldova to help them access funding sources dedicated to implementing sustainable solutions in their farms, thus contributing to the improvement of economic performance, environmental protection, and adaptability to climate change. The proposed evaluation framework offers a clear and structured approach for assessing agricultural projects, using relevant and balanced criteria. It ensures transparency and helps identify sustainable, high-impact investments, contributing to efficient resource allocation and agricultural development.



**MESH\_2026\_040**

**SIR MODEL BASED EXPLORATION OF SOCIAL EVENTS**

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**Epidemic style mathematical models have long been used to explain how diseases spread in populations. With the rapid growth of online social platforms, a similar contagion like pattern is often observed in the way information and public attention propagate through social networks. In this paper, we explore information diffusion for major social events using the classical Susceptible, Infected, Recovered (SIR) model. We calibrate the model on Twitter activity traces for two case studies, namely the Russia Ukraine conflict and the public discourse around the film The Kerala Story. Daily tweet volume is used as an observable proxy for event intensity, and model parameters are tuned to match the overall rise and decay pattern of engagement. The results show that the SIR formulation captures the macro level diffusion trend reasonably well, but it does not accurately represent sharp spikes and short burst fluctuations, which are likely caused by exogenous triggers such as breaking news cycles or influencer driven amplification. Overall, the study supports the use of SIR as a lightweight first order tool for analyzing event diffusion and motivates extensions that incorporate external shocks and time varying transmission effects.**

**Keywords: Information Diffusion, Social Networks, Epidemic Modeling, SIR Model, Twitter Analytics, Event Dynamics**

**MESH\_2026\_041**

**MANUFACTURING SUSTAINABILITY IN SOUTH AFRICA:  
BARRIERS TO GROWTH AND STRATEGIC WORKFORCE  
SOLUTIONS**

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**South Africa's manufacturing sector is pivotal to the Country's economic development, yet it faces significant sustainability challenges. This study investigates the primary obstacles to its growth, employing a quantitative survey of 70 professionals within the industry. The data reveal that a critical skills shortage and organisational culture are the most pressing challenges, outweighing concerns related to government policy, access to finance, and economic trends. While training programs are reportedly available, significant gaps exist in strategic, long-term workforce planning and employee involvement in decision-making. Principal Component Analysis identified six key constructs; however, reliability metrics for factors such as Workforce Planning and Employee Engagement were low, indicating a need for refined measurement tools. The findings suggest that the sector's core problem is a misalignment between operational training and strategic human resource management. Recommendations include a strategic pivot by firms towards integrated workforce development and participatory practices, alongside policy interventions aimed at addressing the significant skills deficit to enhance the sector's global competitiveness.**

**Keywords: Sustainability, Skills Shortage, Workforce Development, Organisational Culture, Competitiveness**



**MESH\_2026\_042**

**SPINTRONICS VS. CONVENTIONAL ELECTRONICS: A  
COMPARATIVE ANALYSIS**

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**Spintronics harnesses the spin of electrons, rather than their charge, to process and store information, offering significant improvements in energy efficiency, non-volatility, and durability compared to conventional charge-based electronics. While CMOS devices depend on the movement of electric charge, which results in power loss, heat generation, and data volatility, spintronic systems manipulate spin orientation, allowing data to be retained without constant refreshing. Magnetic tunnel junctions and spin-transfer mechanisms enable fast, low-power memory and logic operations that are resistant to radiation and wear. Although challenges remain in achieving precise spin injection and maintaining coherence at small scales, advances in materials and fabrication are steadily improving performance. Spintronics represents a promising complement to traditional electronics, combining quantum-level control with practical energy savings for next-generation computing technologies.**

**MESH\_2026\_043**

**LIGHTWEIGHT GAT-BASED FRAMEWORK FOR DDI  
PREDICTION WITH BETWEENNESS CENTRALITY  
INTEGRATION**

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**Drug-drug interactions (DDIs) pose a serious challenge in healthcare, potentially leading to adverse effects when multiple medications are administered together. While machine learning models have shown promise in predicting DDIs, many existing approaches rely on deep, complex graph neural networks (GNNs) that lack interpretability and struggle with scalability. In this work, we present a lightweight and interpretable GNN framework for DDI prediction that combines structural drug features with graph-theoretic insights. Our model leverages Morgan finger-prints derived from SMILES representations and augments them with betweenness centrality scores to capture each drug's topological significance within the interaction graph. We employ a graph attention network (GAT) to enable the model to assign importance scores to neighboring drugs, offering transparency into the prediction process. Evaluated on over 1.1 million interaction pairs from Drug Bank, our model achieves an AUC of 0.9119 and an F1 score of 0.8278 on a 200K subset, while maintaining efficiency and interpretability. This approach demonstrates that lightweight GNNs can offer both high predictive performance and meaningful insights, making them suitable for practical, scalable drug safety analysis.**

**Keywords: Drug-Drug Interaction Prediction (DDIP), Graph Neural Networks (GNN), Betweenness Centrality, Graph Attention Networks (GAT), Interpretable Machine Learning, Computational Drug Safety**

# MESH\_2026\_044

## A MULTI-DIMENSIONAL EARLY WARNING FRAMEWORK FOR HUMAN DEVELOPMENT COLLAPSE: EVIDENCE FROM BANGLADESH

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**Current early warning systems inadequately capture interconnected vulnerabilities threatening human development in emerging economies. This study develops a novel multi-dimensional framework integrating 25 years of data (2000-2024) into three composite indices—Household Financial Stress (HFSI), Social Fragility (SFS), and Child Future Risk (CFRI) - synthesized into a unified Human Collapse Probability (HCP) metric. Analysis reveals household financial stress surged 155% while child wellbeing improved 11%, identifying 14 crisis years with current risk at 57.3 out of 100 (Orange Zone). Rigorous validation demonstrates high stability ( $CV < 0.20$ ) and weight robustness ( $r > 0.95$ ). Policy simulations quantify intervention effectiveness: school feeding programs achieve optimal cost-efficiency (USD 164 million annually, 7.2% HCP reduction, 9 million beneficiaries), while comprehensive packages deliver 32% risk reduction. The framework establishes empirically grounded thresholds enabling proactive policymaking and provides a replicable template for vulnerability assessment in developing nations. This represents the first integrated system calibrated specifically for anticipatory crisis prevention rather than reactive response.**

**Keywords: Early Warning Systems, Vulnerability Assessment, Human Development, Multi-dimensional Risk, Policy Simulation, Crisis Prevention, Development Economics**

# MESH\_2026\_045

## SOLAR FLARES AND MARKET SHOCKS: MACHINE LEARNING FRAMEWORK FOR PREDICTING SPACE WEATHER-DRIVEN CORPORATE RISK

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Corporate dependence on satellite infrastructure exposes financial markets to space weather risks inadequately captured by conventional models. We present a predictive system integrating NASA Kepler stellar observations, DONKI solar flare records (2,276 events, 2015-2024), and equity data from 21 corporations across technology, telecommunications, energy, aerospace, and transportation sectors. Extracting 24 features from astronomical time series - flux variability, distribution moments, and temporal correlations - we trained Random Forest and Gradient Boosting classifiers achieving 87% accuracy in forecasting high-risk periods. Analysis reveals corporate volatility escalates 1.5–2x during solar events, with telecommunications (2.1x) and technology (1.8x) sectors most vulnerable. Our four-tier alert system delivers 24-48 hour advance warnings, enabling portfolio hedging and infrastructure failover activation. This interdisciplinary approach addresses critical gaps where traditional finance ignores exogenous astrophysical risks while space weather research rarely translates to economic applications. Implications extend beyond developed markets-emerging economies with expanding digital infrastructure but limited redundancy face disproportionate risk from satellite disruptions. By demonstrating actionable integration of open astronomical data with accessible machine learning, we establish a framework for incorporating space weather into operational risk management, challenging the assumption that terrestrial markets operate independently of cosmic phenomena.

**Keywords:** Space Weather Analytics, Financial Forecasting, Ensemble Learning, Infrastructure Vulnerability, Astrophysical Risk Modeling



**MESH\_2026\_046**

**IMPACT OF BUILDING SMART FACTORIES ON THE  
RELATIONSHIP BETWEEN LEAN MANUFACTURING AND  
OPERATIONAL PERFORMANCE**

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**This study aims to analyze the impact of manufacturers' building smart factories on the relationship between lean manufacturing and operational performance. Building smart factories can strengthen the positive impact of lean manufacturing on operational performance by implementing cyber-physical systems to stabilize production processes. This study conducted a survey of 185 manufacturers that were building smart factories and applying lean manufacturing methods. The results of regression analysis of the moderating effects of building smart factories by dividing them into production automation, big data utilization, and supply chain integration are as follows. Production automation and supply chain integration positively moderated the relationship between lean manufacturing and operational performance, while the moderating effect of big data utilization on the relationship between lean manufacturing and operational performance was found to be insignificant. This study theoretically contributes to expanding the scope of related literature by empirically proving the usefulness of smart factories. This study also provides practical implications for manufacturers, including the need to support them in developing and utilizing predictive models that leverage big data on processes, inventory, and other factors to improve operational performance.**



**MESH\_2026\_047**

**A CONTRASTIVE GAN FRAMEWORK FOR ROBUST  
INTRUSION DETECTION SYSTEMS**

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**Intrusion detection systems (IDS) are increasingly challenged by sophisticated attacks and highly imbalanced network traffic data. Methods that focus primarily on overall accuracy often overlook infrequent but high-impact attack classes, weakening the reliability of security decisions. In this study, we introduce a class-aware detection framework that integrates supervised contrastive representation learning with a multi-GAN strategy built on WGAN-GP. The approach learns a discriminative embedding space that emphasizes minority attack patterns and employs class-specific generative models to synthesize realistic samples for targeted data augmentation. Evaluation on the UNSW-NB15 dataset shows marked gains in detecting low-frequency attacks while preserving strong overall performance, confirming the practical value of the proposed framework for dependable intrusion detection.**

**Keywords: Network Security, Intrusion Detection, Imbalanced Learning, Contrastive Learning, Wasserstein GAN**

# MESH\_2026\_048

## PERFORMANCE-BASED DAYLIGHT OPTIMIZATION USING LIGHT SHELVES: VISUAL COMFORT AND ENERGY SAVINGS IN A TROPICAL DORMITORY

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The urgent need to reduce operational energy consumption in high-density educational residential buildings calls for passive design strategies that balance energy efficiency with occupant well-being. In tropical contexts such as Bangladesh, university dormitories often rely on artificial lighting despite abundant daylight, as poor penetration and uneven distribution lead to glare, visual discomfort, and reduced functional usability. This study investigates performance-based daylight optimization as a passive design strategy, focusing on light shelves combined with high-reflectance interior finishes to enhance visual comfort and reduce lighting energy demand. A representative student room in Swadhinata Hall at the Bangladesh University of Engineering and Technology (BUET) is analyzed using a simulation-driven parametric methodology. Key geometric and material parameters, including orientation, window-to-wall ratio, glazing properties, and surface reflectance, are modelled in Grasshopper and evaluated using Climate Studio. Daylighting performance is assessed using point-in-time illuminance, useful daylight illuminance (UDI), spatial daylight autonomy (sDA), annual sunlight exposure (ASE), and daylight glare probability (DGP), capturing seasonal and diurnal variations. Iterative optimization of light shelf height, depth, and placement shows that configurations improve daylight uniformity, control glare, and reduce reliance on artificial lighting.

**Keywords:** Daylight Optimization, Light Shelves, Visual Comfort, Energy Efficiency, Tropical Dormitory Buildings

**MESH\_2026\_049**

**AI-BASED MODELS FOR PREDICTING WASTEWATER  
EFFLUENT QUALITY**

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**The precise prediction of wastewater effluent quality is very important for improving wastewater treatment plant performance. Due to the complex and nonlinear nature of wastewater treatment, traditional models often not provide reliable predictions. As a result, artificial intelligence methods have been increasingly used as alternative modeling tools. This paper reviews AI models which predict wastewater effluent quality from past research studies. It covers common methods, including artificial neural networks (ANN), support vector machines (SVM), random forest (RF), gradient boosting techniques, and deep learning models like long short-term memory (LSTM) networks. We check model performance using well-known measures, including root mean square error (RMSE), mean absolute error (MAE), and coefficient of determination ( $R^2$ ). Key factors affecting prediction accuracy such as input variable selection, data availability, data preprocessing, and specific characteristics of treatment processes are summarized. The review demonstrates that AI models perform differently in various settings because no single method works best in all situations. The aim of this study is to help select appropriate models and to show research gaps for future studies.**

**Keywords: Wastewater Treatment, Artificial Intelligence (AI), Effluent Quality Prediction, artificial neural networks (ANN), support vector machines (SVM), random forest (RF), long short-term memory (LSTM)**

# MESH\_2026\_050

## ENHANCING COMFORT AND ENERGY PERFORMANCE IN A TROPICAL UNIVERSITY DORMITORY: A HEALTHY BUILDING APPROACH TOWARD NEARLY ZERO EMISSION COMMUNITIES RENOVATION AND ADAPTATION (neZECoRA)

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Transitioning university campuses toward nearly Zero Emission Communities (nZEC) requires strategic renovation and adaptation of existing buildings that enhance occupant well-being, reduce environmental impacts and contribute positively to campus-wide energy systems. In tropical megacities such as Dhaka, student dormitories are high-density, energy-intensive building typologies that can benefit from targeted interventions to generate substantial sustainability gains. This study presents a Healthy Building (HB)-driven renovation and adaptation framework aligned with the Nearly Zero Emission Communities Renovation and Adaptation (neZECoRA -নিজে করা) approach, using a tropical university dormitory as a pilot case. The framework integrates passive climate-responsive design, performance-based daylight and energy optimization, on-site renewable energy generation, smart building management systems and low-embodied-carbon renovation strategies. Advanced computational tools are employed to develop and evaluate adaptations in building massing, façade articulation, and interior configurations that respond to Dhaka's solar geometry, prevailing wind patterns and monsoon-driven climatic conditions. Building performance is assessed using indicators for daylight availability (e.g., UDI, sDA and ASE), thermal comfort (e.g., PMV and PPD) and energy and carbon performance (e.g., EUI and CO<sub>2e</sub>). The renovation targets net-zero operational energy, with surplus renewable generation offsetting demand in neighboring campus buildings, while water- and ecology-sensitive measures enhance climate resilience through campus-scale renovation and adaptation strategies.

**Keywords:** Healthy Buildings, neZECoRA, Daylight and Energy Optimization, Tropical Dormitory Renovation, Campus-scale Sustainability

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**FROM JOB HOPPING TO JOB BELONGING: PSYCHOLOGICAL  
CAPITAL AS A PATHWAY TO EMPLOYEE ENGAGEMENT-  
LOYALTY NEXUS**

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**The new workforce entrants, Gen Z, have put employee engagement and employee loyalty to the test. Organizational virtuousness and work-life balance help an organization redefine employer-employee dynamics, enabling employees to remain engaged, happy, and loyal in their work. Similarly, PsyCap mediates the relationships among OV, WLB, EE, and EL. These constructs (OV, WLB) have not been investigated alongside EL, particularly in the context of Gen Z. To address this gap, the present study aims to outline the importance of OV, WLB, and PsyCap in keeping Gen Z engaged and loyal in the service sector. 500 samples of Gen Z working in the Indian public and private service sector were collected using an online questionnaire, along with 23 working professionals being interviewed. The data were analyzed using SPSS AMOS version 23 to test direct and mediating effects, followed by a post-qualitative analysis in ATLAS.TI to validate the results. The study results confirm the positive impact of OV and WLB on EE and EL, with PsyCap partially mediating the EE-EL relation. The findings reveal that employees with higher levels of PsyCap contribute positively to the engagement-loyalty nexus.**

**Keywords: Organizational Virtuousness, Employee Engagement, Employee Loyalty, Psychological Capital, Work-life Balance**

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**THE INFLUENCE OF KNOWLEDGE AND MOTIVATION ON  
CONVENIENCE FOOD CONSUMPTION QUANTITIES IN UTTAR  
PRADESH, INDIA**

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**This study investigates the influence of knowledge and motivation on the consumption quantities of convenience food products in Uttar Pradesh. The analysis explores how consumers' awareness and understanding of these products impact their eating behaviours and motivations. Results reveal a negative relationship between knowledge and consumption, indicating that as consumers become more knowledgeable about convenience foods, they tend to be more selective and cautious in their consumption patterns. Conversely, the data indicates that heightened knowledge correlates positively with motivation, suggesting that informed consumers are more likely to recognise and appreciate the benefits of convenience foods, thereby increasing their usage. This duality highlights that while knowledge may deter indiscriminate consumption, it simultaneously fosters a greater motivation to utilize convenience foods effectively. Furthermore, there is a direct correlation between consumption and motivation, where motivated consumers tend to consume larger quantities of convenience food products. These findings underscore the complex interplay between knowledge, motivation, and consumption behaviour, offering valuable insights for marketers, health practitioners, and policymakers. While increased knowledge encourages consumers to be more selective, it also enhances their motivation to utilize these products effectively. The findings suggest that informed consumers are likely to strike a balance between convenience and health considerations.**

**Keywords: Convenience Food Products, Correlation, Knowledge, Motivation, Consumption**

## MESH\_2026\_053

# CLIMATE-RESPONSIVE PARAMETRIC TIMBER FAÇADE DESIGN FOR OPTIMIZED DAYLIGHTING AND ENERGY PERFORMANCE IN A TROPICAL UNIVERSITY LIBRARY

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University libraries in tropical climates often suffer from inadequate daylight distribution, excessive glare, and a heavy reliance on artificial lighting, thereby compromising visual comfort and energy efficiency. Addressing these challenges requires façade strategies that balance daylight optimization with climatic responsiveness. This study examines a climate-responsive parametric timber façade design as a sustainable retrofit solution for a tropical university library. The Central Library of Bangladesh University of Engineering and Technology (BUET) was used as a case study, focusing on the north and south façades. Parametric configurations are developed by systematically varying orientation, depth and material properties in response to local solar geometry and seasonal climate. A performance-based workflow integrates parametric modeling with climate-based daylight and energy simulations. Visual comfort was assessed using spatial daylight autonomy (sDA), useful daylight illuminance (UDI), annual sunlight exposure (ASE), and daylight glare probability (DGP), alongside evaluations of lighting and cooling energy demands. A comparative analysis of the existing and proposed façades demonstrates improved daylight availability across reading zones, reduced glare and controlled solar heat gains. The optimized façade achieved over sixty percent improvement in effective daylight availability and notable reductions in cooling demand. The study provides transferable insights for sustainable, locally sourced parametric façade design.

**Keywords:** Climate-responsive Façade, Parametric Design, Visual Comfort Metrics, Energy-efficient Daylighting, Tropical University Libraries