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Abu Dhabi University

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H.E. Sheikh Nahayan Mabarak Al Nahayan
Cabinet Member, Minister of Tolerance and Coexistence

The 2nd International Conference on Advancing Sustainable Futures (ICASF 2024)

Conference Theme:
Innovation and Digital Transformation for Sustainable Futures

11 -12 December 2024

Ritz Carlton, Abu Dhabi, UAE

Conference Proceedings

Foreword

Abu Dhabi University warmly welcomes you to the 2nd International Conference on Advancing Sustainable Futures (ICASF 2024), scheduled for December 11-12, 2024, in Abu Dhabi, this conference is held under the esteemed patronage of H.E. Sheikh Nahayan Bin Mabarak Al Nahyan, Minister of Tolerance and Coexistence. The theme for ICASF 2024, "Innovation and Digital Transformation for Sustainable Futures," is both timely and crucial as we navigate the complexities of sustainability in a rapidly changing world.

ICASF 2024 aligns closely with the United Nations' 17 Sustainable Development Goals (SDGs), emphasizing areas such as Good Health and Well-Being (SDG3), Quality Education (SDG4), Clean Water and Sanitation (SDG6), Decent Work and Economic Growth (SDG8), Industry, Innovation, and Infrastructure (SDG9), Sustainable Cities and Communities (SDG11), Responsible Consumption and Production (SDG12), Climate Action (SDG13), and Life on Land (SDG15). Our mission is to provide a dynamic platform for international researchers, practitioners, and policymakers to discuss and exchange innovative solutions and best practices in the realm of sustainability.

This year's call for papers has generated an overwhelming response, attracting over 650 submissions from more than 90 countries worldwide. After a rigorous review process, we are pleased to feature a diverse selection of research that reflects the conference's core themes. The accepted papers have been assigned to various tracks, which include Digital-driven Innovation in Science and Engineering, Digital Transformation in Business Management, Finance, and Law, Sustainable Education for Innovation and Digital Transformation, AI and Green IT: Innovations in Technology, and Shaping Tomorrow: Health, Nutrition, and Social Science Advancements. Additionally, the tracks encompass Sustainable Project Management, Leveraging AI and Disruptive Technologies, Philanthropy and Corporate Social Responsibility in the Digital Age, and Advancing Antipoverty Solutions by Bridging Innovation, Sustainability, and Digital Transformation. We are also excited to support the contributions of Early Career Researchers.

Participants will have the opportunity to exchange knowledge, present their research findings, and potentially publish in 14 Q1 and Q2 Scopus-indexed journals, as well as 3 Scopus-indexed Springer book series. The conference will also feature over 60 distinguished speakers, including government officials, academic leaders, industry experts, and policymakers, along with 7 panel discussions.

On Day 1, we are honored to commence the conference with keynote speeches from distinguished leaders, including H.E. Sheikh Nahayan Bin Mabarak Al Nahyan, who will provide opening remarks. This will be followed by insights from esteemed keynote speakers, H.E. Ms. Berangere Boell-Yousfi, the United Nations Resident Coordinator for the UAE, H.E. Prof. Amr Ezzat Salama, Secretary General of the Association of Arab Universities, and Prof. Amal Seghrouchni, Executive President of the International Center of Artificial Intelligence in Morocco.

The first day of ICASF 2024 will feature a series of impactful panel discussions addressing critical issues related to sustainability and innovation. The opening panel, titled "Driving Change: Innovation in Humanitarian, Anti-Poverty Solutions, Philanthropy and Corporate Social Responsibility for Sustainable Futures," will explore the transformative role of innovation in creating sustainable solutions for pressing global challenges. Following this, the second panel, "Empowering Women in the Digital Age: Challenges and Opportunities," will focus on the importance of inclusion and gender equity in the context of digital transformation.

In addition to these discussions, the day will also host further engaging panels, including "Driving Sustainability: The Impact of International University Rankings on Institutional Strategies and Practices," which will analyze how university rankings influence sustainability practices and policies. Another significant panel, "Empowering Inclusion and Change through Innovation: Aligning Higher Education with SDGs in the

Foreword

Digital Transformation Era," will highlight the vital role of higher education in driving innovation and aligning with the United Nations' Sustainable Development Goals.

Moreover, the conference will present 2 Technical Sessions, showcasing cutting-edge research and innovative projects from various scholars and practitioners. These sessions will facilitate rich dialogue among attendees, encouraging collaboration and the sharing of ideas that advance the objectives of sustainability and digital transformation.

On Day 2 of ICASF 2024, we will further our exploration of innovation and digital transformation with insightful keynote addresses from prominent leaders in academia and industry. We are honored to welcome keynote speakers, Prof. Martin Betts, Co-Founder and CEO of HEDx;

Prof. Anthony Tzes, Director of the Center of AI and Robotics and Professor of AI and Electrical Engineering at NYUAD; and Dr. Nader Ghazal, Chairman of the African-Asian Council for AI & Cybersecurity.

The day will feature dynamic panel discussions, including "AI-Driven Innovation: Pioneering Sustainability in the Digital Transformation Era," which will explore the vital role of artificial intelligence in advancing sustainable practices in our increasingly digital world. Another significant panel, "Navigating Finance and Audit in the Era of Innovation and Digital Transformation for Sustainable Futures," will tackle the challenges and opportunities faced by the financial sector as it evolves through innovative approaches.

Additionally, we will host Panel Discussion , titled "Data Science for Sustainability," which will underscore the essential contributions of data science in tackling pressing sustainability issues. This will be complemented by 3 Technical Sessions featuring presentations that showcase cutting-edge research and insights into sustainable practices and innovations.

The day will conclude with a closing ceremony that will reflect on the invaluable insights and collaborative dialogues that have unfolded throughout the conference, providing participants an opportunity to celebrate the knowledge shared and the connections fostered during ICASF 2024.

Putting together ICASF 2024 was a team effort. We first thank the presenters for providing the content for the program. We are grateful to the conference steering committee for their hard work in reviewing papers, organizing the program, and making all arrangements. Moreover, we thank our sponsor Emirates Red Crescent for their generous sponsorship of the conference.

Finally, we are truly indebted to H.E. Sheikh Nahyan Bin Mubarak Al Nahyan for his patronage. We thank him for his generous support of this conference.

We hope that you will find the program interesting and thought-provoking and that the conference will provide you with a valuable opportunity to share ideas with other researchers and practitioners from around the world.

Prof. Ghassan Fouad Aouad
ICASF 2024 Conference Advisor
Chancellor, Abu Dhabi University

Editorial

The International Conference on Advancing Sustainable Futures (ICASF 2024) is organized by Abu Dhabi University in collaboration with esteemed institutions, including Springer, UNPRME, Liwa College, UMI SOURCE from University Paris Saclay, CEDRIS, AI-CODED, Università di Napoli L'Orientale, University of Sannio RCOST, SPSA, Tilad, THM, Abu Dhabi Customs, ANXINSEC, NEXTPROTOCOL, HUAWEI, UN Women, OCHA, Lancaster University, UNESCO, Sorbonne Université, Essex Law School at the University of Essex, Vertix Holding, CIOB, University Mohammed VI Polytechnic, CNRS, HEDx, Institute of Management Accountants, Association of Arab Universities, Arab Monetary Fund, IEREK, UCL, Loughborough University, Ganpat University, UAE Internal Auditors Association, UN Global Compact Network UAE, Kantar, Birmingham City University, NYU Abu Dhabi, Kuwait University, Audacious Dreams Foundation, Commonwealth Students Association, Ritsumeikan Asia Pacific University, UMT, Canadian University Dubai, The American University in Cairo, AACSB, and Orbital Space. Under the patronage of H.E. Sheikh Nahyan Bin Mubarak Al Nahyan, the Minister of Tolerance and Coexistence, the conference will take place on December 11-12, 2024, in Abu Dhabi.

ICASF 2024 aims to be a pivotal event in the ongoing discourse surrounding sustainable futures, attracting a diverse array of participants, including academics, practitioners, and policymakers from around the globe. The conference theme, "Innovation and Digital Transformation for Sustainable Futures," resonates deeply with current global challenges and opportunities, making it an essential platform for knowledge exchange and collaboration.

This year's call for papers has generated an overwhelming response, attracting over 650 submissions from more than 90 countries worldwide. After a rigorous review process, we are pleased to feature a diverse selection of research that reflects the conference's core themes. The accepted papers have been assigned to various tracks, which include Digital-driven Innovation in Science and Engineering, Digital Transformation in Business Management, Finance, and Law, Sustainable Education for Innovation and Digital Transformation, AI and Green IT: Innovations in Technology, and Shaping Tomorrow: Health, Nutrition, and Social Science Advancements. Additionally, the tracks encompass Sustainable Project Management, Leveraging AI and Disruptive Technologies, Philanthropy and Corporate Social Responsibility in the Digital Age, and Advancing Antipoverty Solutions by Bridging Innovation, Sustainability, and Digital Transformation. We are also excited to support the contributions of Early Career Researchers.

Each track will feature cutting-edge research and discussions aimed at advancing our understanding of sustainability challenges and solutions.

A summary of each of the ten tracks of ICASF 2024 is as follows.

Track 1: Digital-driven Innovation in Science and Engineering – This track will explore the integration of digital technologies in scientific research and engineering practices. Presenters will discuss innovative solutions for sustainability challenges, focusing on cutting-edge advancements that leverage technology to enhance environmental conservation, energy efficiency, and resource management.

Track 2: Digital Transformation in Business Management, Finance, and Law – Focusing on how digital transformation is reshaping business practices, this track will examine the implications for management, financial systems, and legal frameworks. Researchers will present findings that highlight sustainable practices emerging within various industries, emphasizing the need for adaptive strategies in a rapidly evolving digital landscape.

Track 3: Sustainable Education for Innovation and Digital Transformation – This track will address the critical role of education in fostering sustainable practices and innovation. Discussions will center on integrating sustainability into educational curricula and pedagogical methods, aiming to empower future leaders with the knowledge and skills necessary to drive positive change.

Track 4: AI and Green IT: Innovations in Technology – Presenters will delve into the intersection of artificial intelligence and green information technology, showcasing innovations that promote sustainability. The focus will be on how AI can be harnessed to improve efficiency and reduce environmental impact across various sectors.

Track 5: Shaping Tomorrow: Health, Nutrition, and Social Science Advancements – This track will feature research exploring the connections between health, nutrition, and social sciences in the context of sustainability. Presenters will share insights into sustainable practices that enhance public health and well-being, addressing pressing global challenges.

Track 6: Sustainable Project Management: Leveraging AI and Disruptive Technologies – This track will focus on the application of AI and other disruptive technologies in project management to promote sustainability. Presentations will highlight best practices and innovative methodologies that enable more effective and sustainable project execution.

Track 7: Philanthropy and Corporate Social Responsibility in the Digital Age – Exploring the evolving landscape of philanthropy and corporate social responsibility (CSR), this track will discuss how digital tools and technologies are transforming approaches to social impact. Researchers will present findings on successful CSR initiatives that align with sustainable development goals.

Track 8: Advancing Antipoverty Solutions: Bridging Innovation, Sustainability, and Digital Transformation – This track aims to address poverty alleviation through innovative approaches that integrate sustainability and digital transformation. Presentations will highlight effective strategies and case studies that demonstrate the potential of innovation in combating poverty.

Track 9: Financial Implications of Innovation and Digital Transformation for Sustainable Futures – This track will explore the financial aspects of innovation and digital transformation as they relate to sustainability. Researchers will examine the economic implications of sustainable practices and policies, providing insights into funding mechanisms and investment strategies that support sustainable futures.

Track 10: Early Career Researchers – This track was designed to support emerging scholars, providing a platform for early career researchers to showcase their work. It fosters collaboration and knowledge exchange among young professionals, contributing to the conference's overarching goal of advancing sustainable futures by nurturing the next generation of researchers and practitioners.

Presentations at ICASF 2024 will encompass a wide range of innovative approaches to sustainability, reflecting the diverse expertise of researchers and practitioners from around the globe. Topics will include digital-driven strategies for sustainable development, integrating AI and green technology in practical applications, and exploring the socio-economic implications of sustainability initiatives. Participants will share insights on effective educational practices for fostering innovation and addressing global challenges such as health, nutrition, and social well-being.

Emerging scholars will contribute their unique perspectives on sustainability, highlighting projects that bridge the gap between theory and practice. For instance, case studies on successful corporate social responsibility initiatives and their impact on community development will showcase the potential of business

in advancing sustainable futures. Additionally, discussions on the financial implications of innovation and digital transformation will offer critical insights into funding strategies that support sustainable initiatives.

Overall, the research papers presented at ICASF 2024 across the ten tracks will provide comprehensive insights into the complexities of advancing sustainable futures. In alignment with the conference's timely theme, these contributions will address pressing issues such as climate change, technological advancements, and social equity. The conference's holistic approach, encompassing Technology, People and Culture, Environment, and Economics, underscores a commitment to fostering international collaboration, building a vibrant network of sustainability advocates, and equipping decision-makers with the latest research findings to inform effective policies for a sustainable future.

Conference Chair, ICASF 2024
Prof. Sherine Farouk
Associate Provost of Internationalisation

Conference Advisor

Prof. Ghassan Aouad

Chancellor, Abu Dhabi University

Conference Chair

Prof. Sherine Farouk

Associate Provost of Internationalization and Academic Projects, Abu Dhabi University

KEYNOTE SPEAKERS

H.E. Ms. Berangere Boell-Yousfi
United Nations Resident Coordinator for the United Arab Emirates

H.E. Prof. Amr Ezzat Salama
Secretary General of the Association of Arab Universities, Former Minister of Higher Education, Scientific Research and Technology of Egypt

H.E. Mrs. Amal El Fallah Seghrouchni
Minister of Digital Transition & Administration Reform in the Kingdom of Morocco

Dr. Hamad Odhabi
Vice Chancellor for Financial and Administrative Affairs, Abu Dhabi University

Dr. Mouza Al Shehhi
Director of the UN Women-UAE Liaison Office of the GCC

Prof. Martin Betts
Co-Founder and CEO of HEDx

Mr. Mike DePrisco
President and CEO of the Institute of Management Accountants (IMA)

Dr. M'hamed El Aisati
Vice President of Elsevier

Prof. Barry O'Mahony
Provost, Abu Dhabi University

Prof. Anthony Tzes
Director of the Center of AI and Robotics, Professor of AI and the Electrical Engineering Program Head at NYUAD

Prof. Montasir Qasymeh
Associate Provost for Research and Academic Development, Abu Dhabi University

Mr. Philip Walsh
Director at Time Machine Capital Squared Holdings Limited

Dr. Nader Ghazal
Chairman of the African-Asian Council for AI & Cybersecurity, Former Mayor, Former PM Advisor

CONFERENCE PANEL DISCUSSION

AI-Driven Innovation: Pioneering Sustainability in the Digital Transformation Era

- **Overview:** This panel will explore how Artificial Intelligence (AI) can be harnessed to develop sustainable solutions across various sectors. Experts will discuss cutting-edge AI applications for environmental protection, resource management, and social good.
- **SDG Alignment:** Aligning with SDG 13 (Climate Action) by developing AI solutions for optimizing energy use, reducing greenhouse gas emissions, and mitigating the effects of climate change on ecosystems and agriculture. This panel also support SDG 9 (Industry, Innovation and Infrastructure) by fostering innovation in clean technologies and sustainable practices.

- **Objectives:** Identify AI's potential for sustainability, explore real-world applications, and foster collaboration between AI developers and sustainability researchers.

H.E. Lucie Berger
Ambassador of the European Union to the United Arab Emirates

Mr. Abhinav Purohit
Chief Expert, Middle East & Central Asia Region for Huawei Consulting

Mr. Zheng Li
Co-Founder, VP of Product and Sales, Anxinsec (AB) Technology Co., Ltd.

Moderator

Dr. Hamad Odhabi
Vice Chancellor for Financial and Administrative Affairs, Abu Dhabi University

Mr. Shaik Hamdan
CEO of NEXT IT & Systems LLC

Dr. Bassam Alfeeli
General Manager of Orbital Space

Prof. David De Cremer
Dunton Family Dean of the D'Amore-McKim School of Business, Northeastern University

CONFERENCE PANEL DISCUSSION

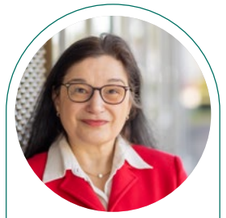
Empowering Inclusion and Change through Innovation: Aligning Higher Education with SDGs in the Digital Transformation Era

- **Overview:** This panel will discuss how higher education can leverage digital tools and innovative teaching methods to equip students with the knowledge and skills to address the UN's Sustainable Development Goals (SDGs).
- **SDG Alignment:** Aligning with SDG 4 (Quality Education) by equipping students with the knowledge, skills, and values needed to address global sustainability challenges. This panel will explore how universities can integrate SDG-focused education into their curricula, fostering critical thinking, problem-solving, and leadership for a sustainable future.

- **Objectives**: Explore innovative pedagogical approaches for SDG education, identify best practices for integrating SDGs into curricula, and discuss the role of universities in promoting sustainable development.

Dr. Ebrahim Al Khajeh
Division Director of Human Capital at Abu Dhabi Customs

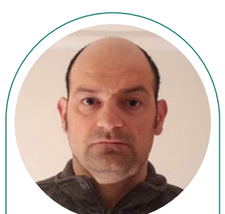
Dr. Jassim Al Awadhi
Digital Transformation Principal, Independent Expert



Prof. Dr. Monika Maria Möhring
Dean, Department of Management and Communication, Technical University of Middle Hesse, Giessen/ Friedberg, Germany

Moderator

Prof. Mohamed Dhiaf
President of Liwa College, Professor of Operations & Supply Chain Management



Prof. Mark Altaweel
Professor of Archaeological Data Science and Near East Archaeology, University College London

Prof. Dr. Malcolm J. M. Cooper
Director, NECO-GK Consultancy, Emeritus Professor, Ritsumeikan Asia Pacific University, Japan

Dr. Habib Fardoun
Consultant for University Ranking & International Relations, QS Quacquarelli Symonds

The 2nd International Conference on Advancing Sustainable Futures (ICASF 2024) | Conference Proceeding

CONFERENCE PANEL DISCUSSION

Navigating Finance and Audit in the Era of Innovation and Digital Transformation for Sustainable Futures

- **Overview:** This panel will examine how financial institutions and auditing practices need to adapt to the digital transformation and support sustainable development goals. Topics might include green financing, impact investing, and sustainable accounting practices.
- **SDG Alignment:** Aligning with SDG 8 (Decent Work and Economic Growth) and SDG 12 (Responsible Consumption and Production) by promoting sustainable financial practices that support the growth of green businesses, resource efficiency, and environmentally conscious production methods.

- **Objectives:** Discuss the role of finance in promoting sustainable businesses, explore digital tools for sustainable financial management, and identify best practices for sustainable auditing.

Prof. Brian Lucey
Professor of International Finance at Trinity Business School in Dublin, Editor of the International Review of Economics and Finance Journal

Mr. Amer Al Ahbabi
Chapter President | Institute of Material Accountants, USA-Abu Dhabi, Internal Audit Manager at the Institute of Applied Technology

Mr. Bashar Saidi
Deputy Director, Support Services, Arab Monetary Fund, Head of Vendor Management Office, FAB

Moderator

Prof. Nejla Ellili
Professor of Finance, Abu Dhabi University

Prof. Eileen McAuliffe
Pro Vice Chancellor Executive Dean, Faculty of Business, Law & Social Sciences, Birmingham City Business School, Birmingham City University

H.E. Hisham Al-Taher
Board Member, Chairman, Tax Committee, Media Affairs, Emirates Association For Accountants And Auditors (AAA)

CONFERENCE PANEL DISCUSSION

Driving Change: Innovation in Humanitarian, Anti-Poverty Solutions, Philanthropy and Corporate Social Responsibility, for Sustainable Futures

- **Overview:** This panel will showcase innovative approaches in humanitarian aid, poverty reduction, philanthropy, and corporate social responsibility (CSR) that contribute to sustainable development.
- **SDG Alignment:** Aligning with SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities) by exploring innovative solutions that address the root causes of poverty and inequality. This panel will discuss how philanthropy and CSR can be leveraged to empower communities, promote financial inclusion, and create opportunities for all. Digital tools can play a crucial role in facilitating resource distribution, communication, and data-driven decision-making for sustainable development initiatives.

- **Objectives:** Identify innovative solutions for tackling poverty and global challenges, explore the role of philanthropy and CSR in sustainable development, and discuss how to leverage digital tools for positive social impact.

HE Abdullah Al Ameri
Director General of the Authority of Social Contribution - Ma'an

H.E. Hamoud AlJunaibi
Undersecretary General, Emirates Red Crescent

Dr. Ansari Wahid
Group Chief Executive Officer, Adeeb Group

Moderator

Dr. Sarah Al-Hashimi
Associate Director, Abu Dhabi University Development Office, Abu Dhabi University

Dr. Omelkheir Mazouz
Executive Board Member in Sheikha Fatima Fund

Prof. Mahmoud Abdel-Aty
President of Arab Impact Factor and Dean of Research, Ahlia University, Bahrain

Prof. Suzanna Elmassah
Chair of Sustainability Program at Zayed University

CONFERENCE PANEL DISCUSSION

Empowering Women in the Digital Age: Challenges and Opportunities

- **Overview:** This panel will discuss the challenges and opportunities faced by women in the digital transformation era. Experts will explore ways to bridge the gender gap in technology access, education, and leadership.
- **SDG Alignment:** Aligning with SDG 5 (Gender Equality) by promoting equal access to technology and opportunities for women. This panel will explore how to bridge the digital gender divide, equipping women with the skills and knowledge to thrive in the digital economy and participate as leaders in shaping a sustainable future.

- **Objectives:** Identify barriers to women's participation in the digital economy, discuss strategies for promoting digital literacy and skills development among women, and explore ways to empower women as leaders in the digital transformation.

Dr. Huda Abdulrahman Al Matrooshi
President of the UAE Modern Pentathlon Federation, Vice President of the Asian Modern Pentathlon Confederation

Ms. Manaswita Singh
Chief Commercial Officer, Middle East & Africa, Kantar

Dr. Bibi Alajmi
Assistant Vice President for Planning at Kuwait University

Moderator

Ms. Allison Hamilton
Director, Talent Empowerment and Growth Department, Abu Dhabi University

Ms. Samar Alshorafa
Founding CEO of "She is Arab", 50 Inspiring Female Business Leaders 2022

Dr. Elham Chehaimi
Founder and CEO of Bright Path Global, Sustainability Strategist and CSR Advisor

Dr. Maryam Al Dhaheri
Strategy Formulation Expert and Operational Professional

CONFERENCE PANEL DISCUSSION

Driving Sustainability: The Impact of International University Rankings on Institutional Strategies and Practices

- **Overview:** This panel will explore how universities and industries can collaborate to prepare graduates with the skills and knowledge needed for jobs in a sustainable digital future.
- **SDG Alignment:** Aligning with SDG 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth) by ensuring graduates have the skills and knowledge for jobs in the green economy. This panel will explore how universities and industries can collaborate to develop curricula that equip students with expertise in sustainable technologies, green business practices, and innovation for a sustainable future. This fosters decent work opportunities and contributes to a skilled workforce that can drive sustainable economic growth.

- **Objectives:** Discuss the evolving skills needed for a sustainable workforce, explore models for university-industry collaboration in curriculum development, and identify best practices for fostering graduate employability in the context of sustainability.

Prof. Ghassan Aouad
Chancellor, Abu Dhabi University

Dr. Ashwin Fernandes
Executive Director (AMESA) at QS

Prof. Dima Jamali
VP of University Advancement at Canadian University Dubai (CUD)

Moderator

Prof. Barry O'Mahony
Provost, Abu Dhabi University

Prof. Ehab Abdel-Rahman
Provost, The American University in Cairo

Prof. Tarek Hassan
Professor of Construction Informatics, International Special Envoy (Middle East and North Africa), School of Architecture, Building and Civil Engineering, Loughborough University

Mr. Ihsan Zakri
Regional Head of Middle East and Africa at AACSB International

CONFERENCE PANEL DISCUSSION

Data Science for Sustainability

Session organized within the MICS (Made in Italy – Circular and Sustainable)

- **Overview:** This expert panel will explore how Data Science can advance sustainability in alignment with the Sustainable Development Goals. Discussion topics include integrating sustainable practices across various sectors through innovative Data Science solutions.
- **SDG Alignment:** Aligned with SDG 17 (Partnerships for the Goals), this panel will explore how to transform raw data into actionable insights, driving decision-making and strategic planning in support of a sustainable and hyper-connected world.

- **Objectives**: Discuss the pivotal role of Data Science in fostering a sustainable future.

Prof. Paola Zuccolotto
Director of the Big & Open Data Innovation Laboratory (BODaI-Lab, bodai.unibs.it), Professor of Statistics, University of Brescia

Prof. Michele Gallo
Professor of Statistics, University of Naples - L'Orientale

Prof. Rosaria Lombardo
Professor of Statistics, University of Campania "Luigi Vanvitelli."

Moderator

Prof. Paola Cerchiello
Professor of Statistics, University of Pavia

Prof. Francesco Palumbo
Professor of Statistics, University of Naples Federico II

Dr. Valentin Todorov
Senior Management Information Officer, United Nations Industrial Development Organization (UNIDO)

SPECIAL SESSIONS

Launch of Arab Universities for Climate Change Knowledge Network (AUCCKN)

- **Overview:** Uniting Arab universities to assess and report the climate change
- **Impact:** The network will play a vital role in guiding policies and strategies to address climate challenges in the Arab region. In addition, AUCCKN will support the establishment of carbon footprint measurement centers to enhance sustainability and measuring environmental impacts across member institutions

H.E. Prof. Amr Ezzat Salama
Secretary-General of the Association of Arab Universities

Prof. Ghassan Aouad
Chancellor, Abu Dhabi University

Prof. Randa Rizk
Head of Educational Media - Cairo University, Founder of the Arab Universities for Climate Change Knowledge Network (AUCCKN)

Prof. Sherine Farouk
Associate Provost of Internationalization and Academic Projects, Abu Dhabi University

Launch of ADU-Liwa College Global Collaborative Research and Innovation Program

- **Overview:** The International Collaborative Grant Initiative seeks proposals for joint research projects involving ADU and LC faculty, with a GEP member or a Co-PI from a top 200 institution. This grant supports projects advancing the UAE's national priorities, fostering impactful international collaborations, and contributing to high-quality academic outputs.

Prof. Ghassan Aouad
Chancellor, Abu Dhabi University

Prof. Mohamed Dhiaf
President of Liwa College, Professor of Operations & Supply Chain Management

Prof. Barry O'Mahony
Provost, Abu Dhabi University

Prof. Montasir Qasymeh
Associate Provost for Research and Academic Development, Abu Dhabi University

MOU SIGNING CEREMONIES

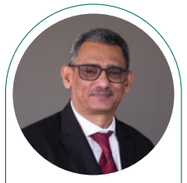
Abu Dhabi University and Institute of Management Accountants (IMA), USA

Mr. Mike DePrisco
President and CEO of the Institute of Management Accountants (IMA)

Mr. Ahmad Mkhallati
Senior Director, Middle East, India, & Africa Operations, IMA

Mr. Amer Al Ahbabi
Chapter President | Institute of Material Accountants, USA-Abu Dhabi, Internal Audit Manager at the Institute of Applied Technology

Prof. Ghassan Aouad
Chancellor, Abu Dhabi University



Dr. Hamad Odhabi
Vice Chancellor for Financial and Administrative Affairs, Abu Dhabi University

Prof. Barry O'Mahony
Provost, Abu Dhabi University

Prof. Sherine Farouk
Associate Provost of Internationalization and Academic Projects, Abu Dhabi University

Abu Dhabi University and Emirates Association for Accountants and Auditors (AAA)

Dr. Abdullah Ali Al Barakat
Secretary General Emirates Association of Accountants and Auditors

Prof. Ghassan Aouad
Chancellor, Abu Dhabi University

Dr. Hamad Odhabi
Vice Chancellor for Financial and Administrative Affairs, Abu Dhabi University

Prof. Barry O'Mahony
Provost, Abu Dhabi University

Mr. Salem Aldhaheri
Executive Director, Office of the Chairman, Abu Dhabi University

Prof. Sherine Farouk
Associate Provost of Internationalization and Academic Projects, Abu Dhabi University

MOU SIGNING CEREMONIES

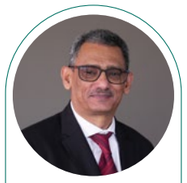
Abu Dhabi University and Southwest University of Finance and Economics, China

Dr. DENG Fuhua
Associate Professor, Dean Assistant, School of International Business, SWUFE, Member of the Expert Committee of China Association of Trade in Services

Ms. ZHU Linxiu
Secretary for graduate teaching, Program Coordinator of Service and Development Center for International Students, School of International Business

Ms.ZHAO Wei
International officer, College of International Education

Prof. Ghassan Aouad
Chancellor, Abu Dhabi University



Dr. Hamad Odhabi
Vice Chancellor for Financial and Administrative Affairs, Abu Dhabi University

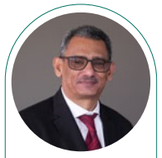
Prof. Barry O'Mahony
Provost, Abu Dhabi University

Prof. Sherine Farouk
Associate Provost of Internationalization and Academic Projects, Abu Dhabi University

Abu Dhabi University and Orbital Space

Dr. Bassam Alfeeli
General Manager of Orbital Space

Prof. Ghassan Aouad
Chancellor, Abu Dhabi University

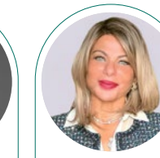


Dr. Hamad Odhabi
Vice Chancellor for Financial and Administrative Affairs, Abu Dhabi University

Prof. Barry O'Mahony
Provost, Abu Dhabi University

Mr. Salem Aldhaheri
Executive Director, Office of the Chairman, Abu Dhabi University

Dr. Hamdi Sheibani
Dean, College of Engineering, Abu Dhabi University



Prof. Sherine Farouk
Associate Provost of Internationalization and Academic Projects, Abu Dhabi University

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Digital-driven Innovation in Science and Engineering

ID: 311 | Barriers to Biomimetic Concept Integration within the South African Architecture, Engineering, and Construction Sector

Opeoluwa Akinradewo (University of Johannesburg); Ntebo Ngcobo (University of Johannesburg Department of Construction Management & Quantity Surveying); Douglas Aghimien (University of Johannesburg Department of Construction Management & Quantity Surveying); Lihle Mxabo (University of Johannesburg Department of Construction Management & Quantity Surveying)

Abstract:
Biomimicry is an innovative approach that leverages nature's strategies, mechanisms, and principles to address sustainable solutions to human challenges, drawing from nature's extensive database of adaptation strategies. This study explores the barriers to adopting biomimicry in the Architecture, Engineering, and Construction (AEC) sector in South Africa, with a particular focus on the integration of AI and other disruptive technologies and project management practices. Through a comprehensive survey distributed among South African built environment professionals, the research identifies not only the traditional obstacles, such as deficiencies in education, training, and multidisciplinary collaboration but also highlights the potential of AI to overcome these barriers by optimising design processes and materials selection. The findings emphasise the need for a structured project management approach to guide the practical application of biomimicry in construction projects. To facilitate this integration, the study recommends regulatory intervention, curriculum reform in higher education, and enhanced professional development opportunities that include training in AI applications and biomimicry. These measures are crucial for closing the knowledge gap, fostering effective multidisciplinary collaboration, and establishing a supportive framework that can propel the adoption of biomimicry, thereby advancing sustainability in the South African AEC sector.

ID: 251 | Circular Economy Adoption in the Construction Sector: A Bibliometric Analysis of Policy, Practice, and Technological Implementation

Kenneth Otasowie (CIDB Centre of Excellence and Sustainable Human Settlement and Construction Research Centre, Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg); Clinton Aigbavboa (University of Johannesburg); Ayodeji Oke (University of Johanneburg); Peter Adekunle (University of Johanneburg)

Abstract:
The construction sector, a significant contributor to global waste and resource consumption, is increasingly turning to the principles of the circular economy (CE) to enhance sustainability and efficiency. However, this shift involves rethinking traditional linear models of production and consumption in favour of a more regenerative approach, where materials and resources are continuously reused, recycled, and reintegrated into the production cycle. Therefore, this study explores the policies, practices, and technological implementation of CE in the construction sector through a bibliometric approach using the Scopus database. The keywords used for paper extraction from the database were "circular economy" AND "construction" AND "industry" OR "sector" AND "policies" AND "practices" AND "technologies". The VOSviewer software was then used to analyse a co-occurrence and co-authorship mapping, based on the bibliographic data gathered. The findings from the bibliometric analysis revealed research clusters, policy frameworks, practical implementations, and technological advancements in the construction sector. Furthermore, the findings highlight the critical role of policy interventions in promoting sustainable practices, the growing importance of innovative technologies, and the practical strategies industry leaders employ to integrate circularity into the construction processes. The findings also underscore the necessity of collaborative efforts among stakeholders to overcome technical, economic, and cultural barriers. Finally, the study concludes by providing valuable insights for policymakers, practitioners, and researchers, offering a roadmap for integrating circular economy principles to achieve sustainable development goals within the construction sector.

ID: 254 | Evaluating the Sustainability Impact of Modular Construction in Modern Architecture

Peter Adekunle (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg); Lerato Aghimien (University of Johannesburg); Kenneth Otasowie (University of Johannesburg)

Abstract:
Modular construction offers a promising approach to enhancing sustainability in modern architecture through several vital avenues. Firstly, its off-site fabrication reduces on-site construction time and minimises disruption to local environments, lowering overall energy consumption and pollution during the building phase. Additionally, the controlled manufacturing environment of modular units promotes efficient material use and waste reduction. This study offers insights into the sustainable benefits of modular construction in modern architecture. To evaluate the sustainability impact of modular construction, the study conducted interviews that involved building experts, construction managers and senior research associates with in-depth knowledge of modular construction. The study adopted a thematic approach to analyse collected data. The study's findings revealed that modular methods produce reduced greenhouse gas emissions compared to traditional construction, primarily due to reduced transportation and construction waste. In addition, modular construction was posited to improve resource efficiency through standardised designs and materials optimisation. The study concludes that modular construction generally offers significant sustainability benefits across environmental, social, and economic dimensions, contributing to achieving sustainable development goals 9, 11 & 13. However, the extent of these benefits can vary depending on factors such as project scale, location, and design complexity.

ID: 255 | Optimising Construction Workflow and Process: A Modularity Methodology Approach

Peter Adekunle (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg); ERNEST KISSI (KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY)

Abstract:
Modularity methodology refers to a systematic approach where building components are standardised and prefabricated off-site in a controlled factory environment. These prefabricated modules are then transported to the construction site for assembly, reducing on-site construction time and labour. This process enables simultaneous activities such as site preparation and foundation work, shortening project timelines. The study aims to propose a methodology that enhances construction workflow efficiency and effectiveness through the strategic application of modular principles, ultimately improving project outcomes in the built environment. Employing a qualitative research approach, the study utilises interviews with industry experts, project managers, and construction professionals to investigate the implementation and impact of modularity on construction practices. Through in-depth interviews, key insights are gathered on systematically integrating modular construction techniques to streamline workflow and enhance process efficiency. The findings highlight significant improvements in construction productivity through standardised modular components, prefabrication, and off-site assembly. These methodologies reduce project timelines, minimise on-site disruptions, and enhance quality control, improving overall project outcomes. The study recommends investment in quality education and training for construction teams to implement and manage modular construction processes effectively.

ID: 366 | A Qualitative Study on the Adoption of Digital Technologies in the Nigerian AEC Industry

Bukola Adewale (Covenant University); Clinton Aigbavboa (University of Johannesburg); Vincent Ene (Covenant University); Babatunde Ogunbayo (University)

Abstract:
The rapid digitalisation of the global Architecture, Engineering, and Construction (AEC) industry has highlighted the need for emerging economies to embrace technological advancements. This study investigates the adoption of digital technologies in the Nigerian AEC industry, aiming to assess current adoption levels, identify influencing factors, examine perceived benefits and challenges, and explore strategies for accelerating adoption. Employing a qualitative approach, semi-structured interviews were conducted with ten experienced professionals from various AEC subsectors in Nigeria. The study revealed varying levels of technology adoption, with traditional tools like CAD and BIM showing high adoption rates (80% and 60%, respectively), while emerging technologies such as AI, IoT, and robotics demonstrated significantly lower adoption rates (0-10%). Despite a generally positive attitude towards digital innovation, the industry faces substantial challenges, including high costs, skills gaps, and infrastructure issues. Critical benefits identified include improved efficiency, enhanced collaboration, and better project management. The research concludes that the Nigerian AEC industry is in a transitional phase, with considerable potential for further digital transformation. Recommendations include integrating digital technologies into AEC curricula, developing supportive government policies, improving digital infrastructure, fostering industry collaboration, and implementing phased adoption strategies. These findings provide valuable insights for industry stakeholders, policymakers, and researchers, contributing to developing strategies for accelerating digital technology adoption in the Nigerian AEC sector and potentially other emerging economies.

ID: 428 | Digital Transformation in the Building Industry: How is South Africa Faring?

Olushola Akinshipe (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg); Boitumelo Manenzhe (University of Johannesburg)

Abstract:
Digital transformation has been the topic of interest in the construction industry and academia for the last couple of decades since the initiation of the fourth industrial revolution. Digital transformation seems to be the solution that caters to most of the building industry's stumbling blocks. It plays a significant role in increasing productivity and resource efficiency. Due to this, digital techniques and operations are gradually becoming a demand for construction companies to remain competitive. It is therefore pertinent to assess the degree of usage of digital tools available for built environment professionals to carry out their daily activities. To achieve this objective, a quantitative research method was implemented by surveying building professionals' opinions in South Africa. The survey was taken through random and snowballing sampling, and the data retrieved was analysed using descriptive statistics. Also, the data collected was subjected to a Cronbach Alpha Test to check the reliability of the data. The results show that the level of awareness and usage of digital tools in South Africa is still low. Modern technology tools widely used within the industry include mobile phones, computers, and GPS systems. However, the most effective tools such as BIM, Big data analytics, Virtual and Augmented Reality and Cyber-Physical Systems are not commonly used. Therefore, the industry must continue to strive for a complete digital transformation to make life easier for working professionals.

ID: 429 | Tackling Environmental Deterioration: Alternative Building Techniques as a First-Rate Strategy from the Construction Industry

Yusuf Dangor (cidb Centre for Excellence & Sustainable Human Settlement and Construction Research Centre, Faculty of Engineering and the Built Environment, University of Johannesburg); Olushola Akinshipe (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg)

Abstract:
Indeed, the construction sector is a vital investment-driven industry that substantially impacts every economy worldwide. Despite its valuable role, the industry has been infamously branded as wasteful and significantly contributes to environmental degradation. The construction industry is leading the way in implementing sustainability measures by employing environmentally friendly technology to solve various global environmental issues. The current study set out to assess how Alternative Building Techniques (ABT) can facilitate sustainable construction to address the environmental deterioration in South Africa. A well-defined questionnaire was used to obtain data from construction experts using a quantitative research technique. The retrieved data were analysed and ranked using descriptive statistics. The findings indicated that minimal waste output, promotion of rapidly renewable, low emission resources, efficient construction process, recycled material utilisation, and improved ventilation and air quality are the most eminent benefits of adopting ABTs to the environment. This study recommended that institutions create awareness of building impacts on the environment, the concepts of sustainable construction, and the various benefits of implementing ABT usage.

ID: 430 | Digital Built Environment in Developing Countries: Assessing Students' Readiness

Olushola Akinshipe (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg); Khanyisana Dywaru (University of Johannesburg)

Abstract:
The building and construction industry faces numerous challenges that can be addressed through digitalization and the utilization of modern technological tools. However, the effective implementation of these digital advancements requires adequately trained and skilled personnel. Therefore, this study focuses on assessing the readiness of students in the built environment field to enter a digitally equipped industry. A quantitative research approach was employed to carry out this study. A well-structured closed-ended questionnaire was utilized to collect primary data from students in the built environment field, enabling measurement of their level of preparedness for the professional industry in the digital age. The findings reveal a solid grasp of foundational digital technologies like Computer Aided Designs (CAD) and Mobile Technologies, indicating familiarity with conventional tools integrated into academic curricula. However, there is a clear need for further education and exposure to more advanced concepts such as Building Information Modelling (BIM), Artificial Intelligence (AI), and Additive Manufacturing/3D Printing, as reflected in lower mean scores. The implications of these findings underscore the importance of enhancing curricula to include comprehensive coverage of emerging technologies, alongside providing practical training and industry collaborations to better prepare students for the digital construction landscape.

ID: 434 | Striving Towards a Sustainable Climate: An Evaluation of Sustainable Development Goal Thirteen in Ghana

Simon Ametepey (Koforidua Technical University, Centre for Sustainable Development); Clinton Aigbavboa (University of Johannesburg); Wellington Thwala (Walter Sisulu University); Rexford Aboagye (Centre for Sustainable Development); Hutton Addy (Centre for Sustainable Development)

Abstract:
Climate change poses a worldwide threat that demands immediate adaptation and mitigation efforts to offset its diverse effects. As a developing country, Ghana is highly susceptible to climate change impacts such as droughts, floods, and rising sea levels. The urgency to find solutions to climate change is paramount. The Sustainable Development Goal (SDG) 13: Climate Action as a guiding framework for mitigating and adaptation promotion. This study assessed Ghana's progress and efforts to achieve sustainable climate action. The study adopted a document analysis methodology, relying on secondary data from national and internal reports and publications from both government/ non-government organizations. The study adopted a descriptive analysis based on the United Nations framework for SDG 13. The analysis covered four areas: strategies, policies, mitigation measures, adaptation measures, and challenges in implementing SDG 13. The study's findings revealed that the National greenhouse gas emission of the countries based on the metric tonne equivalent of carbon dioxide had increased drastically over the past three decades from 24.78 MtCO2e to 58.56 MtCO2e. In response to various internal agreements such as the Paris Agreement, the government of Ghana has developed different policies and strategies such as the National Adaptation Plan, the Green Ghana Project, and incorporating climate change resilience into school curricula. Despite these strides, access to funding, unavailability of data, and inadequate technical expertise hinder Ghana's successful implementation of sustainable climate action. Therefore, active stakeholder engagement, increased funding, and training are needed to aid Ghana in achieving a sustainable climate by 2030

ID: 357 | Evaluating Factors Causing Waste in The Construction Industry: Construction Stakeholders Perspectives

Babatunde Ogunbayo (University of Johannesburg); Samuel Adekunle (University of Johannesburg); Opeoluwa Akinradewo (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg)

Abstract:
Construction waste is material, substance, and resource generated and abandoned during construction activities that are not utilised or repurposed effectively. Hence, this study aims to evaluate factors causing construction waste in the construction industry from the view of stakeholders' perspectives. Structured questionnaires were distributed to stakeholders in Gauteng province who are involved in construction activities through systematic random sampling techniques to collect data on the factors causing construction waste in the construction industry. Data collected through the questionnaire were computed through descriptive analysis. Using a statistical data equation, a valid mean item score was determined in the study, and each item was ranked while standard deviations and Cronbach's alpha were established. The study findings indicated that poor site organisation, use of inexperienced personnel, inadequate storage facilities, delays in material delivery, poor project planning, access issues on sites, and over-ordering of materials were the leading factors causing construction waste in the construction industry. These factors interact in intricate ways, exacerbating waste generation and its adverse effects on construction project outcomes. The research is limited to stakeholders involved in the construction activities in Gauteng province, South African construction industry. Further research could be conducted among professionals and other stakeholders in other provinces to identify factors causing construction waste in other provinces. The study suggests early collaboration among stakeholders in construction projects through comprehensive project planning and design to minimise construction waste generation from the project's outset. The study contributes to the body of knowledge by giving the construction stakeholders an understanding of relevant factors that could cause construction waste in the construction industry at the production and handover stages.

ID: 358 | Benefits of Adopting Robot-Assisted Construction Approach in the Built Environment

Opeoluwa Akinradewo (University of Johannesburg); Samuel Adekunle (University of Johannesburg); Babatunde Ogunbayo (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg)

Abstract:
Since the mid-20th century, robotics has significantly advanced across various sectors, yet its adoption within the built environment has lagged. Robots, capable of autonomous operation, have been utilised in construction since the 1960s and 1970s, but the built environment remains slow to embrace this innovation. Hence, this study employs quantitative research methodology to investigate the benefits of adopting an AI-enhanced robot-assisted construction approach in the built environment. Questionnaire surveys were administered to professionals in the South African construction sector to gather insights on the potential benefits of this approach. 124 respondents contributed to the study, and the collected data were analysed using mean scores, standard deviations, and exploratory factor analysis. The findings indicated that adopting AI-enhanced robot-assisted construction significantly improves productivity, enhances efficiency, and boosts product quality through advanced technology. Additionally, findings revealed that it facilitates lifting heavy objects on sites and improves site monitoring. The study concludes that integrating AI-enhanced robot-assisted construction can significantly benefit the built environment, particularly in improving operational accuracy, efficiency, and safety. The study recommended increasing awareness of these benefits to encourage broader robotics adoption in construction, especially in developing countries like South Africa.

ID: 709 | Digital Solutions for Enhancing Circular Economy Practices in Waste Management: A Case Study in the United Arab Emirates

Zoubida benmamoun (Liwa College)

Abstract:
The present study aims to investigate the application of the DMAIC approach to enhancing waste management in the UAE to suit circular economy models. The research is concerned with the application of the DMAIC structure with reference to IoT, AI, or blockchain-based technologies where critical issues about elevated waste production, low recycling, and high landfill reliance are relevant to circular economy. The Define phase explores critical gaps in the UAE current approach to waste management, and determines goals for amendments. In Measure phase, the IoT sensors capture the current performance trend data related to waste generated and frequency of collections, and rates of recycling. In the Analyze phase, this information is analyzed using artificial intelligence (AI) and analytics to identify trends, issues and problems like contamination in materials being recycled or poor or inefficient routes for collection. The Improve phase implements, for instance, sorting robots based on artificial intelligence in waste sorting, collection routes based on predictive analysis on the collection optimization, as well as blockchain technology for tracking waste disposal. Finally, the Control phase maintains the continued implementation of these improvements for sustainable purposes using real-time monitoring systems and dashboards and automated alerts. The research also assess a real life case of Bee'ah, a leading sustainability company in UAE to show how DMAIC approach has been used to realise impressive decline in landfill usage and rise in recycling.

ID: 711 | The Evolving Role of Analytics in Scalable Cybersecurity Strategies using Big Data

Dr. Suraj Shah (Ganpat University); Dr. Priyanka Pathak (Ganpat University); Dr. Remi Mitra (Ganpat University); Dr. Mahendra Sharma (Ganpat University)

Abstract:
The growing complexity of cyber attacks has made it necessary to have effective proactive strategies that are precise and dynamic in their operation. This study deals with how Big Data Analytics (BDA) integrates into cybersecurity measures and the improvement it offers. Organizations are able to conduct timely analysis on different sets of data due to the vastness of BDA, thus managing to quickly detect, prevent, and respond to cyber threats. The study points out advanced forms of BDA, such as machine learning, predictive analytics, and anomaly detection, which have been able to demonstrate improvement in risk management strategies through pattern identification. Empirical evidence and case studies highlight Big Data Analytics as a versatile tool that enhances modern cybersecurity capabilities by elevating situational awareness and optimizing decision-making processes. With these systems in place, organizations can expect to detect threats to objects like ransomware and advanced persistent threats due to the adoption of BDA-driven systems. This study also highlights challenges such as data complexity and resource limitations, emphasizing the need for advancing Big Data methods that can adapt to the rapidly evolving and aggressive threat landscape. The results underscore the significant advancements achievable through the adoption of big data analytics in the cryptocurrency domain. However, the findings also expose pressing concerns, emphasizing the urgent need for organizations to rapidly transform their security strategies. Additionally, the study outlines various methods to bolster organizational resilience in response to emerging threats.

Keywords: Big Data Analytics, Cybersecurity, Scalable Strategies, Emerging Threats, Predictive Analytics

ID: 714 | Familial Roots of Sustainability: Investigating the Impact of ESG Factors on Firm Performance in Family-Owned Businesses

MUBEENA C (University of Calicut)

Abstract:
Family-owned businesses play a vital role in the global economy, characterized by their unique blend of tradition, legacy, and close-knit relationships. Despite their significance, the intersection of Environmental, Social, and Governance (ESG) factors with family ownership and management dynamics remains underexplored. This study aims to address this gap by investigating the influence of ESG factors on the performance of family-owned firms and exploring the relationship between family involvement in management and ESG commitment. The study employs a comprehensive approach to assess how ESG considerations contribute to the financial performance and long-term viability of family-owned businesses. Additionally, it explores how family members' participation in managerial roles influences the prioritization and execution of ESG initiatives within these companies. Through a combination of quantitative analysis, qualitative research methods, and theoretical frameworks drawn from the family business, corporate governance, and sustainability management, the study provides valuable insights for academics, practitioners, and policymakers. The findings of this study have significant theoretical and practical implications. From a practical standpoint, the insights gained from this study inform strategic decision-making processes within family-owned firms, offer practical guidance for integrating sustainability principles into operations, and provide actionable insights for policymakers interested in promoting sustainability in family-owned businesses. Overall, this study advances our understanding of sustainability management in family-owned businesses and provides valuable insights for enhancing their sustainability performance.

ID: 289 | Framework for Enhancing Sustainability and Security in Smart Cities through Innovative LiFi Communication in the UAE

Author: Modafar Ati (Abu Dhabi University); Bissan Azzam (Abu Dhabi University)

Abstract:
The vision for the future smart city is to ensure sustainable development by integrating security, economy, and energy. Urbanization calls for innovative solutions that are sustainable and efficient. Only a handful of countries have embraced a comprehensive smart city vision that emphasizes security. Achieving a truly smart city requires prioritizing security from the outset. Smart cities also encompass transportation, healthcare, education, and governance. It is about creating a harmonious environment where security, economy, and energy interleave seamlessly. Cities can become sustainable and efficient through a comprehensive smart city vision and diligent planning. This research aims to develop a practical framework comprising specific applications and technologies that contribute to the national smart city plan while enhancing sustainability and security for Abu Dhabi. Here, it considers incorporating innovative communication technology and urban operations center systems for real-time data processing and decision-making to enhance the sustainability and security of smart cities. This technology is a wireless optical networking technology that uses light-emitting diodes manipulated in a way that is imperceptible to the human eye to send data (LiFi). LiFi offers several advantages over traditional radio frequency-based technologies such as Wi-Fi. This communications technology is seen as a great alternative to a traditional WiFi. Despite the attractive features and increasing attention on this technology, research is still immature with little understanding of its performance and full implementation. A roadmap for adoption in smart cities is proposed for testing, validation, and regulation.

ID: 677 | Role of innovation persistence on product innovation in SMEs

Wael Assaf (Lancaster university); Amjad Fayoumi (Lancaster University); Joao Baptista (Lancaster university)

Abstract:
Despite numerous studies on innovation persistence over the past 20 years, defining its source in the firm remains challenging. There is still no common approach to achieving innovation persistence which leads to ambiguity in handling turbulent innovation environment. This paper examines the importance of innovation persistence in an IT firm in Jordan. It explores the role of path dependence in slowing or restricting the process of continuous innovation in firms. Over 40 interviews were conducted with senior-level employees at the firm. The study captures and conceptualizes the processes that create path dependency and lock-ins, while also identifying pressures and internal mechanisms that enable these organizations to continuously innovate and maintain their competitive edge in the highly dynamic tech sector. The findings suggest that in emerging countries, tech firms often develop products in response to local and regional customer requirements. Factors contributing to path dependencies include resistance to changes in leadership styles, shifts in technology paradigms, and the departure of internal team members. While these factors hinder progress, they also present opportunities for innovation. For instance, new technology paradigms can enhance agility in product development, allowing firms to break free from initially established paths.

ID: 715 | Utilizing AI tools to achieve global citizenship: cross-cultural collaboration and SDGs awareness in higher education.

Shahinaz abdelrahman (UAE University); Rania Bashir (University of Technology and applied sciences)

Abstract:
This study aims to explore the opportunities of using AI techniques to promote global citizenship. This study will also suggest a Sustainable Development Goals awareness program in a cross-cultural context to promote global citizenship in higher education. The study will use the Delphi Method over three rounds of semi-structured interviews with college professors, instructors, and experts in higher education and artificial intelligence to get their opinions for a qualitative Delphi study. The study will perform thematic qualitative analysis on the answers from the Delphi rounds and interviews to identify recurring themes and patterns. Purposive sampling will select study participants, ensuring diversity in perspective and geographic representation. This study will run from January 2025 to May 2025.

ID: 680 | Revolutionizing Healthcare Through Digital Transformation: Innovations, Challenges, and Future Directions

Mohammad Jamali (Liwa College); Mohammed Abushohada (Liwa College); Sameh Elsonbaty (Liwa College)

Abstract:
The digital revolution in health is changing the provided medical care and the universality and administration of healthcare services through technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), telemedicine, and big data analytics. These are the innovations that help solve several of the age-old problems in health diagnosis, boosting patient cooperation and improving operational efficiencies. However, the gap in the realization of technological innovations, especially in the health sectors, is still varied due to several factors, such as weak data security mechanisms, lack of efficient integration capability, and disparity in the usage of digital devices in the health sector.
This study's systematic literature review covered 94 peer-reviewed articles and other reputable sources. The aim was to ascertain the uses of emerging technologies within the health sector, assess the various patient outcomes they yield, and identify multiple factors that influence the adoption of new technologies. The critical selection principles included empirical data, methodological quality, and instrumental relevance to the field of digital health. It brings forth substantive progress in developing remote health technologies, namely personalized medicine, remote monitoring, and healthcare delivery. The role of AI has been that of the transforming force, which enabled easy analytics for an accurate diagnosis. IoT devices and telemedicine services contributed substantially to the accessibility of healthcare services, particularly during the time of disaster such as the COVID-19 pandemic. These findings also reveal critical barriers: the digital divide in health, the lack of synergism between tools, and the unmet need for an overall data protection strategy. These problems can be resolved through the help of inclusive AI principles, protocols agreed upon for data sharing and usage, and high enough investment in cultural and physical resources.

ID: 249 | Regulating Green IT Innovations: Legal Frameworks and Governance Strategies for Ensuring Sustainable Digital Transformation

Nourham Saber (Abu Dhabi University); Nagwa Abouhaiba (Nagwa Abouhaiba)

Abstract:
Regulating Green IT Innovations: Legal Frameworks and Governance Strategies for Ensuring Sustainable Digital Transformation. Ms. Nourham Hammad, LLM, Prof. Nagwa Abouhaiba, Ph.D. Abu Dhabi University, UAE. University of Birmingham, UK. As technology advances rapidly, integrating sustainability into digital innovations and AI tools is crucial. This paper explores balancing technology with environmental responsibility. It examines green IT solutions like energy-efficient computing and data management, and how laws like the UAE's Federal Law No. 2 of 2019 on Cloud Computing Services and the EU's GDPR address these issues. The EU's Circular Economy Action Plan also promotes sustainable practices in digital sectors. By analyzing successful implementations and legal contexts, this paper offers best practices and recommendations to enhance legal frameworks, aiming to drive sustainable digital transformation.

Keywords: IT Law, AI Tools, Sustainability, Green IT

ID: 566 | Submarine Obstacle Detection And Environmental Monitoring System

Sandhia G K (SRMIST); saisanthiya D (SRM Institute of Science and Technology); Ranjani M (SRMIST)

Abstract:
The advent of a miniaturized autonomous device tailored for submarine deployment marks a monumental leap forward in underwater reconnaissance technology. This cutting- edge device has been meticulously crafted to operate independently, proficiently detecting objects, assimilating comprehensive data about its immediate environment, and seamlessly relaying this invaluable information back to the submarine. Its compact dimensions coupled with its autonomous functionality herald a new era in submarine operations, promising to substantially augment their efficacy across a spectrum of underwater missions, encompassing surveillance, reconnaissance, and navigation. This paper serves to meticulously detail the intricacies of the design, development, and proposed implementation methodology of this ground-breaking device, underscoring its transformative potential in underwater operations. This miniaturized autonomous device not only enhances the efficiency of submarine operations but also reduces the risks associated with human intervention in hazardous under water environments. Its seamless integration into existing submarine systems promises to streamline reconnaissance missions and optimize resource allocation. This device represents a significant milestone in underwater exploration and defense capabilities.

ID: 567 | Intelligent Parking Space Allocation System with License Plate Number Recognition

Sandhia G K (SRMIST); RamaPrabha Jayaram (SRM Institute of Science and Technology); Ranjani M (SRMIST); U M PRAKASH (SRM IST,KTR

Abstract:
The Intelligent Parking space allocation and management system automates the parking allotment process and ease the parking experience with effective time management. The system is implemented by using Android Application that provides the user with easy navigation and transaction system. To obtain the data and display it in the user interface, the Android application communicates with the backend server. In order to aid in navigation, it also uses the user's GPS coordinates in real time. Several methodologies namely TensorFlow Object Detection Fine Tuned with transfer Learning Approach is used to detect License Plates and an EasyOCR model with PyTorch is trained for Optical character Recognition, IR sensors detects the parking space occupancy and are implemented within the system. The system reduces the need for dependency on manual operation and management by automating the ticketing and payment collection. The system increases parking management policies, reducing traffic congestion and increasing time efficiency by at least '62.5%'.

ID: 175 | Groundwater quality index assessment for Konya closed river basin, Türkiye

Carmen Maftei (Transilvania University); Ionela Carazeanu Popovici (Ovidius University of Constanta); Kubra Kucuk (Kto Karatay University); Radu Muntean (Transilvania University of Brasov)

Abstract:
This paper investigates the quality index of groundwater in Konya closed basin. The assessment of groundwater quality is based on integration of different chemical parameters across 163 groundwater wells situated in Konya closed River basin using groundwater quality index. The measurement of these wells was made by 'DSI' (National Hydraulic Works) and refers to pH, anions and cations. The Konya Closed Basin is located in Turkey's Central Anatolia Region between 36°51' and 39°29' northern latitudes and 31°36' and 34°52' eastern longitudes. is surrounded by the Sakarya and Kızılırmak basins to the north, the Kızılırmak and Seyhan basins to the east, the Eastern Mediterranean to the south, and the Antalya and Akarçay basins to the west. Evaluation of chemical parameters is according to WHO and Türkiye standard limits. GIS is used to evaluate spatial representation of groundwater quality index.

ID: 176 | Evolution of Nuntasi-Tuzla Lake chemistry in the conext of human intervention

Carmen Maftei (Transilvania University); Ionela Carazeanu Popovici (Ovidius University of Constanta); Gabriel Dobrica (National Administration "Romanian Waters" -Dobrogea Littora); Natalia Lupascu (GeoEcoMar)

Abstract:
This paper investigates the evolution of Nuntasi-Tuzla Lake (Romania) chemistry in the context of human intervention. Situated on the shore of the Black Sea, approximately 35 km north of Constanța town, Lake Nuntași-Tuzla is part of the Razim-Sinoe lake complex and a component of the Danube Delta Biosphere Reserve. This area has undergone significant transformations over the past 120 years: canalization of the connecting channels with the St Gheorghe arm, construction of polders for agriculture, closure of the "gates" connecting to the Black Sea, and construction of the Razim-Sinoe irrigation system. All these interventions have led to the ecological, hydrological and chemical deterioration of the lake's water. The main effects are: (i) a decrease in water salinity and (ii) a reduction in the production of sapropelic mud as salinity decreases due to the influx of fresh water.

ID: 203 | Drought analysis using composite drought index over Dobrogea region of Romania

Cristina Serban (Faculty of Mathematics and Informatics, Ovidius University of Constanta); Carmen Maftei (Transilvania Uni

Abstract:
Drought is among the most intricate and expensive natural disasters. The determination of drought indices using the SPI or SPEI index requires knowledge of precipitation and evaporation values. In cases where these data are unavailable or insufficient, a composite index based on remote sensing data can be determined. This paper investigates the possibility of drought analysis using the composite drought index (CDI), based completely on remote sensing data (LST - land surface temperature, NDVI - normalized difference vegetation index, and precipitation). This method is applied on Dobrogea region, which is situated in south-eastern part of Romania. Furthermore, the corresponding drought classes and maps, derived from the CDI time series, can be generated for each year of the study period. Based on the results obtained, we consider this index is useful to understanding the drought dynamic in region of Dobrogea and to drought prediction.

ID: 241 | Innovative Coking Coal Blending Model Development and Optimization

Seshibe S Makgato (University of South Africa); Bridjesh Pappula (University of South Africa); Shale Mamabolo ((University of South Africa)

Abstract:
In recent years, the global expansion of the iron and steel industry has had a significant impact on the international coking coal market. This modification has resulted in a substantial increase in coal costs and presented additional difficulties in obtaining coals that were previously readily available in the market. The current study seeks to advance the development of predictive models for coal blending across various scenarios that are considered. This will be achieved through the manipulation of the proportions of imported coking coals in the base composition. An exhaustive analysis of the mixture will be conducted employing well-established analytical techniques. The present research introduces a modelling and optimization approach that considers the unique attributes of the coal combining and coking procedure. The four coals used to make the blend in this study were supplied by members in the South African steel industry, as these coals are frequently included in industrial blends to produce metallurgical coke. The coals being tested cover a wide range of volatile matter content, thermoplastic properties, and geographical origin. The Ruhr dilatometer was used to measure total dilatation in coal/plastic mixtures, while bulk density was determined according to ISO 23499. The thermoplastic properties of coals and blends were tested using the Gieseler Plastometer method, following ISO 10329 standard procedures. Based on the findings, numerous factors influence the adaptability and coking ability of coal, in addition to its classification and the quantity of formation. The reflectance of vitrinite is a critical factor in determining the rank of coal, which is necessary to assess its qualities. The quantity and type of macerals, particularly vitrinite and the microlithotypes that are associated with them significantly influence the properties of these substances.

ID: 353 | Investigating the Blockchain Capabilities for Improving the Circularity of Textile Industries with a Focus on Fast Fashion

Camila Eugenia Rodezno Canahuati (Constructor University bremen); Omid Fatahi Valilai (Constructor University bremen)

Abstract:
Fast fashion is under criticism of natural resources and human labor to produce and sell clothes at a cheaper price than most known manufacturing brands. As their target is to produce at the cheapest price possible, they also use inhumane conditions for factory workers who don't even get minimum wage. To help combat this problem, awareness needs to be raised by sharing comprehensive data with customers about the footprint of fast fashion products as through the past decades, being greener, or more sustainable, and having environmentally friendly practices has become of a major importance to consumers. The overarching aim of this research is to develop a way to raise awareness of fast fashion by implementing blockchain technologies to increase the transparency of the textile industry. This paper has conducted a literature review over circular economy aspects of fast fashion in textile products to understand the need for a more sustainable approach in the textile industry. After conducting a comprehensive and analytical literature review with a focus in the fashion industry and its current trends in Europe, the paper suggests the advantage of transparency that blockchain technologies can provide, a solution to fast fashion is proposed in the following pages. The model consists of recording the carbon emissions of each step in a supply chain, from sourcing the raw material to transporting it to the customer's reach. This model helps to create transparent supply chains to foster circularity into the fashion industry by recording the number of carbon emissions produced during each step of the supply chain of each product.

ID: 424 | Implementing Blockchain for Improving Lean Concepts in Supply Chain Network

Mohammad Yaser Mofatteh (Constructor University Bremen); Kushal Bhandari (Constructor University Bremen); Dhushyanth Ravindran (Constructor University Bremen); Omid Fatahi Valilai (Constructor University Bremen)

Abstract:
In most of the companies, Supply chain management (SCM) fails due to inadaptability of changes with the markets, practices of functional and independent nature and the lack of understanding towards lean concept and its philosophy. Un-like the traditional SCM, the lean culture is to reduce waste and loss by maximizing flow value. Blockchain technology ensures the authenticity and traceability of information during transmission and the security of transactions in a distrusted environment which becomes very suitable for solving the challenges faced in the supply chain network. These characteristics have a significant impact in the de-sign and the operations of the whole supply chain. This research discusses how blockchain technology would impact the whole supply chain network by adapting the lean concepts in the inventory and to make the chain more sustainable. For this implementation, smart contracts can be used to provide transparency and de-scribe the stake of the shareholders across the network. The lean concepts, when combined, result in less inventory, which reduces waste. These actions in turn reduce the transactions, costs, excess inventory, and waste, which makes the sup-ply chain more sustainable. The proposed model can be used for future studies by implementing inductive approach with real case scenarios, to guide the Block-chain projects from the value definition to the implementation. The model facilitates readers to select appropriate lean based steps using their own insights through investigations to influence business objectives and targets. Moreover, a future direction of our research is devoted to extending our methodology to other applications.

ID: 510 | Flow boiling on smooth surface with 45° inclination

Abdul Hanan (UAE University); Fadi Alnaimat (United Arab Emirates University); Bobby Mathew (UAE University)

Abstract:
Flow boiling heat transfer on smooth surfaces is a fundamental and crucial phenomenon in many engineering applications, including power production, electronics cooling, and refrigeration systems. This research dives into the complexities of heat transfer during flow boiling, which occurs when a liquid vaporizes by interacting with a heated surface while also experiencing convective movement with different module orientations. To explore the effect of surface properties on heat transfer performance, smooth surface topology is used. The experimental test channel is smooth rectangular body with a gap of 1.5 mm for fluid flow and a characteristics length of channel is 270mm with an inclination 45°. The heating source used in the setup are 8 cartridge heaters of power 50W. In order to understand the features of heat transfer and two-phase vapor-liquid, high-speed visualization was used. It is observed that the tilted surface shows highest heat transfer coefficient 2.23 kW/m2.K at 50.35 kg/m2.s. The same type of trend can be seen in evaluating Nusselt number with most of the values lies within the laminar flow range.

ID: 522 | Decreasing the Computational Time and Domain Size Using Inlet Velocity Profile

Irfan A Sheikh (UAE University); Emad Elnajjar (UAE University); Mahmoud M. Elgendi (UAE university)

Abstract:
Many flow problems require fluid velocity as the inlet boundary condition. Generally, for simplicity, constant uniform velocity is used as inlet boundary condition in any software such as ANSYS-Fluent, and the software adjusts the flow in the given domain. Some problems do not require the thermal aspects of the flow, so the thermal boundary layer has not been considered in this study. This research aims to investigate the effect of inlet velocity boundary conditions in laminar and turbulent flow on the solution and how it will affect the results. Velocity expression is entered as a non-uniform velocity distribution instead of a constant value to reduce the computational domain size, which is required for fully developed flow. The results show that using velocity expression decreases the computational time and resources.

ID: 587 | Turbine Blade Leading Edge Cooling Through Jet Impingement: A Review

Irfan A Sheikh (UAE University); Emad Elnajjar (UAE University); Mahmoud M. Elgendi (United Arab Emirates University)

Abstract:
Turbine blade leading edge impingement cooling is a specialized method of cooling used to protect and extend the life of turbine blades in high-temperature and high-stress operating environments. The leading edge of a turbine blade, which faces the hottest gases, is particularly susceptible to extreme temperatures and heat-related stress, so this area is of prime interest to the researchers. A precise review is presented on different techniques used by the researchers to address this issue using impingement cooling on leading edge surface. This review is useful in understanding these techniques applied for turbine blade impingement cooling and getting a direction for future studies in this field.

ID: 586 | Flow Past a 2D Circular Cylinder in Laminar and Turbulent Conditions: A CFD Validation Study

Irfan A Sheikh (UAE University); Emad Elnajjar (UAE University); Mahmoud M. Elgendi (United Arab Emirates University)

Abstract:
Flow over a circular cylinder is a basic phenomenon which produces a regular pattern of alternating vortices known as Karman vortex street. This flow behaviour is important to study various applications where the flow passes over a tube, pipe or duct for cooling, heating, or any engineering application due to oscillation in the wake zone and separation of the boundary layer over the cylinder. The vortex shedding behaviour changes with the changing Reynolds number, and different studies have been conducted on laminar, turbulent, and transitional flows at the subcritical, critical, and supercritical Reynolds numbers. This research aims to numerically validate the flow behaviour around a two-dimensional circular cylinder at two different Reynolds numbers, i.e., one in the laminar region and the other in the turbulent region. The computational results are validated with the already available data of drag coefficient and pressure coefficient at these Reynolds numbers. The results are in good agreement with the available data and can be used to predict flow behaviour over cylindrical shapes in the laminar and turbulent regimes.

ID: 601 | Bio-based computationally designed nanofertilizers: A paradigm shift toward sustainable agriculture and enhanced crop productivity

Karen J Cloete (University of South Africa)

Abstract:
The escalating global demand for sustainable agricultural practices necessitates innovative approaches that reduce environmental impact while maintaining high crop yields. Green-synthesized nanofertilizers, engineered through eco-friendly methods leveraging natural plant extracts present a transformative solution in this regard. These novel nanofertilizers offer controlled release properties, enhanced bioavailability, and targeted nutrient delivery, significantly improving nutrient use efficiency compared to conventional fertilizers.
This presentation aims to engage stakeholders across academia, industry, and policy-making to accelerate the transition toward sustainable agricultural systems through the adoption of green-synthesized nanofertilizers, setting a new benchmark for eco-friendly innovation in crop management. More specifically, the presentation will delve into the role of green-synthesized nanofertilizers as seed imbibition agents as well as their other potential applications within the agricultural nexus. We explore their physico-chemical characteristics, mechanisms underlying their enhanced nutrient delivery, and effect on the seed ionome and metabolome of bean as a pulse crop using multidimensional and advanced accelerator-based and micro-computed tomography analytical approaches. These novel findings will underscore the pivotal role of green nanotechnology in advancing sustainable agricultural practices. By harmonizing computational design and green synthesis, such research further paves the way for the development of next-generation nanofertilizers that not only boost agricultural productivity but also align with global sustainability goals. The implications for policy, industry adoption, and future research directions will also be discussed, advocating for a holistic approach to integrating nanotechnology in sustainable farming practices.

ID: 602 | Harnessing metallophytes for phytoremediation: Advanced strategies for the restoration of metal-contaminated sites

Karen J Cloete (University of South Africa)

Abstract:
The remediation of metal-contaminated sites presents a critical environmental challenge due to the persistence and toxicity of heavy metals such as lead, cadmium, arsenic, and mercury. Conventional methods for site decontamination, including excavation and chemical treatments, are often costly and can further disrupt ecosystems. Metallophytes—plants naturally adapted to thrive in metal-rich soils—offer a sustainable, in-situ solution through phytoremediation, leveraging their unique ability to uptake, sequester, and detoxify heavy metals from the environment.
This advanced study explores the mechanisms and optimization strategies for employing metallophytes in the bioremediation of contaminated sites, focusing on the physiological aspects of metal uptake using advanced accelerator-based techniques to understand quantitative multi-elemental uptake and distribution within plant morphological tissues. In addition, the presentation will outline how the integration of AI-driven predictive modelling with field data can enable the identification of optimal plant species and site-specific management practices, further refining phytoremediation efficiency. We will also discuss the implications of metallophyte-based strategies for ecosystem restoration, including the recovery of soil health, biodiversity promotion, and the potential for metal recovery and recycling through agromining techniques. The presentation will conclude with recommendations for policy frameworks and economic models to support large-scale implementation of phytoremediation using metallophytes, advocating for a paradigm shift toward greener, cost-effective, and sustainable solutions for the restoration of metal-contaminated environments. In conclusion, this presentation aims to engage researchers, environmental practitioners, and policymakers in advancing phytoremediation technologies

ID: 438 | Excavation Support Techniques in Sabkha Soils: Balancing Geotechnical Challenges and Environmental Sustainability

Ayed Eid Alluqmani (Islamic University of Madinah); Hassan Ali Abas (university of prince Mugrin)

Abstract:
Sabkha soils, characterized by high salinity and loose composition, present significant geotechnical challenges for excavation and construction, particularly in the Gulf region. These soils accelerate the corrosion of steel and lead to chemical degradation of concrete, significantly reducing the effectiveness and lifespan of traditional excavation support systems. This study investigates both traditional and innovative excavation support techniques to address these geotechnical and environmental challenges. The study aims to identify methods that enhance structural durability, mitigate corrosion, and minimize environmental impact in Sabkha soils. Traditional methods such as steel sheet piling and secant/tangent piles, though initially effective, experience accelerated corrosion in sabkha environments, significantly reducing the lifespan of steel components. In contrast, innovative techniques such as Fiber-Reinforced Polymer (FRP) sheet piles, Soil Mixed Walls (SMW), and hybrid systems demonstrate superior performance. FRP sheet piles, for example, have a service life exceeding 50 years in highly saline environments, a substantial improvement over traditional steel alternative. Moreover, FRP piles reduce CO_2 emissions by 50–70%, producing only 1–2 kg CO_2/m^2 compared to 5–8 kg CO_2/m^2 for steel piles. The adoption of these advanced systems not only extends the lifespan of excavation support but also reduces maintenance costs and mitigates environmental degradation. These findings provide a practical framework for engineers and developers working in corrosive environments, promoting the use of more resilient and sustainable infrastructure in sabkha soils. The study emphasizes the importance of adopting long-term, sustainable solutions that address both geotechnical stability and environmental impact in these challenging conditions.

ID: 527 | A Proposed Resilient Design and Construction Method for Vertical Public Housing in the UAE

Khaled Galal Ahmed (UAE University)

Abstract:
The growing demand on public housing in UAE has urged the shift into vertical public housing. The developed vertical housing schemes were 'rigidly' designed and constructed along with lack of energy efficiency considerations. This makes the search for an alternative resilient design and construction solutions essential for this emerging typology of public housing. This would make vertical public housing more acceptable to residents. To reach to such an innovative design solution, first, in-depth face-to-face interviews were conducted with a sample of Emirati citizens living in public single-family housing for no less than 10 years to understand their experiences regarding the 'changing' needs in their houses. Second, for construction resilience, the available structure and construction systems of the Modern Methods of Construction (MMC) were surveyed and compared to each other to define the most resilient and environmentally efficient systems which would allow for adaptation of the apartments in the vertical housing buildings. Based on the findings of the research investigations, an innovative vertical housing design and construction approach that combines between resilience and local sustainability requirements in the UAE has been proposed. The applicability of this proposed approach was then tested through a re-design for a recently constructed 9-floors residential public housing block that accommodates 16 'flexible' housing units achieved through combining cost-efficient modular, resilient, and sustainable vertical housing construction systems and materials. It is anticipated that this resilient design approach would lead to an innovative vertical public housing typology for Emirati citizens, that efficiently accommodate their changing needs.

ID: 573 | The Advancements and Applications of Generative AI in Healthcare Industry

Dr. Janmaya Mishra (Capgemini)

Abstract:
The inception of Generative AI has marked a pivotal shift in the vicinity of artificial intelligence. It represents a transformative leap in artificial intelligence, leveraging sophisticated models to produce new content across a variety of modalities, including text, images, and audio. This paper provides a comprehensive survey of recent advancements in generative AI technologies, focusing on key methodologies such as Retrieval Augmented Generation (RAG), Large Language Model (LLM), and Prompt Engineering. We explore the theoretical underpinnings of these models, their training paradigms, and their performance metrics. Additionally, the paper examines practical applications, ranging from creative industries to scientific research and discusses the ethical implications and challenges associated with generative AI such as ethical considerations, model robustness, and societal implications, providing a holistic view of both the potential and the challenges inherent in generative AI. By synthesizing current research trends and identifying future directions, this study aims to provide a critical framework for understanding and advancing generative AI technologies, offering insights for both researchers and practitioners in the field.

ID: 592 | Artificial Intelligence Techniques for Prostate Cancer Classification Using Histopathology Images in Oman

ARUNADEVI KARUPPASAMY (Gulf College); Alonood Khalfan Al Sulaimani (Sultan Qaboos University); Asim Qureshi (Sultan Qaboos University)

Abstract:
Prostate cancer is a serious health concern for men's health internationally, including in Oman. In 2020, it ranked among the top 10 cancers affecting Omani men, comprising 3.5% of all male cases of cancer, at an incidence rate of approximately 8.3 per 100,000 people. Deep learning techniques have gained massive attention in computer vision tasks. The study explored various Artificial Intelligence (AI) techniques for prostate cancer histopathology image classification. We used machine learning techniques such as Random Forest, Support Vector Machine (SVM), Decision Tree, Ensemble approaches, Convolutional Neural Networks (CNN), CNN with machine learning techniques, and VggNet-16 on a prostate cancer histopathology image from Sultan Qaboos University Hospital. The pre-trained model VggNet-16 attained the best performance by achieving 100 % accuracy, F1-score, precision, AUC and recall of 1.0. The obtained results show the efficiency of deep learning techniques, especially transfer learning, by applying pre-trained models such as VggNet-16 for the accurate classification of prostate cancer histopathology images. In the future, further investigation should be based on these findings using huge, more diverse datasets. Our study shows the significant applications of deep learning techniques that will help clinicians in the classification of prostate cancer tumors.

ID: 13 | Compressive Strength Development and Setting Time of GGBS and Waste Foundry Sand Alkali-Activated Concrete

Ali M I Rafeet (University of Technology and Applied Sciences Salalah, Oman); Abdulhamid Ali Al Ajmi (University of Technology and Applied Sciences); Ali Al Manjawi (University of Technology and Applied Sciences Salalah, Oman); Abdulrahman Al Shukaili (University of Technology and Applied Sciences Salalah, Oman); Mohammed Al Yafai (University of technology and applied sciences, Salalah, Oman)

Abstract:
Alkali activated concrete (AAC), also known as geopolymer concrete (GPC), is increasingly being recognized as a feasible substitute for traditional Portland cement concrete (PCC) in different applications due to its promising engineering properties and its ability to reduce CO2 emissions linked to Portland cement production. This research focused on investigating the compressive strength development and setting time of alkali activated mortar formulations cured at ambient temperature, using local waste/by-product precursors such as waste foundry sand (WFS) and ground granulated blast furnace slag (GGBS). The findings revealed that the compressive strength slightly decreased with higher WFS content up to 30%, but beyond this point, a noticeable drop in strength was observed. The highest 28-day compressive strength achieved was 71 MPa for 100/0 (100% GGBS and 0% WFS), as well as 90/10 mix. Generally, 28-day compressive strength ranged from 70 to 40 MPa for different GGBS/WFS mixes. A key observation from the analysis was the significant early age compressive strength displayed by the mortar mixes, with compressive strengths ranging from 40 MPa (100/0 mix) to 15 MPa (50/50 mix) within a 24-hour period. This remarkable performance makes these formulations highly suitable for precast concrete applications. The primary challenge faced was the short initial setting time, which was less than 10 minutes in all mixes. Lastly, by incorporating borax as a retarder, the initial setting time was extended to approximately 30 minutes without compromising the compressive strength.

ID: 17 | Nonlinear finite element analysis of GFRP reinforced concrete flat slabs subjected to concentric loads

Abdulhamid Ali Al Ajmi (University of Technology and Applied Sciences); Ashraf Ashour (University of Bradford); Therese Sheehan (University of Bradford); Ali M I Rafeet (University of technology and applied sciences, Salalah, Oman)

Abstract:
Steel corrosion is one of the main forms of Reinforced Concrete (RC) degradation. In addition, steel manufacturing is one of the most significant contributors to global CO2 emissions. According to Carbon Brief, steel products are estimated to be responsible for 11% of all CO2 emissions. In recent years, civil engineers have raised concerns about the durability of RC structures. As a result, they have been given increasing attention to advanced composite materials. In the last two decades, many studies have been carried out on the punching shear of flat slabs reinforced with Glass Fibre Reinforced Polymer (GFRP), contributing to developing recent codes and standards. Despite this significant improvement, more research is required to increase the deployment of FRPs in the construction industry. Experimental tests are mostly expensive, especially on structural elements reinforced by any type of FRPs. On the other hand, punching shear behaviour is influenced by various parameters. The time needed to cover all parameters limits the progress of experimental research. With advanced knowledge of nonlinear behaviour and the development of computational capacities, parametric studies became possible and more deployable. The primary aim of this paper is to develop finite element simulations of GFRP reinforced concrete flat slabs subjected to concentric loads using the software ABAQUS. The developed FE modelling was evaluated by comparing experimental results from open literature with the predicted punching shear behavior of the concrete flat slab modelling. The proposed ABAQUS model reasonably accurately predicted the behaviour of GFRP-reinforced concrete flat slabs under concentric loads in terms of ultimate capacity and load-deflection curves.

ID: 201 | Pavement Damage Detection and Quantification using LiDAR – An Exploratory Study

VIGNESH V P (Indian Institute of Technology Palakkad); Gopi Charan Veeramallu (Indian Institute of Technology Palakkad); Senthilkumar Venkatachalam (Indian Institute of Technology Palakkad)

Abstract:
India's extensive road network faces challenges in proactive maintenance and management due to limited resources and infrastructure. Moreover, road inspection works are tedious because of their linear nature. Traditional road inspections, relying on subjective visual observations, are labour-intensive and lack historical data. This has led to a reactive approach to road maintenance. Efforts are being made to digitalize pavement condition monitoring, utilizing various methods like image-based, video-based, and LiDAR-based reality modeling. Among these, LiDAR technology offers the potential to accurately capture the 3D geometry of pavements and other assets, enabling their digitalization for future reference. LiDAR data can be collected through static, mobile, and aerial modes, making it suitable for linear projects like roads. However, broader implementation is hindered by technical, financial, and social factors. This study investigates the technical feasibility of Terrestrial Laser Scanners/LiDAR for flexible pavement distress detection, establishing a systematic framework for optimal TLS placement to achieve desired measurement accuracy. Additionally, the effectiveness of various algorithms, such as filtering and shape fitting, in detecting and quantifying pavement damage is compared.

ID: 315 | Segmentation of Panoramic Dental Radiographs Using AI: A UNet Based Approach

Gisel Sh (JCU University); Iman Makhdom (Payame Noor University)

Abstract:
Dental radiographs, particularly panoramic X-rays, are critical for diagnosing and planning treatments for various dental conditions. Traditional manual analysis of these images is labor-intensive and prone to errors. Artificial Intelligence (AI), especially deep learning techniques, has transformed image segmentation tasks. This research investigates the application and comparative performance of four advanced AI-driven deep learning models—U-Net, TransUNet, V-Net, and UNet++—for segmenting dental structures in panoramic X-rays.

ID: 547 | The effect of solvent interactions on the stability of DPPH free radical over time

Rachid Ismail (United Arab Emirates University); Joy Tannous (United Arab Emirates University)

Abstract:
As conventional energy sources decline, interest in unconventional resources such as heavy crude oils and oil shales has significantly increased. Upgrading these resources to make them suitable substitutes is essential. Many upgrading processes and units involve a free radical mechanism. Free radicals are highly unstable and can derail chemical reactions through spontaneous side reactions. Understanding these interactions can help optimize resource usage and minimize material loss, promoting sustainability. This study focused on the stability of 2,2-diphenyl-1-picrylhydrazyl (DPPH), a stable representative of free radicals, under varying storage times and solvent environments using electron spin resonance (ESR) spectrometry. DPPH was dissolved in ten different solvents, with seven sustaining the study conditions. Notably, tetrahydrofuran altered the g-factor of DPPH due to a structural rearrangement at the radical center. Changes in spin concentration were observed with modifications in solvent and storage duration. A remarkable decrease of up to 96% in spins after 12 weeks, accompanied by shifts in pH and color, was attributed to the electron- and hydrogen-donor capabilities of the solvents, which led to changes in DPPH ionic states. Additionally, tetralin interacted immediately with DPPH, effectively capping many radicals. These findings emphasize the critical role of solvent interactions in maintaining free radical stability, which can significantly influence the upgrading processes of unconventional energy resources, thereby enhancing their viability and sustainability in energy applications.

ID: 181 | Leveraging on AI-Driven Innovations for Environmental, Social, and Economic Sustainability at a higher learning institution

Khanyisile Twabu (UNISA); Refilwe Muanza (UNISA)

Abstract:
The global imperative towards sustainability, intensified by the pressing challenge of climate change, underscores the urgent need to achieve net-zero emissions by 2050. Universities, revered as bastions of knowledge and innovation, wield immense influence in driving global sustainability agendas. This paper explores how AI-driven innovations, strategically embedded within incremental innovation and design thinking frameworks, can significantly advance environmental, social, and economic sustainability at higher learning institutions. By integrating AI technologies into iterative improvement processes and creative problem-solving methodologies, universities can enhance operational efficiency, optimize resource utilization, and develop novel solutions to complex environmental challenges. This approach empowers universities to pioneer sustainable practices aligning with global environmental targets.
Additionally, this paper examines the multifaceted challenges universities face in their pursuit of sustainability, including reducing environmental impact, and presents AI-driven strategies for addressing these challenges. Applying governance frameworks inspired by Foucault and the inclusivity principles of Ubuntu, this study highlights the potential for AI to foster sustainable campus operations and promote community cohesion. Aligning with several United Nations Sustainable Development Goals (SDGs), the proposed digital architecture for AI-driven sustainability initiatives aims to ensure inclusive and equitable education and promote lifelong learning opportunities. Employing qualitative and quantitative research methodologies, this study provides a comprehensive understanding of AI's potential contributions to sustainability and offers recommendations for enhancing the integration of AI-driven innovations in higher education.

ID: 352 | Blockchain-Driven Digital Identities and Industry 4.0 Integration for Enhancing Sustainability in Global Supply Chains

Omid Fatahi Valilai (Constructor University Bremen); Muskan Shah (Constructor University Bremen)

Abstract:
Global supply chains (SC) are currently grappling with sustainability challenges, marked by adverse impacts on the environment, society, and the economy. Emissions from transportation and manufacturing contribute to climate change, while inefficient processes, excessive packaging, and poor waste management within the SC result in pollution. Sustainability concerns extend to social and ethical dimensions, including fair labor practices and community exploitation. Ensuring ethical practices in complex supplier networks, particularly in industries prioritizing cost reduction, poses significant challenges. This paper investigates the possibility of improving sustainability performance in Industry 4.0, manufacturers considering technologies lie blockchain due to its immutable and decentralization nature as databases or ledgers can be shared among networks and SC participants. Specifically, the paper will focus on how BCT capabilities to provide a traceable and trackable supply chain and using this within industry 4.0 technologies to shape digital product passports (DPP) for increased sustainability. The paper has discussed different industries and how the proposed BCT enabled model can be used for including automobile industry, the textile and clothing industry (T&C) and the food industry.

ID: 468 | Neural Network Model to Predict the Hardness of Tungsten carbide-cobalt hard metal manufactured by Binder Jetting based Sintering

Muhammad Farhan Siddique (United Arab Emirates University); Yanuar Safarudin (United Arab Emirates University); Jeongmoo Huh (United Arab Emirates University)

Abstract:
The production of tungsten carbide cobalt hard metal requires precise formulation to achieve the desired hardness specifications. However, improper formulation can result in materials that fall short of the required hardness, leading to compromised performance and product quality. This poses a significant challenge in the manufacturing process, as deviations in key parameters such as cobalt content, tungsten grain size, and sintering conditions can directly affect the final hardness of the material, making it critical to identify and address these factors to ensure optimal outcomes. A heuristic approach is used to formulate an ideal composition during the sintering process rather than relying on trial and error when deciding the composition of the materials. This article deals with the use of neural networks to predict the hardness, based on the summary of previous research databases. The model considers cobalt percentage, tungsten grain size, and grain proportion as the inputs, and predicts the hardness as well as the hardness scale. The simulation shows an appealing result, with root mean square error (RMSE) in the training process of 0.623% for the hardness, and the model may predict the hardness scale perfectly (0% error). For the testing process, the RMSE is 9.72% for the hardness. Despite having poor hardness scale accuracy, the model may predict the hardness value with approximately 90% accuracy.

Keywords: Tungsten Carbide Cobalt, Neural Networks, Hardness Prediction Sintering Process, Root Mean Square Error (RMSE)

ID: 359 | Development of a novel and sustainable multi axes driven reconfigurable wheelchair MA DRW for older adults and individuals with mobility impairments

Sulaiman O. Fadlallah (University of Huddersfield); Muhammad usman saeed Akhtar (University of Huddersfield)

Abstract:
Despite the massive development in wheelchairs, still, their workspace remains restricted. This study presents a novel multi axes–driven reconfigurable wheelchair (MA-DRW) that provides wheelchair users an unprecedented level of personal mobility compared to existing developed wheelchairs, while prioritizing sustainability. In addition to the typical motion of the entire wheelchair, the proposed design permits the wheelchair to operate using various modes of operation including: seat pure rotation, seat upward vertical motion, seat forward horizontal motion, seat complex motion (combination of both forward and upward translational displacement), and seat complex motion II (seat orientation, combined with both forward and upward translational displacement). To further align with sustainability goals, the design incorporates lightweight and durable materials that reduce overall energy consumption during operation. The wheelchair's structural integrity was evaluated using finite element analysis (FEA). Stress distribution and deformation were analyzed across the various modes of operation, with critical stress concentrations identified on components such as the motor box, linear actuator plates, and rotating cylinders. Additionally, multi-body dynamics simulations utilizing ADAMS software evaluated the response of the wheelchair during different operational modes, focusing on the reaction forces on the wheels and the stability provided by counter loads. The results demonstrated that the MA-DRW maintains structural integrity, stability and energy efficiency across all tested scenarios, highlighting its potential to significantly enhance the mobility of wheelchair users while also contributing to sustainable practices in assistive technology.

ID: 284 | Evaluation of Temperature Effect on Ultrasound Image Quality and Distance Measurement

Fathi Dr Awad (Liwa College); Sameh Elsonbaty (Liwa College)

Abstract:
The aim of this study is to evaluate how ultrasound image quality and distance measurement changes in different temperatures. General purpose B-mode Phantom was used as a tissue mimicking material and seven quality control tests were carried out, namely: (Dead zone, maximum depth of penetration, vertical distance accuracy, horizontal distance accuracy, axial resolution, lateral resolution, and cyst imaging). These tests were conducted at different room temperatures (10 °C, 20 °C and 30°C). To investigate the effect of frequency, two different transducers were used (1-5 MHz and 3-12 MHz). Our results showed that the change of phantom temperature has affected only the dead zone (increased with increasing temperature) and maximum depth of penetration (decreased with increasing temperature). These results may be important for optimization of the quality control tests or during patient scanning.

ID: 207 | Exploring Construction Materials in Historical Preservation and Urban Regeneration: Innovations and Sustainability Initiatives

Nicolae C Mociu (Ovidius University of Constanta); Carmen Maftei (Transilvania University); Ionela Carazeanu Popovici (Ovidius University of Constanta); Constantin Buta (Ovidius University of Constanta); Madalina Stanescu (Ovidius University of Constanta)

Abstract:
This research examines the essential function of construction materials in preserving historical structures from archeological sites, emphasizing their importance in urban revitalization. The research assesses the compressive strength of 72 lime-based mortar samples by conducting a thorough comparative analysis. These samples were manufactured using eight different recipes. By comparing these results with data from samples gathered at the Ovidiu Archaeological Roman Fortification site, we can obtain significant insights into the effectiveness and appropriateness of certain materials for preservation purposes. The study incorporates an original element by creating eight novel mortar combinations with different kinds of lime - slaked lime, lime paste, and quicklime - in order to investigate improved material qualities and performance characteristics. In a sustainable effort to decrease waste and address pollution, six recipes are created using waste materials from grinding mortars that were gathered during restoration works. These waste materials are used to replace parts of the aggregate in each recipe. The results indicate that all mortar samples had greater compressive strength values compared to Roman mortars. Some compositions even exceeded the 1 N/mm2 criterion, which is characteristic of the M1 category of masonry mortar. This highlights the potential usefulness of these formulations in applications that demand higher levels of strength, providing exciting opportunities for their incorporation into preservation projects that require structural durability. In conclusion, the study highlights the significance of building materials in preserving historical sites and their crucial contribution to promoting sustainable urban regeneration projects.

ID: 162 | Digital Technologies for Construction and Demolition Waste Management: Problem Understanding and Solution Proposition.

Ali Saad (University of Salford); Jason Underwood (University of Salford); Juan Ferriz-papi (University of Salford)

Abstract:
The increasing use of virgin materials in construction, greater urbanization, and waste generated at the end-of-life (EoL) stage of buildings have all contributed to environmental damage, sparking interest in creating more sustainable and circular business models. The circular construction industry aims to integrate Circular Economy (CE) principles throughout the built environment; however, it is still in its infancy. The digital transformation of the construction industry has undoubtedly equipped stakeholders with powerful tools for every project phase: enhancing collaboration, speeding up design and construction processes, optimizing building maintenance, and ensuring responsible end-of-life (EoL) disposal. Therefore, the aim of this research is to develop a Digital Information Management System to facilitate construction and demolition waste management as part of Horizon Europe Project RECONMATIC. Following the Design Science Research (DSR) methodology, this paper focuses on understanding the existing problems and gaps, proposing solutions based on the literature review. The paper identifies gaps in utilizing Industry 4.0 technologies to support construction and demolition waste management. It is evident that there remains a significant lack of integrated technologies such as BIM, IoT, and Blockchain that cover the entire lifecycle — including design, construction, renovation, and demolition/deconstruction phases. This gap is especially apparent in the seamless tracing and tracking of materials, products, and waste, hindering effective material flow analysis and leaving the roles and engagements of stakeholders unclear. Moreover, this paper proposes a solution that integrates BIM, IoT, and Blockchain to support the management of construction and demolition waste throughout the project lifecycle.

ID: 13 | Compressive Strength Development and Setting Time of GGBS and Waste Foundry Sand Alkali-Activated Concrete

Ali M I Rafeet (University of Technology and Applied Sciences Salalah, Oman); Abdulhamid Ali Al Ajmi (University of Technology and Applied Sciences); Ali Al Manjawi (University of Technology and Applied Sciences Salalah, Oman); Abdulrahman Al Shukaili (University of Technology and Applied Sciences Salalah, Oman); Mohammed Al Yafai (University of Technology and Applied Sciences Salalah, Oman)

Abstract:
Alkali activated concrete (AAC), also known as geopolymer concrete (GPC), is increasingly being recognized as a feasible substitute for traditional Portland cement concrete (PCC) in different applications due to its promising engineering properties and its ability to reduce CO2 emissions linked to Portland cement production. This research focused on investigating the compressive strength development and setting time of alkali activated mortar formulations cured at ambient temperature, using local waste/by-product precursors such as waste foundry sand (WFS) and ground granulated blast furnace slag (GGBS). The findings revealed that the compressive strength slightly decreased with higher WFS content up to 30%, but beyond this point, a noticeable drop in strength was observed. The highest 28-day compressive strength achieved was 71 MPa for 100/0 (100% GGBS and 0% WFS), as well as 90/10 mix. Generally, 28-day compressive strength ranged from 70 to 40 MPa for different GGBS/WFS mixes. A key observation from the analysis was the significant early age compressive strength displayed by the mortar mixes, with compressive strengths ranging from 40 MPa (100/0 mix) to 15 MPa (50/50 mix) within a 24-hour period. This remarkable performance makes these formulations highly suitable for precast concrete applications. The primary challenge faced was the short initial setting time, which was less than 10 minutes in all mixes. Lastly, by incorporating borax as a retarder, the initial setting time was extended to approximately 30 minutes without compromising the compressive strength.

ID: 467 | Catalytically accelerated CO2 desorption for energy efficient solvent regeneration

Muhammad Waseem (United Arab Emirates University); Mohamed Al-Marzouqi (United Arab Emirates University); Nayef Ghasem (United Arab Emirates University)

Abstract:
Carbon dioxide (CO2) is one of the most important greenhouse gases (GHGs) released into the atmosphere every year and its level is steadily increasing. As a result of the greenhouse effect, global warming has become one of the biggest concerns of our time. Chemical absorption is one of the established industrial techniques for the capture of anthropogenic and native CO2 among the available separation technologies. Solvents employed in these applications are regenerated with conventional CO2 stripping that requires high energy and temperatures of 120°C to 140°C to regenerate solvents. Energy-efficient catalytic CO2 stripping is a promising approach for increasing CO2 desorption and lowering solvent regeneration temperatures below 100°C. This paper presents catalytic CO2 stripping study as a new approach for increasing CO2 desorption and lowering regeneration temperatures below 100°C. Through synergistic integration of MoO3, MOF, and HPW, MZC-HPW-20 showed remarkable improvements in CO2 desorption rate and amount of CO2 desorbed, with a 123% increase in desorption rate and 52% in capacity compared to a blank test. Which reduced the heat duty by 32% as compared to a noncatalytic process. Making use of the state-of-the-art technology to develop a modern carbon capturing system that will regenerate solvent inexpensively to economize the overall carbon capture process and will reduce CO2 emissions to the environment up to a minimal level in the future.

ID: 221 | Risk Perception of Climate Change in Family-run Alpine Hospitality Businesses

Gundula Glowka (MCI The entrepreneurial school)

Abstract:
Firms have to deal with risks in order to be successful in the long term. The Alpine hospitality industry faces multiple risks deriving from climate change. However, it is not clear how hospitality firms themselves view these risks. This study examines the risk perception of climate change in family businesses and the drivers that guide their decisions. The results of the qualitative interviews with family business owners in the hospitality industry show that the companies do not really perceive climate change as a risk. They take adaptation measures when there are economic benefits or when there is demand from guests, but less out of intrinsic conviction.

ID: 593 | Construction Quality Control and Thermal Imaging: Detecting Thermal Defects to Enhance Energy Efficiency in UAE Residential Buildings

kheira A Tabet Aoul (United Arab Emirates University); Rahma Hagi (United Arab Emirates University)

Abstract:
Rapid urbanization in the United Arab Emirates (UAE) has resulted in an increased demand for energy-efficient buildings that align with green standards. Ensuring construction quality is essential for achieving the desired energy performance and minimizing the energy performance gap, wherein buildings underperform relative to their design expectations. This study examines the utilization of thermal imaging as a quality control measure to detect construction defects that compromise thermal performance during the building process. Through the implementation of thermal imaging in an ongoing case study of several construction sites in Al Ain, encompassing projects utilizing both traditional blockwork and prefabrication methods, various thermal discrepancies were identified, including insulation failures and blockwork inconsistencies. These defects, which affect the thermal integrity of building envelopes, could have been detected and remediated during the construction phase, thereby enhancing energy performance. The findings underscore the value of integrating thermal imaging as a proactive tool in construction quality control to ensure that buildings meet the stringent energy efficiency targets established by the UAE regulatory frameworks.

ID: 18 | Navigating the Complexity of Cancer with Multimodal Deep Learning: Fusion Strategies, Challenges, and Future Directions

Fatma Alshohoumi (Sultan Qaboos University)

Abstract:
The complex and heterogeneous nature of cancer diseases necessitates advancements in diagnostic modalities to improve patient outcomes. This study aims to examine a multimodal deep learning approach that fuses various modalities including medical imaging modalities (such as X-ray, CT, MRI, ultrasound, PET, etc.) with radiomics, and clinical and genetic data to improve disease diagnosis, detection, segmentation, and prognosis prediction. A comparison of the reviewed articles primarily focuses on modalities and data fusion strategies. A review of the current literature indicates that multimodal approaches achieve superior diagnostic accuracy compared to single-modality approaches. Additionally, intermediate fusion strategies improve diagnostic accuracy more effectively than early or late fusion strategies. To fully leverage the benefits of multimodal data analysis, however, major challenges such as scarcity of data, alignment issues, data fusion strategies, and interpretability need to be addressed. This study suggests investigating advanced fusion methods and validating multimodal approaches in clinical settings to fully exploit the capabilities of multimodal in oncology.

ID: 126 | The Path to Zero Carbon Office Buildings: A Study of UK Architectural Practices

Mehmet Arif AKTOG (University of Liverpool); Rosa URBANO GUTIÉRREZ (University of Liverpool); Haniyeh MOHAMMADPOURKARBASI (University of Liverpool)

Abstract:
The urgency of addressing climate change has brought sustainability to the forefront of architectural practice. This short paper presents a work-in-progress report on the integration of sustainable practices in the design and construction of office buildings by leading UK architectural offices, specifically Foster + Partners, Sheppard Robson and Feilden Clegg Bradley Studios. The study explores the evolution of sustainable architecture since the 1970s, focusing on the challenges and advances in achieving energy efficiency and carbon reduction.

Using a mixed-methods approach including literature review and semi-structured interviews, initial findings show that while sustainable design strategies are well integrated at the conceptual stage, significant barriers remain in maintaining these standards at the operational stage. The research highlights the critical role of government regulation, innovative design practices and stakeholder coordination in achieving zero-carbon buildings.

This paper aims to provide insights into best practices and ongoing challenges in sustainable office building design, contributing to the broader discourse on environmental sustainability in the built environment. By documenting and analysing the practices of renowned architectural firms, the study aims to inform future strategies for achieving the ambitious carbon reduction targets set for 2030 and 2050.

Keywords: Sustainable architecture, office buildings, carbon reduction, Foster + Partners, Sheppard Robson, Feilden Clegg Bradley Studios.

ID: 569 | Artificial Intelligence Techniques for Optimizing Green Hydrogen Production from Organic Wastes in the Sultanate of Oman: A Deep Learning Approach

ARUNADEVI KARUPPASAMY (Gulf College); Rolou Lyn R Maata (Gulf College Muscat); Sebastin Antony Joe (Gulf College); Abubucker Samsudeen Shaffi (Gulf College)

Abstract:
The worldwide transition to sustainable energy resources, green hydrogen production from the organic waste has gained an attraction as an alternative to useful renewable energy. However, the procedures related with the transformation of organic wastes to green hydrogen are having lot of optimization challenges. Considering recent developments in the energy sector, there is a demand in the green hydrogen production as an alternative renewable energy resource in the Sultanate of Oman. This study focuses on the use of Artificial Intelligence (AI) techniques to predict the green hydrogen production and optimize the process of the production procedures. Our novel proposed methodology, use the computer vision models such as Convolutional Neural Networks (CNN) and Vision Transformers(ViT) to process the multi modal data for predicting the production of green hydrogen from the waste products such as organic wastes and identify the parameters associated with waste-water plant that can be used to optimize the production at an earlier stage.

ID: 394 | Innovation Forge: A Hybrid Review about Resilience and Technology Readiness in Manufacturing sector

Kiran Nair (Abu Dhabi University); Seema Bhardwaj (International Institute of Management Studies, Pune, India); Sreejith Balasubramanian (Middlesex University); Mahima Mishra (Abu Dhabi School of Management); Ritika Chopra (Jagan Institute of Management Studies)

Abstract:
This study aims to address the gap in the comprehensive literature pertaining to the intersection of readiness technology and manufacturing sector change. This study employed a systematic literature review with bibliometric analysis to offer a panoramic overview of the field. We scrutinized 77 publications from peer-reviewed journals, dating from 2005 to 2023, using methodological lenses such as keyword co-occurrence network and thematic map. The review reveals the major contributors (publication trend, authors, and countries) and their contributions (themes and topics) to Integration of 3D printing, additive manufacturing, Tech Competition and Lifecycle Assessment in Manufacturing, Smart Manufacturing Strategies. Armed with these insights, we advocate a focused research agenda to expand scholarly contributions to this field. We introduce a framework that offers a theoretically robust tool for scholars and practitioners working on impact of technology readiness on manufacturing sector. Consequently, this study not only distills the existing literature but also sets the stage for future research.

ID: 368 | Digital Transformation in Sustainable Agriculture

Nagwa Fawzy Abouhaiba (Nagwa Abouhaiba)

Abstract:
Digital transformation in agriculture is pivotal for sustainability, integrating advanced technologies like IoT, AI, big data analytics, and blockchain. These innovations have revolutionized the sector, making it more efficient, productive, and environmentally friendly.
IoT devices, such as sensors and drones, are extensively used to monitor soil conditions, weather, and crop health in real-time. This enables farmers to make data-driven decisions, optimize resource use, and minimize waste. AI and machine learning further enhance precision agriculture by analyzing vast data sets to predict crop yields, detect diseases early, and suggest optimal planting times, resulting in higher yields with minimal environmental impact.
Blockchain technology plays a crucial role in enhancing transparency and traceability in the agricultural supply chain. It ensures that every step, from farm to table, is recorded, thereby promoting sustainable practices.
These digital advancements not only boost efficiency but also support social sustainability by improving food security and creating new economic opportunities for rural communities. The overarching conclusion is that digital transformation in sustainable agriculture is not optional but essential. It addresses global challenges such as climate change and food security, positioning the agricultural sector as a key contributor to a more sustainable and resilient future. Continued development and adoption of digital tools will be vital in achieving the long-term goals of sustainable agriculture.

Keywords: Digital transformation - Sustainable agriculture - Internet of Things (IoT) in agriculture - Artificial intelligence in agriculture - Blockchain technology in agriculture

ID: 322 | Sustainable Design and Development of Mechatronics/Robotics System in an Academic Research Environment

Vyshak Sureshkumar (United Arab Emirates University); Adewale Oseni (United Arab Emirates University); Mebruk Kedir (United Arab Emirates University); Markos Mumasha (United Arab Emirates University); Khalifa Harib (United Arab Emirates University)

Abstract:
Manufacturing plays a crucial role in the global Gross Domestic Product (GDP), contributing nearly 15 percent and serving as a cornerstone of national economies. However, its environmental impact is a major concern due to the pollution generated by manufacturing activities and the products themselves. Industry 4.0 aims to address this issue by reducing both direct and indirect pollutions associated with manufacturing. One effective approach involves leveraging mechatronics, robotics, and AI to minimize carbon emissions and enhance the reliability and efficiency of manufactured products. This paper explores how proper mechatronics design can help decrease the carbon footprint of manufacturing, promoting sustainable product life cycles and manufacturing processes. In an academic setup, it is vital to consider these factors when designing and developing mechatronics-based prototypes for manufacturing machinery and processes. On the other hand, engineering students involved will be aware of these issues. Such awareness is vital due to the expected future role of the students in addressing such problems. As demonstrated in this case study, the undergraduate and graduate students involved demonstrate clear understanding of the pertaining problems and high motivation when pursuing the involved design and development process. The developed prototype features a Cartesian robotic structure that can be used as a foundation for robot-assisted welding, plasma cutting, and other subtractive, and additive manufacturing processes. The paper discusses also the integration of mechanical hardware, sensors, motors, drives, and controller. The developed mechatronics system with its adaptability to various manufacturing techniques, low-cost objectives, and ability to produce high-quality and precise end products, demonstrates sustainability consciousness in applied research.

ID: 216 | Application of Machine Learning for sustainable aviation: the role of friction drag and flow control in turbulent boundary layer flows

Gazi Hasanuzzaman (Brandenburg University of Technology)

Abstract:
This abstract reports on experiments and their subsequent data analysis using machine-learning approaches aimed at studying the influence of wall-normal blowing on large-scale coherent structures. The measurements were conducted using non-intrusive, time-resolved Stereo Particle Image Velocimetry (SPIV) over different aerodynamic applications such as turbulent boundary layer (TBL) over flat plate and NACA airfoil. The measurements were taken over a range of shear Reynolds numbers, specifically $Re_\tau = u_\tau\delta/\nu = 0.4 \times 103$ and $Re_\theta = U_\infty\theta/\nu = 7500$ where δ, θ, and ν indicate boundary layer thickness, momentum thickness, and kinematic viscosity.

ID: 436 | Do pro-environmental factors influence the decision to join the cup exchange systems?

MANSOOR ALI (Swinburne University of Technology)

Abstract:
This research examines the willingness of coffee drinkers to engage in coffee cup swap programmes. These technologies are anticipated to assist consumers in engaging with the circular economy by averting the disposal of single-use coffee cups in landfills. This study utilised the theory of planned behaviour and the technology acceptance model, incorporating environmental concern variables, to investigate the intention to acquire membership in coffee cup exchange networks from a novel perspective. Preliminary analysis indicates that attitude, perceived behavioural control, and subjective norms correlate with the intention to acquire membership in cup exchange schemes. The results of this research are significant for government officials, legislators, and environmentally conscious small business entrepreneurs, as they may utilise this information to advocate for sustainable coffee consumption and enhance the circular economy.

Keywords: Circular Economy, Sustainability, Environmental Concern, Theory of Planned Behaviour, Disposable Cups, Cup Exchange Systems.

ID: 102 | An Engaging IoE-based System for Promoting Behavioral Energy Conservation Using Emoji Language

Mohamed Jama (Abu Dhabi University); Yazan Barbar (American University of Sharjah)

Abstract:
Enhancing grid performance has led to increased interest in smart grids, which can adapt to demand changes through bi-directional communication. The Internet of Energy (IoE) facilitates the integration of IoT into energy management across production, distribution, and consumption. User feedback significantly aids demand-side management, ensuring a balance between supply and demand. Since residential consumers account for a large portion of electricity use, reducing their consumption promotes sustainability and economic advantages. This study introduces a cost-effective, adaptable IoE-based system for conventional final distribution boards (FDB). Emoji communication was chosen for its simplicity and ability to engage consumers effectively. The system operates on consumer interaction, encouraging energy conservation through modified consumption behaviors. Three emojis represent consumption rates based on bands established by TAQA Distribution. The hardware design includes sensors, microcontrollers, and an ADE9000 FPGA chip for real-time monitoring capabilities. A cross-platform application developed on an ionic framework provides users with a modern and seamless touchscreen experience. Testing was conducted on a simulated FDB with standard household devices, including lamps, outlets, and exhaust fans.

ID: 150 | Impact of Curing Environments, Sand Type and Binder-to-Sand Ratio on Geopolymer and Cementitious Screeds

Joud Hwalla (United Arab Emirates University); Hilal H El-Hassan (United Arab Emirates University); Joseph Assaad (University of Balamand); Tamer El-Maadawy (United Arab Emirates University)

Abstract:
This research study aims to evaluate the impact of different curing environments—ambient, normal water, and salty—on the impact resistance, compressive strength, and strength development over 14, 28, and 56 days of geopolymer (GP) and cementitious (CM) screed composites. GP screeds were produced using fly ash and blast furnace slag as precursors, activated with a sodium-based alkaline solution, while CM screeds were made using Type I Portland cement and fly ash. Both types of screeds were produced with two types of fine aggregates: dune sand (DS) and crushed limestone sand (CS), with varying binder-to-sand ratios. The study found that normal water curing was most efficient for the strength development of CM screeds, whereas a salty environment was optimal for GP screeds. After 56 days, CM-based screeds achieved maximum compressive strengths ranging from 20.4 to 33.5 MPa under normal water curing, compared to 9.4 to 21.9 MPa and 15.8 to 32.7 MPa under ambient and salty conditions. In contrast, GP screeds attained compressive strengths of 35.8 to 84.1 MPa in a salty environment, while under ambient and normal water curing, their strengths ranged from 7.7 to 52.3 MPa and 0 to 79.9 MPa, respectively. Regarding the impact of sand type and binder-to-sand ratio, both types of screeds showed a decrease in compressive strength values with total replacement of CS by DS and an increase in sand content. The type of sand did not significantly affect strength development. However, an increase in binder content compared to sand content resulted in higher strength development for both types of screed, except for GP screeds produced with a 1:7 binder-to-CS ratio. The categorization of screeds corresponded closely with their compressive strength values. Thus, the curing regime, sand type and binder-to-sand ratio significantly influenced the classification and performance of the screed materials.

ID: 303 | Orbital Decay Analysis of UAE Nanosatellites in Low Earth Orbit

Bassam Alfeeli (Orbital Space)

Abstract:
Given the continuous efforts in the UAE to develop its local capabilities in space technology through the deployment of nanosatellites (cubesats) in LEO, understanding their orbital dynamics and decay patterns is crucial for both future mission planning and space debris management. This study investigates the orbital decay characteristics of cubesats deployed by the United Arab Emirates (UAE) in Low Earth Orbit (LEO). We analyzed the orbital decay rates of six UAE cubesats namely Nayif-1, Mysat-1, Dhabisat, QMR-KWT, Ghalib, and Light-1 by examining observational data, orbital parameters, and environmental factors. The results offer insights into the effectiveness of current satellite design practices in mitigating debris risks and inform future satellite missions and space policy. The findings contribute to the broader understanding of nanosatellite behavior in LEO and support the UAE's objectives in advancing space technology and sustainability.

ID: 35 | Pre-demolition Audit as a Circular Economy Tool in Achieving Sustainable Future

OLUMIDE OLUSOLA FASANMI (University of Salford)

Abstract:
The construction industry's dominance in raw materials consumption is predicted to continue until 2060, but if the sector can adopt circular economy principles, US$100bn could be saved yearly. The United Nations advocates more environmentally friendly consumption patterns due to the Earth's limited ability for regeneration.
Circular Economy is one of the key fundamentals for resource protection, which aims to reduce pollution and maximize the use of resources, thereby preserving natural resources. The CE is a proposed framework targeted at reducing resource consumption, lowering waste output, using resources maximally, and promoting materials recovery from the end-of-life. Pre-demolition audit is proposed as a circular economy tool that can be used in the construction industry to achieve sustainability, but the challenge remains the lack of a standardised way to conduct a pre-demolition audit and digitisation.
Therefore this paper aims to develop a framework for decision-making processes at the end-of-service life for buildings and infrastructures to be applied in pre-demolition audits. This research adopts the five stages of design science methodology to develop the flowmap- awareness of the problem from literature review of article, journal and technical report, suggestion from industry partners, development through interviews with stakeholders, evaluation using a case study for validation, and conclusion.

This paper's outcome will help in identifying the possibilities with the digitisation of pre-demolition audits, which will be useful in achieving a sustainable future in the construction industry. It will enhance the management of construction and demolition waste through pre-demolition audits and accurate material inventory, thereby extending the lifespan and reducing resource underutilisation.

Keywords: pre-demolition audit; end-of-life; construction materials; design science; circular economy.

ID: 449 | Development of Sustainable Construction Materials out of Paper Waste towards Green Buildings

Hatem Abushammala (Abu Dhabi University)

Abstract:
Buildings consume massive amounts of materials and energy during their lifecycles. In light of the increased need for green construction materials, this study aims to capitalize on the unexplored opportunities of paper waste by converting it into a sustainable thermal insulating material for energy- and material-efficient buildings. For this goal, ultrasonication was used to fibrillate a paper waste sample obtained from Ittihad Paper Mill in Abu Dhabi into cellulose nanofibers (CNFs), which were then freeze-dried into a foam. The ultrasonication and freeze-drying processes were optimized to obtain a foam with the lowest pore size and consequently, the lowest thermal conductivity based on the Knudsen effect. The results showed that the fibrillation degree of the paper waste into CNFs increased with increasing the severity of the ultrasonication process. Optimum CNFs with a thickness of 23.8 ± 7.4 nm and a maximum fibrillation degree of 95.9 % were obtained. Freeze-drying them led to an optimum foam with the lowest thermal conductivity of 27.6 ± 1.9 mW/m.K as a result of its smallest pore diameter of 0.17 ± 0.08 µm as measured by Mercury intrusion porosimetry. In terms of thermal conductivity, the optimum foam is comparable to the commercially available insulation foams.

ID: 459 | Innovative Sensing Approach for Sustainable Detection and Management of PFAS Contamination in Water Systems

Hamidreza Sharifan (University of Texas at El Paso)

Abstract:
As the demand for sustainable environmental monitoring intensifies, the detection of per- and polyfluoroalkyl substances (PFAS) in water systems has become critical to ensuring public health and environmental integrity. Traditional detection methods are often complex, costly, and resource-intensive, prompting the need for innovative and eco-efficient approaches. In this study, we developed a nanoscale fluorine (F), nitrogen (N)-doped carbon dot-based fluorescence (FL) sensor designed for the sensitive and selective detection of perfluorooctanoic acid (PFOA), a persistent PFAS compound, in contaminated water systems. To enhance both sustainability and efficacy, the synthesis of fluorinated carbon dots (F-CDs) was optimized by balancing the N/F ratio. These F-CDs exhibited blue fluorescence with optimal excitation and emission wavelengths at 350 nm and 470 nm, respectively. Extensive characterization of the F-CDs was performed using advanced techniques such as fluorine nuclear magnetic resonance (F-NMR), Fourier transform infrared spectroscopy (FTIR), transmission electron microscopy (TEM), energy-dispersive spectroscopy (EDS), X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), dynamic light scattering (DLS), and zeta potential measurements. Zeta potential analysis confirmed the positive surface charge of F, N-CDs and their surface interactions, which were significantly altered upon exposure to PFOA. The sensor exhibited high sensitivity and selectivity towards PFOA. Its capacity for accurate measurement of PFOA in groundwater samples underscores its potential as a powerful tool for sustainable water management and environmental monitoring. By providing a facile and efficient method for PFAS detection, this sensor supports the global effort to safeguard water resources, contributing to a more sustainable future in environmental stewardship and public health protection.

ID: 555 | RATIONALISING THE PROFESSIONAL INTEREST IN ACADEMIC CONSTRUCTION RESEARCH

Ali Saad (Loughborough University); Tarek Hassan (Loughborough University); Chris Gorse (Loughborough University); Kudirat Ayinla (Loughborough University); Ala Suliman (Northumbria University)

Abstract:
Industries consist of two segments practice and academia; these often interact and contemplate each other to create new wisdom. Recent criticisms focus on questioning the low interest of construction professionals in following their academic body of knowledge compared to other professions. This study aims to explore the minimal tendency to read and embrace academic literature in the construction professional practice and whether the reading culture among these professionals is incrementally linked to the sector's longstanding setting, or is it merely influenced by the status quo of construction research. Overall, eight semi-structured interviews have been conducted to build the relative rationale. The study's novelty is through its attempt to illuminate and critically argue the views of the insiders from within the profession, providing a deeper insight on the responsibility of academics and researchers to change what has supposedly become an isolated community and alter their behaviours to achieve broader reach and exposure. Future research to encourage construction management researchers to view professionals as partners in the research process rather than as mere sources of information.

ID: 282 | Information Exchange Workflows between Architectural and Structural Designers in Early Building Design Phases in the UAE

Narmin Abouelkhier (United Arab Emirates University); Abdul Rauf (United Arab Emirates University); Muhammad Tariq Shafiq (UAE University)

Abstract:
Efficient communication and information exchange between architectural and structural designers during the early phases of building design ensures the coherence of architectural visions and the structural integrity of buildings, while significantly reducing costs and saving time by minimizing design changes and construction delays. This study investigates the current workflows of information exchange between architectural and structural designers in the context of the United Arab Emirates (UAE). The primary objective is to understand existing practices, identify challenges, and pinpoint opportunities for improving seamless collaboration between these two disciplines. The research employs a qualitative methodology, utilizing semi-structured interviews to delve deeply into workflow processes, communication strategies, and perceived obstacles experienced by professionals in the UAE's architectural and structural engineering sectors. By gathering qualitative data, this study aims to provide nuanced insights that quantitative methods may overlook, offering a comprehensive view of the dynamics at play in interdisciplinary communication during early design stages. The findings of this research are particularly relevant to the unique context of how architectural and structural designers collaborate in the UAE. By highlighting current challenges and successful practices in information exchange workflows, this study seeks to offer practical strategies and recommendations for optimizing collaboration efficiency. Ultimately, this research aims to foster more integrated and sustainable building designs through improved interdisciplinary communication and cooperation. By offering evidence-based insights into optimizing early-stage design processes, this study aims to support informed decision-making and policy formulation that can enhance the quality and efficiency of building projects in the UAE and beyond.

ID: 415 | Encouraging entrepreneurships through innovation policy: A critical review

SUCET MARTINEZ VERGARA (University of Barcelona)

Abstract:
Start-ups are seen as new drivers of innovation and economic growth. Given their expectations for its value in stimulating economic growth and providing advances in various economic sectors, start-ups have been the subject of increasing interest of governments. Thus, the field of start-ups is becoming more and more important, and have become a focal point for policy makers. As a result, they are in the policy agenda of many countries. Policy-makers are becoming progressively more aware of the importance of encouraging a fertile business environment for start-ups, but we know little about the way they approach the matter. What are the main policies encouraging start-ups' competitiveness in recent years? And What are the policies and practices that enable a startup to be a successful entrepreneur? To address these gaps, our paper presents a critical review. The findings illustrate the relevance of the applied policies and challenges and opportunities that policy-makers have to tackle and provide a useful support for startups to develop their businesses.

ID: 147 | Evaluating Portable Solar Charging Solutions for Electric Vehicles: A Pathway to Sustainable Grid Management

Ebrahim Karan (Sam Houston State University); Bardia Tabiatnejad (WSP Global Inc)

Abstract:
The increasing adoption of electric vehicles (EVs) globally presents significant challenges to current electricity grids, particularly during peak charging times. This study explores the viability of integrating portable solar charging systems as a sustainable solution to alleviate grid load. The research examines solar panel efficiency, energy consumption of EVs, and cost implications. Findings indicate that while technological advancements have enhanced solar efficiency, the current capabilities of portable systems, such as a 200W solar blanket, are insufficient to meet the full energy demand of EVs on university campuses. Nonetheless, future improvements in solar efficiency and economies of scale may improve feasibility. A case study focusing on Houston, Texas, demonstrates the rapid increase in EV registrations and highlights the urgent need for sustainable energy solutions. Sensitivity analyses reveal that capital costs, carbon pricing, and interest rates significantly influence the economic viability of solar-powered EV charging systems. By promoting solar energy integration and optimizing EV charging infrastructure, dependency on the grid can be reduced, advancing environmental sustainability. This study offers crucial insights into the potential of solar-powered EVs and emphasizes the importance of ongoing research and technological advancements in this field.

ID: 294 | Data-Driven Predictive Modeling of Green Concrete Properties with Fly Ash: Advancing Sustainable Construction Through Machine Learning

Asad S. AlBostami (Oryx Universal College in Partnership with Liverpool John Moores); Rwayda Al-Hamd (Abertay University); Aysha Al-Malki (Oryx Universal College in Partnership with Liverpool John Moores)

Abstract:
The construction industry is a major contributor to environmental pollution due to its significant energy consumption and demand for raw materials. This results in the extensive use of natural resources. Addressing these issues requires advancements in construction processes and technology, focusing on innovation and digital transformation for sustainable futures. In recent years, there has been a growing adoption of cleaner processes in concrete production. This research aims to improve construction practices by employing soft computing techniques and machine learning (ML) technologies, including Gene Expression Programming (GEP), Artificial Neural Networks (ANNs), and Gradient Boosting (GB). These innovative digital tools are used to develop predictive models for estimating the properties of structural materials in green concrete, utilizing materials such as fly ash. The methodology involves a comprehensive literature review and the collection of a dataset comprising 239 data points. The data includes variables such as cement content, water, fly ash, fine aggregates, coarse aggregates, and curing age and is used to predict compressive strength. A sensitivity analysis assessed the impact of different input variables on the model's output. The developed model provides a valuable tool for engineering practitioners to meet specific structural requirements for green concrete while ensuring structural integrity and sustainability. This research highlights the potential of innovation and digital transformation to enhance the construction industry's capabilities and practices.

ID: 49 | Mathematical Model of Non-Prismatic with Circular Cross Sections

Wisam Bukaita (Lawrence Technological University)

Abstract:
This study Non-prismatic structural members with tapered circular cross-sections are commonly utilized in the fields of architecture and engineering for their functional and aesthetic features. Despite their frequent use, their design can be complex due to varying cross-sectional dimensions, making it challenging to determine their elastic critical load and ensure their stability and safety. To address this, a mathematical model has been developed to accurately calculate the elastic critical load of non-prismatic members with a tapered circular cross-section. The model incorporates the tapering ratio, which describes the change in cross-sectional area along the length of the member and takes into account its effects on the member's strength. By considering the moments and deformations along the member's length, the model references the Euler buckling load of a prismatic member at its smaller cross-section to determine the elastic critical load. The formula for the elastic critical load is heavily influenced by the axial load and tapering ratio. The study highlights that, in some cases, the elastic critical load of non-prismatic members can be up to 25 times higher than that of a prismatic member with the same cross-sectional area at its smaller depth. Furthermore, the study provides a simplified formula to determine the maximum capacity of non-prismatic members, aiding designers in effectively utilizing materials.

ID: 127 | Evaluating the Carbon Footprint and Compressive Strength of Carbonation-cured Concrete Containing Calcium Carbide Residue

Jad Bawab (United Arab Emirates University); Hilal H El-Hassan (United Arab Emirates University); Amr El-Dieb (United Arab Emirates University); Jamal Khatib (Beirut Arab University)

Abstract:
The current study investigates the performance of concrete containing calcium carbide residue (CCR) as a partial replacement of cement and exposed to accelerated carbonation curing. The concrete was made with 5, 10, and 15% substitution rates CCR and exposed to two different carbonation curing schemes (8-hour and 24-hour) at 1 or 5 bars CO2 pressure. The CO2 uptake, carbon footprint, and compressive strength of the developed concrete were assessed. The CO2 uptake ranged between 3.5 and 16.9%, where a more extended curing scheme and higher pressure rendered higher uptake. The CCR content required for increasing the uptake was associated with the CO2 pressure (5% for 1 bar and 10% for 5 bars). Meanwhile, the carbon footprint ranged between 222 and 311 kg CO2/m3 and was mainly affected by the CCR content; as for the same curing scheme and CO2 pressure, the carbon footprint decreased with the increase in the CCR content. The compressive strength ranged between 19.3 and 41.2 MPa, and except for mixes containing 15% CCR, all carbonation-cured concrete mixes performed better than the mix containing only cement and exposed only to hydration curing. At the same CCR substitution rate, the compressive strength increased with a more extended curing scheme and higher CO2 pressure. The current study developed carbonation-cured concrete with up to 30% reduction in carbon footprint and a compressive strength suitable for various applications.

ID: 432 | A GPS-enabled emergency response drone for medical emergencies

Shaik Asif Hussain (Middle East college, Muscat); Haitham Salim Muslem AL-Omairi (Middle East College)

Abstract:
Disaster and prehospital care delivery are pressing challenges for Oman's health sector. Among the problems that must be addressed are the long delay time, the need for health support, the lack of access to remote areas during emergencies, and the lack of health resources. GPS-enabled drone technology can easily address these shortcomings and disrupt how healthcare delivery has traditionally been done. Global case studies show that drones in healthcare delivery have indeed worked harder and created an increasing demand for such use cases. This has led to a push to tweak policy frameworks worldwide towards increased public-private partnerships. The proposed GPS-enabled Smart Medical Drone for Emergency Response is a groundbreaking solution. An aerial drone with its medical cargo can be guided and navigated for disaster relief. Medical supplies are transported error-free using an irreplaceable GPS chip in the drone. Foldable drones equipped with 4-digit keypad locks allow the safe transport of medical supplies. Sensors such as heart rate monitors, temperature sensors, and pulse oximeters are built into the drone. With the built-in camera, these sensors allow doctors to monitor patient vital signs remotely, analyzing the situation and providing support in emergencies. An Internet of Things (IoT) cloud application stores and displays all patient data measured using different sensors. In addition, the developed system can be used to monitor elderly patients needing immediate care at home. GPS-enabled smart medical drones can provide remote monitoring and immediate support during disasters. The developed system is designed to deliver medical components quickly, saving lives and reducing disaster impact across challenging terrains. Increased efficiency, improved patient outcomes, and cost savings are possible benefits of integrating drone technology.

ID: 492 | Development of novel nanocomposites for the efficient removal of heavy metals from contaminated water

Muhammad Usman (Department of Chemistry); Mohammed A Meetani (UAE university); Muhammad Kamran Hakeem (UAE University); Muhammad Waseem (United Arab Emirates University); Toufeeq Ahmed (UAE University); Faisal Hayat (UAE University)

Abstract:
The lowest mercury concentration is dangerous for human health due to its toxicity and bioaccumulation in the body. This work aims to be the effective removal of different ions specifically mercury (II) ions from wastewater by coconut fiber modified with magnetite (Fe3O4) superparamagnetic nanoparticles (CF-MSPNPs) as an efficient adsorbent. The prepared composite was characterized using Fourier-transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), and UV-visible spectroscopy. Adsorption efficiency was optimized under several parameters including pH, contact time, adsorbent dosage, concentration of competing ions in the sample, temperature, electrolyte concentration and initial concentration of the mercury ions in water. Preparation of the composite is easy and efficient removal can be obtained quickly. The non-modified magnetic iron particles can efficiently remove mercury up to 80% of 0.2 mgL□1 from contaminated water. In comparison, coconut fiber modified with magnetite (Fe3O4) superparamagnetic nano particles (CF-MSPNPs) can adsorb Hg+2 ions up to 98% for the same concentration. However, its maximum adsorption efficiency under optimized conditions is 100%. Additionally, kinetics studies were also performed for further understanding of the adsorption properties. The Hg+2 removal obeyed a pseudo-second-order model with R2> 0.99. We believe that the method developed in this study is practical for industrial use in mercury-contaminated wastewater treatment.

ID: 317 | Implementing Autonomous-Rail Rapid Transit in Al Madina: Opportunities and Challenges for Sustainable Urban Mobility

Hassan Ali Abas (university of prince mugrin); Omar Dakhil (Prince Mugrin University)

Abstract:
Al Madina, a global visit destination, faces significant urban mobility challenges, particularly during Hajj and Umrah seasons when millions of visitors arrive, overcoming the city's transportation infrastructure. The current reliance on road-based transportation, including buses, taxis, and private cars, leads to severe traffic congestion, delays, and environmental degradation. This study explores the potential of Autonomous-Rail Rapid Transit (ART) as a solution to these persistent challenges. The research employs a mixed-methods approach, combining an in-depth analysis of Al Madina's transportation issues with a review of successful ART implementations worldwide. Key factors, such as ART's scalability, environmental benefits, and integration into existing infrastructure, were evaluated. The findings indicate that ART can significantly reduce congestion by diverting large numbers of passengers from private vehicles to public transit, particularly around high-traffic areas such as the Prophet's Mosque. Its electric-powered design offers substantial environmental benefits by reducing carbon emissions and aligning with Saudi Arabia's Vision 2030 sustainability goals. Additionally, ART's scalability and flexibility make it well-suited to accommodate seasonal population surges during pilgrimage periods. These findings are important as they provide a sustainable, scalable solution to the transportation challenges faced by Al Madina, ensuring the city's infrastructure can support its growing role as a spiritual and cultural hub.

Digital transformation in Business Management, Finance, and Law

ID: 351 | Psychological Safety and Presenteeism in Professionals: Moderating Role of Power Distance Orientation

Shazia Qayyum (University of the Punjab)

Abstract:
Psychological Safety (PS), Presenteeism (PT) & Power Distance Orientation (PDC) play a significant role in professional life as they impact on their well-being, productivity, job satisfaction which ultimately influencing organizational success.This study focused on moderating role of PDO on the relationship between PS & PT in different professionals.It was hypothesized that PS is likely to be positively correlated with PT while PDO is likely to moderate the relationship between PS & PT in different professionals.Through a cross-sectional correlation study a sample of 2000 Professionals (Doctors, Bankers, engineers, lawyers & teachers , 400 from each profession) collected.The participants provid their responses on the PS Scale (Javed et al., 2017), PT Scale (Lu et al., 2013) & PDO Scale (Dorfman and Howell, 1988). Results revealed that Doctors PS & PDO positively correlated with PT. However, PDO moderates the relationship between PS & PT. In Bankers the PS positively correlated with PT & PDO. No moderating role of PDO between PS and PT. In Engineers, PS positively correlated with PDO & PS and PDO is not significantly correlated with PT. No moderation between PS & PT. In Teachers, the gender showed positive correlation with PT. PS positively correlated with PDO and PT while PDO is not significantly correlated with PT.The interaction term is non-significant, shows no moderation. In Lawyers, age & gender positively correlated with PT while PS positively correlated with PDO & PT, and PDO is positively correlated with PT. The interaction term is significant, shows moderation i.e., PDO is strengthening the relationship between PS and PT. Overall results in all professions showed PS positively correlated with PT while in doctors, bankers & lawyers PDO positively correlated with PT & not significant correlated with PT in engineers & teachers. Interaction term is significant in doctors & lawyers while in bankers, engineers & teachers PDO showed no moderation.

ID: 476 | Trends and Challenges in Construction Resource Management: A Review of Optimization Strategies and Emerging Technologies

Ali Alashwal (Western Sydney University); Milad Baghalzadeh Shishehgarkhaneh (Monash University); Amer Hijazi (Al-Ahliyya Amman University)

Abstract:
Effective resource management is crucial in construction projects, as it directly impacts project cost, time, and quality. Efficient allocation and optimization of resources can significantly enhance productivity and efficiency, leading to better project outcomes. Despite its importance, challenges in resource management, such as scheduling inefficiencies and under- or over-utilization of resources, persist. The purpose of this paper is to provide a comprehensive review of the current trends and challenges in resource management within the construction industry. Through a systematic literature review, the study identifies five key challenges including communication issues among human resources, resource allocation and scheduling, labor market and skill gaps, data and estimation accuracy, and operational constraints and bottlenecks. The study also proposes solutions to overcome the challenges based on recent research. The review covers various methodologies and frameworks, highlighting the significance of efficient resource allocation and optimization. The findings reveal emerging trends, such as machine learning and Building Information Modeling (BIM) in conjunction with other tools, can offer insights into improving resource management practices to enhance project performance and sustainability.

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ID: 213 | Sustainable Supply Chain Collaboration in Emerging Markets: Core Bibliometric Analysis

Yulia Aray (GSOM SPbU (Russia), MBRSG (UAE)); Ioannis Christodoulou (Graduate School of Management, Saint Petersburg State University)

Abstract:
Sustainable Supply Chain (SSC) has attracted the growing attention not only from practitioners, but from scholars over the las decades. The topic is significant especially for emerging markets, where many companies often face higher risks and barriers to sustainable practices, and collaboration across the supply chain is crucial to pooling resources, sharing knowledge, and driving innovation in these contexts. Despite the growing interest in SSC in the emerging markets, the research field remains under-developed and needs systematization.
The paper focuses on investigation of theoretical background and existing conceptual approaches of Sustainable Supply Chain Collaboration (SSC) among companies in emerging markets. The methodology includes a multi-stage Core Bibliometric Analysis, which allowed to identify key directions of research, trace the historical academic pillars of the contemporary research and the theoretical evolution of the field. Through a bibliometric review of scientific literature on SSCC in emerging markets, it has been found that collaboration capacity is often measured in evolutionary terms. The framework for assessing the levels of collaboration capacity for sustainability in emerging markets and progress through each stage for building a sustainable and resilient supply chain was developed. The paper makes a theoretical contribution to the sustainable supply chain field of research by clarifying the conceptual background of SSCC of companies from emerging markets as a multistage approach.

ID: 96 | The Impact of Knowledge Digitalization on Firm Performance: The mediating role of information management, entrepreneurial orientation and business model innovation in Moroccan companies

Salmae skouri (IBN TOFAIL); Fatima Zohra Sossi Alaoui (Ibn Tofail University); Safae laamrani el idrissi (IBN Tofail)

Abstract:
In today's digital era, managing and leveraging knowledge effectively is crucial for business success. This research investigates the impact of digitalizing knowledge on firm performance, focusing on the mediating roles of information management and business model innovation, and the moderating role of entrepreneurial orientation.
We gathered data from 216 participants working in diverse sectors across Morocco, such as industry, banking, agriculture, services, and logistics. Most participants were highly educated, holding doctoral degrees, and were professionals at the early stages of their careers. To analyze this data, we employed Partial Least Squares Structural Equation Modeling (PLS-SEM).
The analysis indicates a positive link between digital knowledge and firm performance. Effective information management was found to be key in converting digital knowledge into performance improvements. Additionally, a strong entrepreneurial orientation further enhanced these benefits. Companies that implemented innovative business models experienced greater performance gains from their digitalization efforts.
The findings suggest that digitalizing knowledge significantly boosts company performance, especially when supported by robust information management and innovative business models. The role of entrepreneurial orientation is also crucial in maximizing the benefits of digital knowledge initiatives.
This study highlights the importance of investing in digital knowledge initiatives and promoting entrepreneurial orientation for sustainable performance enhancement. Businesses should focus on effective information management and innovative business models to fully capitalize on the advantages of digital knowledge. In the Future, the research should examine how digital knowledge initiatives impact firm performance over the long term across various cultural contexts and industries, and explore how emerging technologies might further enhance these efforts.

ID: 273 | Comparative Analysis of CO2 and Energy Inefficiencies Among Major Global Powerhouses

Abbas Valadkhani (Swinburne University of Technology); Amir Moradi-Motlagh (Swinburne University of Technology); Barry OMahony (Abu Dhabi Uuniversity)

Abstract:
Achieving net zero emissions aims to balance greenhouse gases emitted and removed from the atmosphere, a primary objective for countries targeting net zero by 2050. The Paris Agreement, established in 2015, aims to limit global warming to below 2°C above pre-industrial levels, ideally aiming for a 1.5°C limit. This ambitious goal necessitates a comprehensive strategy where energy efficiency, supported by AI, advanced technologies, and sustainable energy sources, plays a crucial role. Often referred to as the "first fuel," enhancing energy efficiency can significantly reduce emissions while maintaining energy services.
This study employs the Weighted Russell Directional Distance Model (WRDDM) to evaluate inefficiency among the largest energy users in the global economy. We focus on energy consumption per capita (input), GDP per capita (desirable output), and CO2 emissions per capita (undesirable output) over time. Preliminary results indicate that most countries improved their energy and CO2 emission efficiencies, though some experienced setbacks. Despite signs of limited convergence in per capita CO2 emissions, GDP, and energy consumption, significant disparities persist, highlighting the need for continued efforts to enhance global efficiency. Moreover, this study provides a sensitivity analysis by considering different scenarios for the price of carbon emissions and finds that CO2 emissions consistently remain the main source of inefficiency.
Our findings reveal the "paradox of plenty," where oil and gas-rich countries exhibit high energy and CO2 inefficiencies. These results provide valuable insights for realistic benchmarking, essential for enhancing efficiency by adopting best practice. Key policy implications include equitable benchmarking, achieving convergence in efficiency, and adopting a "learning by doing" approach from successful and comparable countries.

ID: 578 | A Jurisprudence for the Earth: Transforming National Legal Systems To Persistently Enhance Sustainability of Private and Public Sectors By Kinetic Standards, Broad-Spectrum Environmental Monitoring, and Continuous AI-Driven Assessment

Stephen M Sheppard (St. Mary's University School of Law, San Antonio, Texas), Jonathan Johnson (Walton Colle

Abstract:
Jurisprudence – Legal Science, or, Philosophy of Law – has yet fully to address global stewardship of the environment. The discipline has produced neither theoretical foundations justifying such a commitment in legal systems nor practical foundations integrating environmental standards incorporating practical, technical advancements that can reverse human harm to the biosphere and restore local natural and environmental resources. This paper questions whether a comprehensive jurisprudential environmental foundation is possible and whether such influence on existing legal systems is feasible. To determine whether a comprehensive environmental jurisprudence is possible and feasible, the paper, first, identifies obstacles to such a philosophy in critiques from environmental ethicists, economists, and others and, second, summarizes a deeper survey of international conventions, environmental justice documents, national laws; legal, ethical, and scientific scholarship; and private multi-national resource conservation efforts. The paper concludes A Jurisprudence for the Earth ("JurisEarthTM") is both possible and feasible. The paper closes with a statement of JurisEarth's defining concept – a multi-tiered justificatory foundation for national legal systems to integrate sustainable and restorative processes into the legal obligations of both the public and the private sectors. Specifically, JurisEarth synthesizes environmental laws and programmes that have increased human and environmental sustainability. Such experiments have reversed habitat loss, recovered endangered species, reduced toxic waste, improved air and water quality, protected fresh water resources, improved energy production and consumption, and reduced and recaptured atmospheric carbon – through inducements, subsidies, and penalties, managed with kinetic standards for governmental monitoring and inspection, third-party oversight, indigenous management, citizen- and self-reporting.

ID: 634 | Understanding Electric Vehicle Smart Charging Adoption by Generation Z

Bor Krizmanic, (School of Economics and Business, University of Ljubljana)

Abstract:
Tackling climate change requires a reduction in greenhouse gas emissions, of which electric vehicles make an important contribution. If we want electric vehicles to truly make a difference, smart charging will be essential. It optimizes energy consumption and alleviates the strain on the electrical grid during peak demand periods. In this short paper, we propose a study to investigate the preferences and characteristics of Generation Z in relation to the adoption of smart charging of electric vehicles. Young people, with their digital fluency, environmental advocacy and ability to influence trends, are an important demographic for the adoption of sustainable mobility solutions. The study highlights the importance of understanding and addressing the more sustainable and resilient energy infrastructure. So far, research in this field has not yet focused specifically on the younger generation. We propose to conduct a survey to collect data on attitudes towards smart charging, focusing on factors such as perceived ease of use, technological inclination, the role of financial incentives, perceived loss of mobility and perceived environmental benefits. We will use structural equation modeling (SEM) to test our hypotheses and conceptual model. In this way, we will identify key motivators and barriers to adoption providing insights to guide strategies to promote smart charging among the younger generation and contribute to sustainable transportation and climate change mitigation.

ID: 642 | DATA BROKERS, DATA INTERMEDIARIES AND ONLINE ADVERTISING: AN EU LEGAL APPROACH

Carmen Ungureanu (Alexandru Ioan Cuza University of Iasi) , Aura Amironesei (Alexandru Ioan Cuza University of Iasi)

Abstract:
The paper explores the evolving EU's legal landscape surrounding data brokers, data intermediaries, and online advertising and the impact that new technologies have on delivering personalized online advertising services.
As the digital economy flourishes on the collection and use of personal data, data brokers and intermediaries play significant roles in the commercialization of user information. However, these practices raise critical concerns related to data protection, privacy, and competition, especially within the framework of the GDPR, the DMA, and the DSA. Increasing concerns have also been expressed in light of new technologies that help data brokers to collect and process Big Data in an unprecedented rhythm, in particular when it comes to the use of AI systems.
The paper comprises an analysis on the roles and responsibilities of data brokers and intermediaries in the online advertising, highlighting the reliance on personal data for targeted advertising. Light is particularly shed on the challenges of balancing the economic interests of the digital advertising industry with the fundamental rights of data subjects. The recent regulatory developments at the EU level are also addresses, in particular when it comes to AI Act. The efforts to enhance competition and prevent market abuse by dominant digital platforms are also duly considered, as well as the importance to strike a balance between innovation and consumer protection. Finally, case studies on personalized online advertising and its legal implications are also being discussed.

ID: 144 | Exploring the Factors That Influence Waste Management Practices Among University Students Using Digital Platforms

YUSNITA YUSOF (UNIVERSITI SULTAN ZAINAL ABIDIN); Noor Aina Amirah (Universiti Sultan Zainal Abidin); Wan Mohamad Asyraf Wan Afthanorhan (Universiti Sultan Zainal Abidin); Aisyah Awanis (Universiti Sultan Zainal Abidin); Nik Fadhilah Nik Him (Universiti Kebangsaan Malaysia)

Abstract:
The sustainability issue has gained significant attention in universities worldwide, and Malaysia's higher education institutions face specific challenges in their sustainability efforts. Waste management poses another challenge, as universities generate substantial waste from various sources, necessitating the implementation of recycling initiatives, waste reduction campaigns, and adopting circular economy principles. This preliminary study explores the factors influencing waste management practices among students at Universiti Sultan Zainal Abidin (UniSZA). The study employs a quantitative, structured survey instrument to collect data from a representative sample of UniSZA students. There were 100 students involved in this preliminary study. This survey employs Google Forms as the primary digital tool for data collection. Through this platform, we aim to gather detailed insights into the waste management practices of university students. This study analyzed the data collected through Exploratory Factor Analysis using SPSS software. This analysis aims to identify underlying relationships between measured variables by grouping them into factors representing shared variance, simplifying data structures, and uncovering latent constructs. Initial findings highlight the result from an Exploratory Factor Analysis to discover the factors of consciousness, knowledge, participation, policy, and attitude toward waste management practices. As a preliminary study, these anticipated findings are expected to offer recommendations for targeted interventions to promote sustainable waste management on campus. Ultimately, the study's findings will contribute to developing evidence-based strategies to enhance waste management practices and foster a culture of sustainability within the university community.

ID: 215 | Exploring the Institutional Factors Affecting the Development of Social Entrepreneurship in Different National Contexts

Yulia Aray (GSOM SPbU (Russia), MBRSG (UAE)); Karina Bogatyreva (GSOM SPbU); Daria Leus (GSOM SPbU)

Abstract:
This paper explores the development of social entrepreneurship from an institutional perspective. Social entrepreneurship implies the creation of a new business model that has both a non-profit and a for-profit element and aims to create value by addressing significant social or environmental issues. The study focuses on how formal institutions measured through the World Governance Indicators' impact the development of social enterprises and how informal institutions operationalized with the Hofstede cultural dimensions moderate this relationship. The existing research suggests two opposing theories regarding the institutional effects on social entrepreneurship: on the one hand, institutional voids are known to create business opportunities for social enterprises; on the other hand, institutional support is essential for the development of social entrepreneurship. Having tested both perspectives based on the Global Entrepreneurship Monitor (GEM) 2022 country-level data, we advocate for the institutional support hypothesis and further reveal that power distance, individualism, and indulgence are important cultural dimensions that moderate the focal relationship between the development of social entrepreneurship and formal institutions.

In light of the two previously described conflicting perspectives and the duality of formal institutions' effects, we next present evidence of a curvilinear inverted U-shaped relationship between social entrepreneurship and formal institutions. This research implies that, as opposed to low or high levels, an intermediate degree of institutional development guarantees a better environment for social entrepreneurship. This finding is supported by examples of social entrepreneurship development in Russia, UAE, and Switzerland. This paper contributes to the institutional view of social entrepreneurship and discusses ways to encourage its development to further foster achievement of the UN SDGs.

ID: 511 | Improving data management in supply chain management for administrative process sustainability: a survey analysis

László Buics (Széchenyi István University); Ashley Kawera (Széchenyi István University)

Abstract:
This study examines the role of data management systems (DMS) in enhancing the efficiency and sustainability of supply chain management (SCM). As organizations transition from traditional data storage methods to advanced DMS, there is an increasing need to evaluate the impact of these systems on supply chain performance. The purpose of this research is to determine whether the use of a specific DMS is essential for effective SCM operations, or whether supply chains can function independently of such systems. The data was collected from organizations in Hungary and Kenya, using questionnaires distributed to the employees, and then analyzed using SPSS and Excel. The study examines how different DMSs affect key SCM activities including purchasing, logistics, sourcing and product disposal. The results are intended to highlight whether reliance on DMS contributes to better decision-making, cost-effectiveness and overall supply chain sustainability. By answering critical research questions, this article provides insight into the extent to which data management influences the competitiveness and operational success of organizations in a dynamicenvironment.

ID: 95 | INNOVATION AND CSR AS KEY DRIVERS FOR SUSTAINABLE VALUE CREATION

NADA EL YASSINI (Ibn Tofail University); IMANE LAAMRANI EL IDRISSI (Ibn Tofail University); kenza oufaska (International University of Rabat); Fatima zohra Sossi Alaoui (Ibn Tofail University)

Abstract:
This research emphasizes the importance of innovation and sustainability in contemporary business environments. It demonstrates how companies can thrive by forming strategic alliances and integrating sustainable practices into their operations. Essential strategies include mastering sustainable technologies, promoting innovation and continuous improvement, and engaging stakeholders to enhance an organization's sustainable performance. This study aims to examine the impact of CSR on performance, based on resource-based theory. To achieve this objective, a survey was used to collected data from 244 participants representing various sectors in Morocco, which were analyzed using SPSS Statistics 27 and SmartPLS 4. We highlight the mediating role of innovation in the main relationship between CSR and performance. These findings were confirmed after analyzing the results. By adopting CSR practices and developing innovations, companies can overcome the challenges faced when implementing CSR strategies, thereby improving performance.

ID: 382 | The Leadership of UAE Law in The Regulation of Crypto Assets and Its Impact on Achieving Economic Sustainability

Marwa M Abdelghany (Abu Dhabi University)

Abstract:
One of the most important transformations brought about by recent technological and digital developments is the emergence of Virtual Assets based on blockchain and AI technologies.
The growing importance of trading in virtual assets has become a reality, and many indicators point to expectations of a rapid increase in this growth in the future. In addition, massive economic entities have been established to manage the trading of these assets. Dealing in such assets also generates significant economic benefits that cannot be overlooked.
Despite the positive aspects that can be achieved from the growth in trading virtual assets, they are at the same time fraught with negative and serious risks and challenges.
Accordingly, establishing a legal framework regulating virtual assets has become a necessary and urgent matter. The Emirate of Dubai has issued Law No. (4) of 2022 regarding the regulation of virtual assets, in a unique precedent as it is the first national law to establish a regulatory framework for this issue.
In this paper, we aim to analyze this legislation by examining the controls it has established for dealing with virtual assets. We will also demonstrate through the paper the impact of such legal regulation in achieving economic sustainability.
The main objective of addressing these issues is to encourage the issuance of similar legislations to regulate virtual assets domestically and internationally, due to their positive impact on enhancing economic sustainability.

ID: 100 | Exploring the role of Digital Finance in Small Business Lending: The case of FX12

Arturo Capasso (Unisannio); Matteo Rossi (Unisannlo)

Abstract:
Digital innovation technologies are part of the so-called Digital Transformation (DT). Also in the financial sector, DT has become an imperative for companies. A branch of Digital Transformation is the Digital Finance (DF). In the last decade, DF (also known as FinTech), has become more and more popular. In a nutshell, digital finance is the internet-based generation of traditional finance. It is a revolution currently taking place in the financial system. In the same time, Fintech had an impact on incumbents – with a re-evolution of business models – and on new competitors: the Digital Finance Start-ups.
In this paper we present a longitudinal case study: the unit of analysis was a firm not a single project. In fact, we contacted the top management of FX12 and we realised several interviews over three months.
FX12 is a start-up founded in Naples in 2019 specialized in assisting Small and Medium Enterprises. FX12 is the clear demonstration that fintech companies could help Small Business Lending, and that fintech firms can play a fundamental role in funding local economic growth.

ID: 589 | The Determinants of Financial Well-Being Among Professional Football Players in Malaysia: The Moderating Role of Financial Education

Siti Nur Aida Mohd Nashruddin (University of Malaya); Mohamed Hisham Hanifa (University of Malaya); Nurul Shahnaz Mahdzan (University of Malaya)

Abstract:
This study explores the determinants of financial well-being (FWB) among professional football players in Malaysia, emphasizing the moderating role of financial education (FE) to financial knowledge (FK), financial behaviour (FB), financial attitude (FA), financial skill (FS), and financial socialization (FSo). The study was designed quantitatively and collected from 223 professional football players in Malaysia through self-administered questionnaires adopted from previous studies. The data were analyzed using Partial Least Squares Structural Equation Modeling (SmartPLS4) to test the study's hypotheses. The results indicate that FK, FA, FS, and FSo are significant determinants of financial well-being. FE emerges as a crucial moderating factor, significantly enhancing the effects of FB and FS. However, it does not significantly moderate the influence of FSo, FA, and FK. Notably, these findings show that FE significantly moderates FB, leading players to adopt responsible spending habits and make informed financial decisions, and it moderates financial skills, enhancing their ability to manage and plan finances effectively. Thus, this emphasizes the critical role of financial education (FE) in promoting financial literacy and long-term success for athletes, aligning with SDG 4: Quality Education. Although, addressing gaps in socialization and knowledge is essential for improving financial management. It calls for exploring financial strategies to enhance long-term success and security in the sporting industry, contributing to SDG 8: Decent Work and Economic Growth.

ID: 73 | A Bibliometric Analysis of AI-Driven Strategies for Cybersecurity in UAE

Mohammed Albakri (University of Salford), Peter Kawalek (Loughborough University), Ali Alshehhi (Abu Dhabi Police)

Abstract:
This paper explores artificial intelligence (AI) in strengthening cybersecurity within the United Arab Emirates (UAE) as the country moves forward with its smart city and digital transformation initiatives. Securing the UAE's digital infrastructure is crucial to realising the Vision 2030 and 2071 goals. Despite global advancements in AI-driven cybersecurity, this paper identifies several key gaps, particularly related to ethical challenges, algorithmic biases, and the socioeconomic effects of AI implementation. By conducting a systematic literature review (SLR) and bibliometric analysis, the study evaluates the current AI-driven cybersecurity landscape and its effectiveness, identifying limitations that require attention. The paper proposes a tailored framework for the UAE, focusing on machine learning strategies for threat detection, human-centric AI approaches for privacy and trust, ethical AI governance to prevent biases, and socioeconomic strategies to align AI with national development goals. This framework integrates adaptive learning systems and international collaboration, aiming to boost the UAE's cybersecurity resilience while ensuring alignment with the country's unique cultural and social context. In doing so, it provides a comprehensive approach to addressing both technical and ethical challenges, positioning the UAE to lead in AI-driven cybersecurity and digital innovation, while also contributing to global cybersecurity efforts. Future research should focus on empirically testing the proposed framework within the UAE, considering both global best practices and the country's unique cultural context for effective AI-driven cybersecurity.

ID: 581 | Data-Driven Decision Making in Talent Acquisition: Implementing AI-Driven Recruitment Systems for Sustainable Organizational Growth

Dr Sebastin S Antony Joe (Gulf College, Oman); Ahmed Al-Mujainia (Gulf College); Raziyeh Moghaddas (Gulf College); ARUNADEVI KARUPPASAMY (Gulf College)

Abstract:
Artificial Intelligence, a key technology of the 4th Industrial Revolution, has revolutionized numerous industries, with human resource management experiencing significant benefits from AI-driven solutions that enhance and streamline various HR processes. This paper delves into the analysis and implementation of AI-driven recruitment systems being adopted and utilized in Omani businesses, investigating their potential to transform recruitment strategies and contribute to sustainable organizational growth. In Oman, conventional recruitment methods often prove inefficient and error-prone, requiring significant time investment from HR professionals to manually review countless applications. Furthermore, organizations face ongoing challenges in effectively tracking and evaluating employee performance post-hire. To address these challenges, companies can leverage smart recruitment systems that includes the dominance of artificial intelligence system, machine learning techniques, and data analytic concepts. These highly innovative platforms let the people seeking jobs to input their qualifications and preferences, while automatically matching their inputs with suitable job openings. Simultaneously, employers can mention their expected requirements for a particular job, allowing the proposed system to create an organized report of the most matching applicants. By using the proposed data-driven method for recruitment, Institutions or companies can significantly enhance their ability to identify ideal candidates, improve talent retention, boost overall productivity, and optimize hiring costs. This technological shift in talent acquisition promises to revolutionize how businesses fascinate, choose, and preserve talented candidate in the competitive job market.

Keywords: Artificial Intelligence (AI), Machine Learning, Data Analytics, AI-driven recruitment systems, 4th Industrial Revolution.

ID: 288 | ARTIFICIAL ADMINISTRATIVE INTELLIGENCE (A-AI). Complexity of automation in public administration

Pierpaolo Forte (Università degli studi del Sannio)

Abstract:
It is by now clear that the legal side of the systems of so-called artificial intelligence (AI) is one of the decisive factors in their implementation, especially in maintaining the instrumental character of such use as a function of human needs, which is currently summarized by emphatic, and in some ways imprecise, expressions advocating “anthropocentrism,” “human sovereignty,” “human in the loop,” “algorethics.”
Around the world, after all, the legal framework for AI is being discussed, specific disciplines for the digital transition of legal acts and behaviors have been adopted in many countries, and the European Union has devoted a specific policy to it, which has already produced several acts of legislation (Digital Services Act, Digital Markets Act, AI Act).
AI systems have also been applied to the organization and the activity of public administration (PA) for some time now, all over the world, and as in other areas of human experience, these uses are widely studied and being tested, technological products are already on stage, and disputes and judgments have already arisen, so that, in short, it seems legitimate to speak of “Administrative Artificial Intelligence” (A-AI), a domain of AI use with its own characteristics.
The report aims to expose some of the main problems of A-AI, from the difference in its use depending on whether discretionary decisions are to be made or instead to carry out executive operations, to the participation of stakeholders, from the motivation of measures to the imputation of operations and the consequent distributions of responsibilities, from the relationship of public actors with the providers of technological systems, to controls to the risks of the capture of public decision-makers, up to the extent of judicial control over the automated administrative activity.

ID: 104 | Digital Transformation and Resistance to Change: Bibliometric Review and Research Agenda

Diana Hayrapetyan (Graduate School of Business HSE University); Anna Veselova (Graduate School of Business HSE University)

Abstract:
There are various management practices for implementing digital transformation, however, organizations continue to face a large number of failures when it comes to implementing digital initiatives. One of the disruptive barriers to implemeting digital changes for organizations is employee resistance. While there is a large body of research on resistance to change, the topic of employee resistance during digital transformation has not been researched in depth. To fill this gap, this research aims to comprehensively review the literature on employee resistance to digital transformation and map its evolution and trends using bibliometric techniques. In particular, the authors use visualization of science mapping freeware to systematize the findings and interpret the results as well as identify research streams and offer recommendations on areas where the topic may be investigated further. Through thorough analysis of 198 publications obtained from the Scopus database, the authors determine the leading authors, countries, highly cited papers and their contributions to the topic. By identifying the key hotspots and emerging trends, authors suggest promising avenues for further research by concluding methodological and theoretical contribution of the study.

Keywords: digital transformation, digital changes, resistance to change, employee resistance.

ID: 195 | Policies of Strategic Communication for Green Tourism Sustainability with Artificial Intelligence

Ghada Seif (Abu Dhabi university); Puja Mahesh (Symbiosis International University)

Abstract:
The tourism sector is a priority on the development agenda of the United Arab Emirates, where establishing a sustainable tourism sector is given significant importance. The United Arab Emirates (UAE) incorporates environmental considerations into all its tourism plans. In this context, it directs sustainable investments in the tourism sector towards green transformations that propose frameworks for transitioning from a growth model to a long-term sustainable model for tourism. Artificial intelligence (AI) applications and tools support various types of tourism services, mediating the relationship between users/tourists and destinations/tourism services, playing a tangible role in green tourism and its sustainability. The study highlights the importance of artificial intelligence in tourism services sustainability in the United Arab Emirates.
The study aims to highlight the importance of applying artificial intelligence technologies in green tourism sustainability, monitoring the strategy adopted in the United Arab Emirates' national plans for the application and tools of artificial intelligence (AI) in tourism services, and analyzing the strategic communication strategies relied upon for green tourism sustainability in the UAE. The study adopts a descriptive approach, relying on qualitative analytical surveys to derive its results. The results contribute to providing insights into strategic communication strategies for a sustainable future of green tourism within the framework of artificial intelligence tools and applications.

ID: 94 | The Role of Green Marketing Orientation in building Trust, Green Image, and Purchase Intentions in AI-Driven Sharing Accommodation Platforms in India

Rajat Kukreti (National Institute of Technology Rourkela); Mayank Yadav (National Institute of Technology Rourkela)

Abstract:
The sharing economy and the spread of Internet technology have completely changed the face of the world economy. Peer-to-peer (P2P) accommodation platforms using artificial intelligence have emerged as major participants in the hospitality industry in this environment. Though P2P lodging is praised for being environmentally friendly, little is known about how green marketing strategies affect customer behavior in this industry. This study investigates how consumer trust (TP) in artificial intelligence-assisted platforms and green image (GI) are affected by green marketing orientation (GMO), and how this affects Indian customers' intentions to make purchases. Structural Equation Modeling (SEM) was used to examine P2P users' data using a survey approach. The results show that GMO has a favorable impact on TP and GI, which greatly increases purchase intentions. These findings demonstrate the critical role that green marketing plays in creating a favorable green image and earning the trust of consumers, which in turn drives business in the cutthroat artificially intelligent P2P accommodation industry. This study aligns with the Sustainable Development Goal #12 of the United Nations', which emphasizes on responsible consumption and production. Within this framework, this study reveals how P2P platforms that practice responsible production can encourage P2P accommodation users to practice responsible consumption. The adoption of creative green marketing techniques and the promotion of eco-friendly behaviors among hosts and guests are practical implications for P2P platform operators. In order to generalize the results, future studies should investigate causal linkages using a variety of approaches and take cross-cultural situations into account.

ID: 143 | Managing Workplace Psychosocial Risk in Digital Era

Noor Aina Amirah (Universiti Sultan Zainal Abidin); Nik Fadhilah Nik Him (Universiti Kebangsaan Malaysia); YUSNITA BNTI YUSOF (UNIVERSITI SULTAN ZAINAL ABIDIN); Tengku Noor Zaliha (Universiti Sultan Zainal Abidin)

Abstract:
The digital era has introduced new dimensions to managing workplace psychosocial risk, profoundly affecting employees' mental well-being. This study focuses on identifying and addressing psychosocial risk factors in the digital age among employees in East Coast Peninsular Malaysia through a Focus Group Discussion (FGD) approach. Employing a qualitative research design, FGDs were conducted with twelve participants. The participants were representative from Department of Occupational Safety and Health (DOSH), Ministry of Health (MoH) and employees. The selection of these representatives was based on specific criteria related to their nature of job and mental health experiences. The discussions centered around ten psychosocial risk factors outlined by the International Labor Organization (ILO), with a particular emphasis on how digitalization influences these factors especially during Covid-19 pandemic and post Covid-19. Findings reveal five key psychosocial risks exacerbated by digitalization: workload, work pace and schedule, work-life balance, job security, management leadership and social support. Participants shared personal experiences and insights, highlighting the intricate relationship between digital tools and mental well-being. This research underscores the need for targeted interventions that leverage digital solutions to mitigate psychosocial risks and enhance mental well-being. The study provides valuable insights to inform workplace policies and practices, aiming to foster a healthier work environment in the digital era.

ID: 585 | Big Data Analytics: An assessment of Oman's global competitiveness and sustainability

Stephen O Aro-Gordon (Muscat College); Muna Saif Al Kalbani (Muscat College); Shermina Jeba (Muscat college); Abeer Al Naamani (National Centre for Statistical Information)

Abstract:
Global competitiveness amidst sustainability dynamics have attracted increasing research interest in the age of new analytical technologies and environmental, climate change issues across the globe. The main thrust of national competitiveness on the global scene is an agglomeration of complex dynamics at macroeconomic level. Hence, this study focused on the context of the Sultanate of Oman, an emerging economy currently targeting global competitiveness while pursuing a sustainable development strategy under its Vision 2040. The study deployed Python, a high-level versatile programming language that permits conducting complex statistical calculations while also creating data visualizations to generate valuable insights. Python has several easy-to-use time series forecasting packages. Python's statistical models' package, which enables the development of ARMA, ARIMA, and SARIMA models with minimum code, was a key factor in the decision to choose Python for this study. The data was gathered from the Global Competitiveness Index (GCI) report and the Oman Sustainable Development Goals (SDG) data site. The GCI is annual research released by the World Economic Forum (WEF) that evaluates countries' competitiveness using a variety of economic criteria. The GCI study assesses 141 economies and offers a thorough analysis of the elements that drive productivity and long-term economic growth. Both the GCI and SDG indicators are assessed on a yearly basis. For this study, only 17 GCI indicators related to Oman with complete time series from 2007 to 2019 were chosen. However, multiple SDG indicators were accessible between 2010 and 2022, and only the indicators with complete time series were used. To perform the comparison analysis, data from the Global Competitiveness Index (GCI) for the 17 indicators was combined with data from six additional countries: Australia, New Zealand, Luxembourg, Canada, France, and Norway.

ID: 214 | Reskilling and Upskilling Abu Dhabi SME Workforce Towards an AI-driven Economy

Rouhi Faisal (Liwa College); Rafif Faisal (Liwa College); Adnan Jawabri (Liwa College)

Abstract:
This study examines the role of reskilling and upskilling in the efficiency of small and medium scale companies' workforce in Abu Dhabi. With artificial intelligence (AI) playing an increasingly critical role in economic development, this study also assessed how it can help meet Abu Dhabi's vision of becoming an AI-driven economy. Aspects such as challenges faced by the SMEs, artificial intelligence integration, and reskilling and upskilling benefits were examined using a survey of 148 employees. PLS-SEM was applied on the data which was collected using a close-ended questionnaire. The findings of the study revealed that there are several challenges faced by SMEs which reduces the AI integration of the SME workforce. There is a positive linkage between reskilling and upskilling and SME workforce efficiency, and the AI integration and SME workforce efficiency. Based on the findings, the study recommended the development of tailored reskilling and upskilling programs by SMEs to make the workforce efficient in handling tasks in an AI-driven economy.

ID: 345 | Exploring Mimetic Desire: The Impact of Social Media on Luxury Goods Consumption Patterns in Malaysia

Sivakumari Supramaniam (Sunway University); Ishwarmeet Kaur (Sunway University Malaysia)

Abstract:
The allure of luxury brands in Malaysia extends beyond mere material possession and is intricately linked with the rapid advancement of technology, creating a nexus where mimetic desire flourishes. This study explores the interplay between technology and luxury consumption, specifically examining how social media platforms and influencer marketing amplify mimetic desire, thereby shaping luxury buying behaviors. Through a qualitative investigation, this research aims to elucidate the psychological, social, and cultural factors driving mimetic desire in the Malaysian context, shedding light on the motivations and influences behind luxury consumption patterns. Drawing on existing literature, the study identifies a gap in understanding the specific ways in which technology, particularly social media, influences mimetic desire and luxury consumption in Malaysia. The findings reveal that social media platforms present curated realities, influencing aspirations and driving the pursuit of validation through online conformity. Interestingly, technology creates an additional societal norm in which participants are not passive imitators but actively engage with the digital mirror, carving their path through the online platform. This study aims to contribute valuable insights to the fields of consumer psychology, marketing, and luxury consumption. By fostering a deeper understanding of the complex dynamics at play, this research strives to promote a more sustainable and culturally sensitive luxury market ecosystem, where informed choices and cultural appreciation guide consumer behaviour.

ID: 300 | The Impact of Digital Platform Leadership, Ecosystems and Governance on Firm Competitiveness: A Bibliometric Analysis (2010-2024)

Prerna Kumari (Abu Dhabi University); Amit Kumar (Abu Dhabi University)

Abstract:
Digital Platform governance is viewed as a mechanism for governing a mobility platform and ecosystem. Due to the challenges in platform governance and its positive effects on platform businesses, the study of platform ecosystem – governance – competitiveness relationship has gained relevance. While studies have explored the design, principle, type and dimension of platform governance, the research on the underlying mechanism that explain how platform ecosystem governance contributes to competitiveness remains scarce. Accordingly, this study looks into the link between platform ecosystem governance and competitiveness.
By using a bibliometric technique, this paper aims to provide a review of the state-of-the-art research on the linkage between platform ecosystem, leadership, governance and competitiveness. The sample for this research included all 149 articles from the period of 2010-2024 in the Scopus database. The bibliometric study included both co-occurrence and co-citation analyses.
The findings made significant contributions by identifying seven distinct clusters of co-occurrences. The findings show how increasingly significant processes/mechanisms such as – digital platform leadership, ecosystem design, business strategy, platform governance, network externalities, knowledge and learning, environment and institutions – are eventually contributing to platform competitiveness.
Based on findings, a conceptual framework has been proposed, underscoring the key processes and mechanisms of platform ecosystem governance and the interlinkages that can strengthen this new and evolved form of digitally advanced platform businesses and contribute to the competitiveness.
The paper argues that digital platform leadership is a contemporary form of governance that is the demand of the current times of digital transformation and can lend sustained competitive advantages.

Keywords: Digital platform leadership, platform governance, Ecosystems, Competitiveness, Bibliometric.

ID: 32 | WHEN CENTRAL BANKS ISSUE DIGITAL CURRENCIES: CONDITIONS OF IMPLEMENTATION AND FINANCIAL CONSEQUENCES

Hicham Sadok (Mohammed V University in Rabat); Mohammed El Hadi El Maknouzi (University of Sharjah)

Abstract:
This article reviews the main technical and regulatory issues that would need to be faced in the event of a central bank's decision to operate a public digital currency scheme, also called a 'central bank digital currency' (CBDC). It reviews in particular the conditions and motivations that might warrant such monetary innovation; its modalities of implementation; the effects of CBDC issue on the economy, with particular attention to financial stability; and finally its consequences for monetary policy. In so doing, it addresses a gap in digital currency literature, thus far overly focused on private schemes, whilst neglecting the opportunities and challenges involved in a central bank-issued scheme. Our study finds that, alongside the many advantages of a public digital currency scheme, particularly the introduction of a reliable and easily accessible means of payment, several criticalities remain. First of all, the decision around the public to which to make the CBDC available, whether wholesale (other financial institutions) or retail (the general public). In either case, the additional decision as to whether to open holdings of the public digital currency to non-resident institutions or individuals can, for instance, amplify fluctuations in the demand for central-bank issued currency, independent of local demand. Secondly, delicate questions remain concerning the remuneration of these digital assets, with a view to minimise distortions to the operation of the monetary policy transmission mechanism.

ID: 38 | The Impact of Returned Products Disposition Strategies on Environmental Performance

Ahmed Attia (Abu Dhabi University)

Abstract:
This research aims to investigate the impact of techniques for handling returned products on environmental performance. The study will gather and analyze data from the home appliance business in the United Arab Emirates (UAE). The research model and hypothesis were examined by Correlation Analyses, regression analyses, and structural equation modeling. Data was gathered from 45 enterprises in the household appliance market in the Emirates.
The study's findings indicate a positive correlation between disposition methods and environmental performance. The data utilized in this study were gathered from 45 companies operating in the household appliance industry in the Emirates. Nevertheless, the extent to which the findings of the study may be applied to a larger population may be restricted due to the small size of the sample. This study presents a practical and effective paradigm for the household appliance business.

ID: 479 | Full computerization of enforcement proceedings - the future or reality in Polish civil proceedings?

Joanna Studzinska (Kozminski University)

Abstract:
In recent years, the informatization of judicial enforcement proceedings in Poland has significantly accelerated the processing of cases. The introduction of modern technological systems, such as the Electronic Court Register (e-KRS), Electronic Land and Mortgage Registers (EKW), and Electronic Enforcement Proceedings (EPU), has greatly improved efficiency and reduced the duration of these proceedings. Not only it is possible to perform activities in an electronic form, but also bailiff files are to be kept in such a form. The restrictions related to COVID-19 were a particular impulse to introduce new solutions. Artificial intelligence (AI) can play also a key role in the computerization of civil proceedings, bringing new capabilities to the judicial system and legal processes. The integration of AI in enforcement proceedings can significantly enhance the efficiency, accuracy, and fairness of the process. Integrating AI into enforcement proceedings in Poland can lead to a more efficient, transparent, and accessible system, benefiting both the enforcement authorities and the parties involved. The main purpose of the study is to analyze the effectiveness of electronic tools and their advantages and threats to the efficiency of the proceedings.

ID: 222 | Exploring the Role of Self-Perceived Creativity and Social Media Use in Shaping E-Entrepreneurial Intention Among Moroccan Public University Students

Hajar Sbai (Ibn Tofail University); safae LAAMRANI EL IDRISSI (IBN TOFAIL UNIVERSITY); Imane LAAMRANI EL IDRISSI (Ibn Tofail University)

Abstract:
Entrepreneurship drives economic growth and societal advancement through innovation, job creation, and productivity enhancement. This research examines the impact of self-perceived creativity on e-entrepreneurial intentions and the moderating role of social media, which potentially amplifies the effect of creativity on entrepreneurial pursuits. Data was collected from 131 Moroccan public university students and analyzed using multiple linear regression.
This study employs the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) to explore how self-perceived creativity and social media use influence e-entrepreneurial intentions among Moroccan entrepreneurs. The findings reveal that self-perceived creativity significantly enhances e-entrepreneurial intentions, suggesting that individuals who see themselves as creative are more likely to start online businesses. Social media use directly enhances e-entrepreneurial intentions by providing access to crucial resources and networks, while also moderating and reinforcing the positive relationship between self-perceived creativity and entrepreneurial pursuits, enabling active users to better leverage their creativity.
The results underscore that self-perceived creativity and social media engagement positively influence e-entrepreneurial intentions among students. However, moderation analysis reveals a nuanced relationship where excessive social media use can weaken the link between self-perceived creativity and entrepreneurial intention, highlighting a potential risk of over-reliance on digital platforms at the expense of direct creative engagement and critical thinking crucial for entrepreneurial success.
This study enhances understanding of how creativity and social media use jointly influence e-entrepreneurial intentions, providing valuable insights for educational and entrepreneurial policy development.

ID: 518 | Digital Leadership, Total Quality Management, and Sustainability: An Indonesian Perspective on the Mediating Role of Knowledge Management

Nopriadi Saputra (Bina Nusantara University); Harry Sutanto (Binus University)

Abstract:
This study investigates organizational and operational determinant factors of sustainability management. Do total quality management (TQM), digital leadership, and knowledge management have direct and/or indirect effect on sustainability management among business organizations in Indonesia. Using empirical data collected from 389 respondents, this study employed structural equation modelling and SmartPLS application to structure perceptual data and analyze the conceptual framework. The results confirm that digital leadership has a direct positive impact as well as TQM has indirect positive impact toward sustainability management. Meanwhile, knowledge management plays a significant mediator in the effect of digital leadership and TQM toward sustainability management. The results emphasize the importance of knowledge management in bridging these connections as well as provides valuable insights for organizations aiming to enhance sustainability management through effective technological leadership and quality management practices, particularly within the Indonesian context

ID: 588 | Harnessing Digital Mastery and Islamic Spirituality for Strengthening Business Resilience of Small-Scale Family Businesses

Nopriadi Saputra (Bina Nusantara University); Reni Hindriari (Universitas Pamulang); Kiky Rizky (Universitas Islam Negari Syarif Hidayatullah)

Abstract:
Business resilience has become a critical focus for family business especially small-scale in Indonesia as they navigate a rapidly changing economic landscape. This study examines the impact of Islamic spirituality and digital mastery on business resilience, with a perspective of socio-technical system theory. Drawing on a survey-based approach, data was collected from 389 owners and/or managers of small-scale family businesses across various sectors in Indonesia. Using SmartPLS for data analysis, the results reveal that both Islamic spirituality and digital mastery have significant positive effects on business resilience. The findings indicate that digital mastery — characterized by the digital communication, digital content creation, and digital strategic skills — enhances capability of small-scale family businesses to adapt and thrive in uncertain environments. Additionally, Islamic spirituality, rooted in ethical values such as trustworthiness, fairness, and responsibility, not only directly strengthens resilience but also moderates the relationship between digital mastery and business resilience. This suggests that when digital capabilities are aligned with spiritual and ethical practices, small scale family businesses can better navigate challenges and ensure long-term sustainability. The study provides practical insights for owners and managers of family businesses, emphasizing the importance of fostering both spiritual leadership and digital competencies to build resilient organizations.

ID: 163 | Navigating the Institutional Environment for Energy Deep Tech in Europe

Federica Russo (Manipal GlobalNxt University)

Abstract:
The Energy Deep Tech sector in Europe is experiencing significant growth, particularly in Western European countries like France, the Netherlands, and Germany. While this field, driven by breakthrough innovations to combat pressing societal issues such as climate change, holds immense potential, companies face unique challenges in scaling their operations. These challenges are deeply rooted in the complexity of the institutional environment they operate in, which includes fragmented regulatory frameworks, access to capital, and cross-sector collaboration barriers. This study provides an overview of the institutional landscape for Energy Deep Tech companies in Europe, investigating how institutional complexity impedes scaling efforts. It is argued that, in addition to technological and market-specific challenges, institutional factors—such as diverse regulatory regimes, long approval timelines, and the need for significant public-private coordination—play a critical role in shaping the growth trajectories of deep tech companies. This paper contributes to the existing literature by providing an examination of the Energy Deep Tech sector in Europe and offering practical solutions to support the growth of companies within this ecosystem.

Financial Implications of Innovation and Digital Transformation for Sustainable Futures

ID: 149 | Transforming Operations and Supply Chain Programs: Exploring Education 4.0 for Enhanced Learning and Skills Development

Sara Amar (Bowling Green State University); Kaoutar Benchouk (Bowling Green State University)

Abstract:
The concept of Education 4.0 emerges as a direct consequence of the rapid pace of technological advancements. The remarkable success achieved in integrating cutting-edge technologies, such as artificial intelligence and virtual reality, into industrial sectors has sparked a crucial discourse on their potential efficacy in revolutionizing educational practices and pedagogical approaches. It is particularly pronounced discussion in the STEM domains including Operations and Supply Chain Management (OSCM), a discipline that lies at the intersection of technological innovation, data-driven decision-making, and complex system optimization. Moreover, the education system and the job market are inextricably intertwined, with a symbiotic relationship that necessitates continuous alignment and adaptation. Therefore, if the education system shows a deficiency in technological innovations, students face significant hurdles and are disadvantaged in securing employment opportunities that require special competencies. In this context, the present study aims to investigate how the transformative tools of Education 4.0 and the disruptive potential of Artificial Intelligence can be seamlessly integrated into the teaching and learning practices of the OSCM. Furthermore, it seeks to explore the anticipated improvements in students' cognitive, soft, and emotional skills resulting from the adoption of these innovative approaches. The paper delves into the detailed technological advancements and tools included within the Education 4.0 concept, which can be effectively leveraged in the OSCM programs. Through real- classroom experimentation and observational analysis, the study endeavors to assess the effectiveness of these tools in enhancing the educational experience and better preparing students for the dynamic and technology-driven landscape of modern supply chain operations.

ID: 25 | Msheireb Downtown Doha as a Model for Sustainable Urban Regeneration in Islamic Cities

Mark Major (Abu Dhabi Univerity)

Abstract:
Msheireb Downtown Doha is an urban renewal project of the historic Mushayrib neighborhood west of Souq Waqif ('standing market'), also subject to historic rehabilitation in 2004-2008. Both are within the city center of old Doha as defined by the A-Ring Road in Doha, Qatar. MDD's design and planning aim was to become the world's first sustainable downtown regeneration project using Smart technologies. A Smart City is an urban area where technology and data collection help improve the quality of life and the sustainability and efficiency of city operations. Developed by Msheireb Properties, a subsidiary of the Qatar Foundation, MDD occupies a 31-hectare site, encompasses more than one hundred high, mid-, and low-rise buildings, and includes more than eight hundred residential units. Construction of MDD, costing $5.5 billion, occurred from 2011 to 2021, becoming fully operational before the World Cup 2022. The study in this paper reviews the architectural vocabulary and urban design principles of MDD. It surveys the MDD's morphological characteristics, including the street layout, urban block structure, ground-level land uses, active and inactive street frontages, and building heights. The paper uses pedestrian shed analysis to evaluate MDD's effectiveness in generating a diverse, walkable neighborhood supported by multimodal transport options. It also includes a review to assess MDD's aim of attracting Qatari citizens to a new mode of urban living in old Doha. The paper concludes that MDD is a significant step forward in developing a new model of sustainable urban renewal, promoting walkability and a diversity of land uses and types of users. The findings are significant as they provide insights into the challenges of sustainable urban regeneration projects, particularly in Islamic cities of the GCC region.

ID: 141 | AI and Sustainability in Islamic Banks: An innovative alchemy to face the major challenges

SALMA ARABI (ENCG SETTAT)

Abstract:
Sustainability is now a major issue for the Islamic banking sector, encompassing responsible economic, environmental and social practices, such as integrating ESG criteria, reducing the ecological footprint, and promoting financial inclusion. Artificial intelligence (AI), through technologies such as machine learning and chatbots, offers opportunities to optimize the efficiency of Islamic banking operations and offer personalized services. However, its integration into Islamic banks presents specific challenges related to compliance with charia principles, which prohibit interest and exclude certain investments. This study examines how AI could enhance the sustainability of Islamic banking operations while respecting their principles, identifying technological and organizational challenges, and exploring solutions for effective AI integration. The results indicate that although AI can improve sustainability, its adoption requires adaptation to Islamic principles and management of associated challenges.

Keywords: Sustainability, AI, Islamic banks, challenges, opportunities and perspectives

ID: 484 | Networks for innovation and a public service organization example from healthcare

Alberto Peralta (Abu Dhabi University); Luis Rubalcaba (Universidad de

Abstract:
Our ongoing research introduces to relevant updates to the existing frameworks for studying innovation developed by networks, defined as multi-actor collaborations. It primarily extends the models proposed by Windrum and Garcia-Goñi (Windrum & García-Goñi, 2008a), Gallouj and Weinstein (Gallouj & Weinstein, 1997a), and Saviotti–Metcalfe (Saviotti & Metcalfe, 1984) on services innovation, while building upon the mapping developed by Desmarchelier and colleagues (Desmarchelier et al., 2018a, 2018c). Specifically, the new framework introduces key sets of characteristics of networks (social dynamics, actors' involvement, and governance modes) and evaluates their effects in the design and development of innovations in any scenario, including situations of extreme uncertainty such as crises.

ID: 154 | Trade in Low Carbon Goods and Reduction of Fuel Combustion Emissions in Russian Regions

Anna Fedyunina (HSE University)

Abstract:
The global imperative for adopting a low-carbon economy resonates worldwide, yet comprehensive assessments specific to the Russian economy remain scant. There is an urgent necessity to broaden the scope of evaluations concerning low-carbon economies within Russian regions. This study aims to introduce a robust methodology for evaluating and examining the international trade of low-carbon goods (LCGs) across various Russian regions. Additionally, it endeavors to conduct econometric analyses to explore the relationship between LCGs trade and fuel combustion emissions in these regions. Data on LCGs trade were obtained from the Federal Customs Service of Russia. In conjunction, datasets from Rosstat and the Central Bank of Russia were incorporated for comprehensive econometric modeling. The analytical framework employed advanced econometric techniques such as Tobit and quantile regression. The study identifies significant disparities among Russian regions in terms of both the intensity of LCGs export and import. This variation underscores diverse competencies in LCGs production, as well as distinct ecological agendas and consumption patterns across regions. Furthermore, the research reveals that while the widespread adoption of advanced production technologies correlates positively with fuel combustion emissions, there exists a U-shaped relationship wherein LCGs exports are associated with reduced emissions from fuel combustion in Russian regions.
This research underscores critical implications for federal and regional industrial and environmental policies. It advocates for tailored incentives aimed at fostering the adoption of LCGs alongside advanced technologies, thereby promoting sustainable development across diverse regional landscapes.

ID: 193 | AI to the Rescue: A Framework for Unmasking Greenwashing in Finance and Boosting ESG Transparency

Dr Monica Gallant (SP Jain School of Global Management); Lakshmi Subramani (SP Jain School of Global Management)

Abstract:
This research paper examines the issue of greenwashing in finance, focusing on the misrepresentation of sustainable practices and the risks it poses to investor consideration and market integrity. Greenwashing involves overstating environmental projects or supplying misleading Environmental, Social, and Governance (ESG) records, which undermines the credibility of sustainable finance. Through case research and an evaluation of the literature, the paper highlights the prevalence of greenwashing in the financial area and the strategies corporations use that may mislead stakeholders. The role of regulatory bodies and independent verifiers in making sure transparency is also explored. Artificial intelligence (AI) is emerging as a key tool in detecting and preventing greenwashing. The paper investigates how AI tools such as natural language processing (NLP), predictive analytics, and blockchain are being leveraged to increase transparency and accountability in ESG disclosures. AI's ability to evaluate the accuracy of sustainability reports is discussed. The research proposes a framework combining the implementation of AI tools to set goals, identify gaps, implement strategies and report on ESG outcomes to enhance ESG transparency and mitigate the dangers of greenwashing. This study contributes to the continuing discourse on sustainable finance by offering insights into the impacts of greenwashing and illustrating how AI can be effectively integrated to recognize authentic ESG efforts. The studies underscore the importance of keeping human oversight in AI-driven evaluation to ensure ethical and responsible financial practices.

Keywords: AI tools in finance, ESG transparency, sustainable finance, Greenwashing.

ID: 679 | Climate change reporting – the new frontier

Petra Dilling

Abstract:
Our empirical research investigates the relationship between corporate characteristics and corporate climate change, using extensive data for five years from publicly listed North American companies. Our findings reveal that higher levels of climate change reporting are significantly associated with diversity of the board of directors, reporting standard application and external auditing, risk exposure, emission targets, and sectoral affiliation. The study employs ordered probit regression analysis for panel data. The results remain robust across various model specifications and alternative approaches. To address potential endogeneity, we used an extended ordered probit regression with endogenous treatment which utilizes two instrumental variables. Our recommendations emphasize the importance of climate transparency for corporations and mandatory regulation of climate reporting for all global market participants

ID: 635 | Greenhouse Gas Emission: Unmasking Reporting Responsibilities Along the Value Chain

Saeed J Roohani (Bryant University); Elena Precourt (Bryant University); Samantha Grenon (Bryant University); Erin Doruska (Bryant University)

Abstract:
Environmental, Social, and Governance (ESG) are pivotal aspects that shape corporate governance and corporate reporting. Our research explores the intricate reporting of greenhouse gas (GHG) emissions within the manufacturing industry. To assess the reporting process, we investigated the 2022 Annual 10-K and Corporate Sustainability Report of the top 20 U.S. manufacturing companies based on market capital. Our analysis focuses on two compelling positions, which provide differing views on the appropriate disclosure requirements for GHG emission reporting. Position I focuses on the comprehensive reporting of all Scope 1, 2, and 3 emissions (explained later) within the Annual 10-K and Corporate Sustainability Report, with provided assurance. Meanwhile, Position II focuses solely on Scope 1 and 2 emissions being reported in the Corporate Sustainability Report with provided assurance. Our paper aims to analyze both positions to assess what the best ESG reporting is that emphasizes transparency and accountability for the manufacturing industry.

ID: 663 | Evaluating the Impact of Fin-Tech on the performance of Omani Banking Sector towards Vision “2040”

TAMILSELVAN MANICKAM (UNIVERSITY OF TECHNOLOGY & APPLIED SCIENCES)

Abstract:
Within the framework of competitiveness theory, this study examines the mediating function of competitiveness between fintech adoption and the performance of the banking sector in Oman,. It investigates whether fintech adoption has a direct effect on the banking industry’s performance in Oman or whether competitiveness mediates this effect. Data from Omani bank officials was gathered, and partial least square structural equation modeling (PLS-SEM) was used for analysis. The results show that competitiveness significantly influences how fintech uptake and banking sector performance relate to one another in Oman. Furthermore, the outcome validates the direct correlation between competitiveness and fintech adoption, as well as between fintech adoption and performance. Thus, this study adds to the body of knowledge by contrasting direct and indirect methods and emphasizing the mediating function of competitiveness.

Key Words: Fin-Tech – Competitiveness – PLS –SEM – Oman

ID: 553 | Equity Market Response to Carbon Neutrality: Evidence from China

Bei Dai (Macquarie University); Andrew Lepone (Macquarie University); Grace Lepone (Macquarie University)

Abstract:
Climate change and carbon dioxide emissions reduction are attracting an increasing attention among policymakers globally. Many developed and emerging economies have committed to reducing carbon dioxide emissions and have implemented climate change policies in recent years. The relationship between environmental regulations and market performance has been widely discussed in existing literature. However, limited research has been undertaken to examine the market response to the environmental protection initiatives. In September 2020, China announced its carbon neutrality initiative that the country, which is the second largest economy in the world, will peak its carbon dioxide emissions before 2030 and achieve carbon neutrality by 2060. Our study investigates the impact of this event on China's stock market by using both the constituent stocks of the CSI 300 index and those of the later established SEEE Carbon Neutral Index. Results indicate that stocks with a carbon-neutral concept respond positively to the Government's climate change commitment.

ID: 554 | Individual Online Investor ESG Preference Under Stress

Anil Gautam (Macquarie University); Grace Lepone (Macquarie Univ

Abstract:
Using data from Robinhood, this study investigates retail investors' movement towards/from securities with different environmental, social and governance scores during the COVID-19 pandemic. Although the number of retail investors holding securities with low environmental scores declined, the number holding high-score securities remained steady. We also find heterogeneity in investors' reactions to different sub-category scores. The equal-weighted buy-and-hold portfolio of high-score securities did not outperform that of low-score securities in either volatility or return, suggesting neither financial return nor risk drove retail investors' preference for high environmental score securities. Thus, such 'voting' by investment choice is independent of pecuniary indicators.

ID: 469 | INFLUENCE OF SOCIALLY RESPONSIBLE HRM ON INNOVATIVE WORK BEHAVIOR

Victoria Tsybova (Saint Petersburg State University); Dmitry Kucherov (Saint Petersburg State University); Antonina Lisovskaya (Rabat Business School, UIR)

Abstract:
This study examines the impact of socially responsible HRM practices on innovative work behavior. The study is based on a sample of 142 companies operating on the Russian labor market. The research model was tested using the partial least squares structural equation modeling. Our results revealed the mediating role of well-being-oriented HRM practices in explaining the relationship between socially responsible HRM practices and innovative work behavior. At the same time, we did not find support for the direct effect of socially responsible HRM practices on innovative work behavior.

ID: 270 | Sustainability Exploration and Sustainability Exploitation Innovation in SMEs: The Role of Networking and Environmental strategy in a Developing Country Context

Alexandra Sidorenko (Higher School of Economics Graduate School of Business)

Abstract:
The inclusion of SMEs in the sustainable development agenda is paramount, given their substantial collective impact on the environment as well as their unique potential to introduce radical innovative solutions. However, it is crucial to distinguish between explorative and exploitative sustainable innovation in SMEs, as they have different policy implications. We, therefore, utilise a series of logistic regressions on a large sample of Russian SMEs to research whether such antecedents as networking (associational membership and CEO's network extensiveness) and environmental strategy have different implications for sustainability exploration and sustainability exploitation. The results indicate that CEO's network extensiveness (connections within the boundaries of the firm) has a direct positive effect on exploration but not on exploitation of knowledge related to environmental (green) innovations. At the same time, being embedded in an associational membership network (connections outside the firm boundaries) directly contributes to SMEs' successfully instituting exploitative green innovations and indirectly to developing explorative green innovations through the mediating role of R&D collaboration. We also find that having environmental strategic objectives stimulates exploitative but not explorative innovation. The paper establishes the importance of distinguishing between explorative and exploitative innovation in the context of corporate sustainability research and offers valuable policy implications.

ID: 532 | Evaluating the Impact of FinTech on the performance of Omani Banking Sector towards Vision 2040

TAMILSELVAN MANICKAM (UNIVERSITY OF TECHNOLOGY & APPLIED SCIENCES)

Abstract:
Oman Vision 2040 emphasizes that an innovative, knowledge-based, and technologically advanced Omani economy can provide competitive goods and services with higher levels of knowledge and technology in the future . In this direction, the current study aims to assess the influence of fintech adoption on the performance of banking industry in Oman, encompassing its competitiveness as a mediator. The study uses structured questionnaire to collect data from the bank officials and analyse the data using partial least square structural equation modelling (PLS-SEM). The study's conclusions will add theoretical value to the body of existing literature and have legitimate implications for the banking sector, encouraging it to leverage fintech technologies to boost performance.

Key Words: Fin Tech – Competitiveness – PLS –SEM – Oman
GEL: C12, C51, G14

ID: 470 | The impact of carbon credits on financial performance: exploring tokenization as a new opportunity

Cecilia Marchesi (Bocconi University); Federico Pippo (SDA Bocconi School of Management)

Abstract:
This paper explores the transformative potential of tokenized carbon credits within the financial landscape, particularly focusing on integrating blockchain technology to enhance transparency and efficiency in carbon trading. We investigate various aspects of the carbon credit market, delving into the processes, key players, and emerging tokenization trends. Through a comprehensive analysis combining theoretical frameworks and practical case studies, we identify the key benefits, challenges, and success factors associated with tokenized carbon credits. Our findings highlight the pivotal role of technological innovation in fostering market liquidity and ensuring environmental integrity. The goal is to offer strategic recommendations to optimize the adoption and impact of tokenized carbon credits and facilitate a deeper alignment between financial mechanisms and sustainability objectives, promoting a more robust and accessible market for carbon trading.

ID: 286 | Investor Response to Innovation Expenditures

Gopikumar V (Xavier Institute of Management and Entrepreneurship); Gyanendra Sisodia (Ajman University), SMITHA NAIR (Amrita School of Business, Kochi) Priyanka K (Amrita School of Business, Kochi)

Abstract:
R&D investments, while crucial for innovation and growth, present a challenge due to their intangibility and the information asymmetry they create. Different investors respond uniquely to these investments based on their information production and processing skills. In this study, we investigate the investment preferences of six distinct types of investors in an "informationally unequal" emerging market context, India. We find that mutual funds and institutional investors, attracted towards informationally intense stocks to generate performance, increase their ownership in response to highly uncertain R&D investments . Interestingly, despite their information advantage, insiders do not significantly alter their holdings based on R&D expenditures. Furthermore, institutional investors and mutual funds prefer firms with high R&D ability, indicating their capacity to make informed decisions. In contrast, foreign institutional investors, corporations, and retail investors hold less in such firms, suggesting that they lack the resources or expertise to accurately assess the potential returns of these investments. Our results hold under alternative R&D expenditure measures, propensity score matching, and lead-lag analysis. This study provides insights into the decision-making processes of different investor types in response to firms' R&D investments and their ability to effectively convert these investments into operational success.
JEL classification: G10, G11, C13

Keywords: R&D Investment, R&D Ability, Investor Preferences, Institutional Investors, Intangible Information, Emerging market.

ID: 452 | Transforming the Construction and Demolition Industry through Digital Technology and Circular Economy Synergy

Juan Carlos Flores Lara (Khalifa University); Malik Khalfan (Khalifa University), Shadeedha Saradara (Khalifa University); Vikas Swarnakar (Khalifa University)

Abstract:
The construction and demolition industry (CDI) is a crucial sector for economic development. However, it is known for high resource use and waste generation primarily due to a prevalent linear economic approach. The rise of information technology (IT) alongside the growing interest in the circular economy (CE) principles offers new perspectives to mitigate the negative environmental impacts associated with the industry. This study explores the transformative potential of digital technologies in advancing CE principles within the CDI by developing the foundation of a conceptual framework that integrates available digital technologies throughout the life cycle of infrastructure projects along with the core principles of circularity. Optimizing and implementing the proposed conceptual framework could result in industry enhancement through improved supply chains, data collection and analysis, and the refinement of processes from design to decommissioning, which is essential for advancing circular practices in the industry. Challenges in the practical application are also highlighted towards the end of the paper.

ID: 211 | The Impact of CEO Profile Characteristics on the Carbon Performance of the UK listed Companies

Dr. Nariman Kandil (American University in Cairo); Mohamed Basuony (Professor of Accounting and Chair of department of Accounting); Hanan Elmoursy (German University in Cairo)

Abstract:
The purpose of this study is to empirically examine the effect of the chief executive officer (CEO)'s profile characteristics such as gender, nationality, number of quoted boards to date, quoted boards currently on the carbon performance of the UK listed companies for the period 2010-2022. This paper aims to bridge the gap using the data set of 250 firm year observations comprising of firms listed in the FTSE 250 Index. Data were obtained from BoardEx, Thomson Reuters, annual reports, and sustainability reports. The analysis has been done using ordinary least squares regression (OLS), random effect and fixed effect. The results of the study show that companies led by CEOs from countries with stronger climate policies (e.g. European countries) than those led by CEOs from countries with weaker environmental regulations. Additionally, it is shown that there is a significant association between the companies with CEOs who sit on fewer external corporate boards and carbon performance.

ID: 71 | Explainable Financial Machine Learning: Some Practical Applications

Paolo Pagnottoni (University of Insubria); Thuy Thanh Do (University of Insubria)

Abstract:
We explore the potential of machine learning (ML) models applied in two financial risk management areas, credit risk management and financial risk hedging, through two practical use cases. Starting with the issue of explainability in complex ML models used in peer-to-peer lending for credit risk management, the first use case focuses on the limitations of using Kernel-SHAP with dependent features and discusses different proposals for estimating these dependencies.
The results suggest that considering feature-dependence improves the understanding and robustness of prediction explanations. The second use case discusses the potentialities of a dynamic method of hedging foreign exchange risk in international equity portfolios, focusing on the forecasts of currency returns. The analysis shows that accurate predictions of global currency returns can significantly improve the hedge of portfolios from currency risk. The findings highlight the transformative potential of advanced ML models in financial risk management, their capability to enhance financial risk measurement and management, as well as future research directions in this field.

ID: 118 | Do Auditors Care About Stranded Asset Risk?

Walid Ben Amar (University of Ottawa);, Sabrine Ayed (EMLV Business School); Stephanie Yang Liu (University of Sussess)

Abstract:
This paper investigates whether external auditors rely on Carbon Asset Risk Disclosures (CARD) in assessing a client's exposure to stranded asset risks and ultimately integrate this information in their audit pricing decisions. We rely on publicly available data provided by Ceres' SEC Sustainability Disclosure Search Tool to measure a firm's exposure to stranded asset risks by using the percentages of text in 10-K filings dedicated to the impact of climate change on reserves, accounting treatment and the transition to a low carbon scenario.
Based on a sample of U.S. fossil fuel firms over the period 2010- 2020 (1,341 firm-year observations), our results show a positive association between a firm's exposure to stranded asset risks and audit fees. Cross-sectional analyses show that this association is less pronounced for firms with higher institutional ownership and analyst following and stronger for firms located in US States where people have stronger beliefs about climate change. Our results are robust to potential endogeneity issues (omitted correlated variables as well as the propensity score matching approach). Taken together, our findings suggest that carbon asset disclosures reveal specific risk factors about a client's stranded assets and help auditors to integrate stranded asset risks in their audit pricing decisions. Our results contribute to the nascent literature about the financial implications of stranded assets risk disclosures.

Keywords: climate change; climate risk disclosure; stranded assets; audit pricing, energy firms, JEL Classifications: M41, 42, Q54

ID: 185 | An Analysis of Economic Reforms in the UAE for Sustainable Growth and Financial Stability: A Theoretical Framework

Charu Banga (Rochester Institute of Technology)

Abstract:
The study explores the UAE's economic transformation from 2014 to 2024, emphasizing reforms that shifted the country from an oil-dependent to a diversified and resilient financial system. The UAE implemented significant reforms, including the introduction of value-added tax, corporate tax, and anti-money laundering frameworks. Using the Douglass Institutional Change Theory, the research examines how these changes have reduced economic vulnerabilities, enhanced governance, and promoted long-term stability. The findings reveal the successful diversification of the UAE's economy and growth in tourism, green finance, and high-tech manufacturing sectors, positioning the UAE as a global leader in innovation and sustainability. These changes act as success factors, significantly enhancing financial stability and highlighting the importance of continuous institutional development for long-term economic resilience.

ID: 229 | Fintech Adoption: A Missing Piece in the Technology Acceptance Model (TAM) and its Influence on Financial Behaviour.

Dr. Soumya Sasidharan (Manipal Academy of Higher Education); Lakshmi Subramani (SP Jain School of Global Management - Mumbai)

Abstract:
Financial technology (Fintech) has revolutionized personal finance management by allowing users more control over their money. This exploratory study investigates how adopting fintech apps and services affects the relationship between what drives technology acceptance and individual financial habits. Prior research established the Technology Acceptance Model (TAM) (Davis, 1989), which proposes that Perceived Usefulness (PU) and Perceived Ease of Use (PEU) strongly influence whether one chooses to use a new technology. However, this framework does not consider how actual technology use could impact how those acceptance factors relate to behaviours over time. This research work hypothesizes that embracing fintech amplifies how usefulness and ease of use impact financial behaviours. Specifically, those who incorporate fintech into their finances may feel the effects of these drivers on habits more vividly than if they simply thought a technology seemed promising. As an example, using a budgeting app (PU) with clear spending overviews that convey high usefulness could lead to more substantial budgeting improvements than just believing the app has potential value. Similarly, an investment app (PEU) that proves easy to navigate may shape investment behaviours more noticeably than merely feeling the app would be user-friendly without trying it.
Overall, this study aims to provide insight into whether and how adopting fintech enhances the connection between what sparks technology acceptance and resulting individual financial conduct, building on prior research in the technology acceptance domain. According to TAM, if users believe a technology is both useful and easy to use, they are more likely to develop a positive attitude towards it and ultimately it into their routine (Davis, 1989). However, recent studies suggest that the model can be further enriched by considering post adoption factors like user experience (Limayem, 2020) and trust in the technology (Arafat, 2023).

ID: 99 | Environmental sustainability: a new data-driven approach

Alessandro Bitetto (University of Pavia); Paola Cerchiello (University of Pavia); Yana Kostiuk (University of Pavia); Arianna Agosto (University of Pavia)

Abstract:
The scientific community calls for synthetic indicators able to summarize a potentially large number of relevant factors that can affect specific domains of interest. In this regard, it is important to assess the environmental soundness of countries in terms of preparedness, fragilities, organization, level of bureaucracy, distribution and characteristics of the population.
We evaluate the index with a methodology that is consistent throughout the years, taking advantage of the entire time series as a whole. Moreover, our approach relies only on the intrinsic information of the data, without the intervention of expert judgment or subjective assumptions, providing a clear and intuitive explanation of the contribution of each input variable. Furthermore, our methodology can be used to forecast the evolution of the index over the years, including confidence intervals and allowing for scenario analysis.

In order to create the proposed index, we apply dimensionality reduction techniques that can capture the relationship between variables and countries every single year, such as Robust Principal Component Analysis (RobPCA) and temporal cross-sectional models that can capture the latent dependence of variables and countries over time, such as Dynamic Factor Models (DFMs).

ID: 562 | Corporate Sustainability Practices and Stock Mis-valuation in the Emerging Markets

Amira Tarek (German International University); Nourhan Yasser Elhadidy (German International University); Heba Ali (GUC)

Abstract:
As sustainability has been a prominent concern in the field of finance nowadays, most practitioners and scholars have paid significant attention to the importance of sustainability practices and their contributions to financial markets. According to the COP 28 conference recently held in the UAE, approximately fifty oil and gas companies have committed to reach zero-methane emissions by 2030. It is worth noting that these companies derive advantages from implementing ESG activities by enhancing their brand reputation, thereby attracting investment, reducing borrowing costs, and increasing their market value. Therefore, this paper aims to test the effect of sustainability practices, measured by ESG score and CSR committee, on stock mis-valuation. The sample composed a panel of 1,255 publicly listed firms in the Emerging Market index for the period 2018-2022. This study has used a series of statistical techniques and methods. Additionally, it employs a dynamic panel Generalized Method of Moments (GMM) approach as a robustness test. Our main findings indicate that corporate sustainability practices, including the establishment of CSR committee tend to increase stock mis-valuation in the emerging economies, highlighting how investors are overly optimistic about these firms' future aspects, driving its fair value away from its fundamentals. Furthermore, sustainability contributes to building trust among shareholders and stakeholders and improve company's transparency are likely to enhance company's financial performance.

ID: 419 | FINANCIAL STATEMENT FRAUD DETECTION MODELS BY MACHINE LEARNING FOR SUSTAINABLE FINANCIAL MARKETS

Masumi Nakashima (Bunkyo Gakuin University)

Abstract:
Forensic accounting has attracted global attention. Machine learning has dramatically advanced fraud detection in accounting. Fraud detection using data mining, AI, and machine learning has become a central topic in forensic accounting, wherein detecting financial statement fraud during auditing is difficult. I extract machine learning financial statement fraud detection studies from 2009 to 2023 using science mapping and identify the most common countries and journals. Second, text-mining techniques such as word frequency, co-occurrence networks, and correspondence analysis through titles and keywords were employed to discover subtopics. This study then identifis current and future trends in recent machine learning financial statement fraud detection modeling studies. Third, this study conducts a meta-analysis to determine which machine learning techniques and evaluations are most used, and the challenges of machine learning financial statement fraud detection research. Systematic mapping identified 56 articles. Since 2015, research using machine learning for financial statement fraud has surged, with the most commonly used method being support vector machines. This study contributes to accounting and legal professionals, investors, regulators, and others interested in financial statement fraud detection research using machine learning.

ID: 252 | Drivers for the Integration of Virtual Reality into Construction Safety Training in Developing Countries

Hutton Addy (Centre for Sustainable Development); Clinton Aigbavboa (University of Johannesburg); Simon Ametepey (Centre for Sustainable Development (CenSUD), Koforidua Technical University, Koforidua); Rexford Aboagye (Centre for Sustainable Development (CenSUD), Koforidua Technical University, Koforidua)

Abstract:
The integration of Virtual Reality (VR) into construction safety training is increasingly driven by the need to enhance safety standards and training outcomes in the construction industry. This study employs a quantitative methodology to identify and analyse the key drivers behind VR adoption for safety training. Structured questionnaires were distributed to a diverse group of construction professionals in Ghana to reach a consensus on the driving factors for integrating VR in construction safety training. Exploratory factor analysis (EFA) was utilised to identify the most influential drivers for VR integration. The data analysis highlights technological advancements and the improvement in safety culture as the two most impactful drivers. Technological advancements enable the creation of realistic training environments and high-quality simulations, significantly enhancing the learning process. The improvement in safety culture is facilitated by VR-based training, which fosters a proactive approach to safety and enhances knowledge retention through repeated risk-free simulations. This study provides valuable insights for industry stakeholders on maximising the benefits of VR in improving safety standards and training efficiency. The findings offer a foundation for innovating strategies to effectively integrate VR into safety training programs within the construction industry of developing countries. Providing empirical insights specific to the construction industry ensures that this research delivers a comprehensive understanding of the drivers for VR integration in construction safety training.

AI and Green IT: Innovations in Technology

ID: 253 | Ethical Concerns Associated with the Adoption of Artificial Intelligence Technologies in the Construction Industry

Rexford Aboagye (Centre for Sustainable Development (CenSUD), Koforidua Technical University, Koforidua, Ghana); Clinton Aigbavboa (University of Johannesburg); Simon Ametepey (Centre for Sustainable Development (CenSUD), Koforidua Technical University, Koforidua, Ghana); Hutton Addy (Centre for Sustainable Development (CenSUD), Koforidua Technical University, Koforidua, Ghana)

Abstract:
The integration of artificial intelligence (AI) technologies within the construction industry heralds substantial advancements in efficiency, safety, and productivity. However, these potential benefits are accompanied by a spectrum of ethical concerns that necessitate further research. This study seeks to identify the ethical issues associated with the adoption of AI technologies in the Ghanaian construction sector. A quantitative research methodology was adopted to fulfil this objective, employing a structured questionnaire survey to collect data from industry professionals across diverse regions. The gathered data were analysed using Exploratory Factor Analysis (EFA) to uncover and interpret underlying ethical dimensions and patterns. The findings reveal several critical ethical concerns, including privacy and data security, job displacement, accountability, transparency, and potential biases embedded within AI algorithms. These insights are crucial for stakeholders in the construction industry to develop informed strategies that effectively address these ethical challenges while leveraging the benefits of AI. This study makes a significant contribution to the growing body of knowledge on AI ethics in the construction industry. It provides a foundation for subsequent research and policy-making endeavours aimed at ensuring the responsible and ethical implementation of AI technologies. By addressing these ethical issues, the industry can advance towards a more sustainable and equitable future, balancing technological innovation with societal values and norms.

ID: 262 | Assessment of the Applications of Artificial Intelligence in Information Management Processes within the South African Construction Industry

Mayowa Ogungbe (University of Johannesburg, South Africa); Clinton Aigbavboa (University of Johannesburg); Opeoluwa Akinradewo (University of Johannesburg); Ayodeji Oke (University of Johanneburg); Lesego Galane (University of Johannesburg)

Abstract:
The construction industry plays a crucial role in South Africa's economy by creating jobs, enhancing infrastructure, and contributing to GDP growth. However, it struggles with information management due to reliance on outdated manual and paper-based methods, leading to inefficiencies and inaccuracies. Although, recent shift towards digitalization, including the integration of digital tools and Building Information Modeling (BIM), have shown promise but adoption remains uneven, especially in the developing countries like South Africa. The research seeks to contribute to academic discussions on AI in construction and provide practical insights for industry stakeholders to enhance their information management practices. The study employs a descriptive survey method, targeting construction professionals in the Gauteng Province, to assess the feasibility and potential benefits of integrating AI into construction information management. Findings revealed that information management in the South African construction industry can be improved by the following AI technologies: Blockchain, BIM, Smart Robotics, Automation, Machine learning, AIoT, Cloud VR/AR, Natural Language Processing, Pattern recognition, and AI Based Knowledge Management. The findings suggest that professionals in the SACI are knowledgeable about AI technology, as indicated by their high assessment of the identified variables. Their average MIS ranking is above 3.5 on a 5-point Likert scale. The study recommended that successful implementation requires careful consideration of organizational readiness, investment in training, knowledge sharing, government initiatives and a focus on integrating AI tools with existing systems and processes.

ID: 355 | AI, BIM and achieving the SDGs: exploring the gaps for a sustainable construction industry

Samuel Adekunle (University of Johannesburg); Opeoluwa Akinradewo (University of Johannesburg); Babatunde Ogunbayo (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg)

Abstract:
The construction industry is at the forefront of adopting innovative technologies to meet the global challenges posed by sustainable development. This study explores the intersection of Artificial Intelligence (AI), Building Information Modeling (BIM), and the achievement of the United Nations Sustainable Development Goals (SDGs) within the construction sector. Through a comprehensive review of existing studies, the research investigates how AI and BIM can synergistically contribute to achieving key SDGs, such as sustainable cities and communities, responsible consumption and production, and climate action. The data was obtained from the Scopus database using keywords to extract it. The study findings highlight that AI enhances BIM capabilities by providing predictive analytics, optimizing resource management, and improving decision-making processes, promoting sustainability throughout the construction lifecycle. It also identifies the various research areas and future directions. The research concludes that while the nexus between AI, BIM, and SDGs presents significant opportunities for advancing sustainability in construction, a strategic and collaborative approach is necessary to realize their potential and overcome existing barriers fully. This study provides valuable insights for industry stakeholders, policymakers, and researchers aiming to leverage emerging technologies to drive sustainable development in construction.

ID: 437 | Equity And Fairness In Machine Learning Algorithms: Gaps In Construction Research And Implication For The Construction Industry

Patience Tunji-Olayeni (Covenant University); Folasade Adejola (Covenant U University)

Abstract:
Inequalities and biases in machine learning algorithms can negatively affect the sectors and systems that use them. It can heighten discrimination and deepen inequalities. More importantly, it can lead to breaches in sensitive aspects of society that impact the well-being of people at scale. While there is a growing body of knowledge on equity and fairness in machine learning algorithms, a comprehensive evaluation that synthesizes available literature on the subject is urgently needed. Particularly, there is a significant lack of research progress in specific sectors, such as the construction industry, which provides critical infrastructure for the functioning of society. This study aims to highlight the urgency of the research gap in the construction industry and its implications for the well-being of people at scale. Bibliometric analysis and the VOSviewer tool were used to achieve the aim of the study. The analysis shows that the United States, Italy, and Brazil contributed to equity and fairness in machine learning algorithms. Moreover, most of the top-cited papers in the field were review-based. The focus sectors captured by the top cited papers were health and education. A few of the top-cited papers also focused on multiple sectors. Studies focusing on the construction industry were lacking, indicating a research gap. The study recommends survey and case-based studies on equity and fairness of machine learning algorithms from the construction industry to identify and mitigate inequalities for enhanced project performance in a highly men-dependent, litigious, and complex sector such as the construction industry.

ID: 341 | Charting the Future - A Conceptual Framework for AI Integration in Higher Education Institutions

Rewai Wilbert Mutoko (Tshwane University of Technology); Peace Mutoko (Tshwane University of Technology)

Abstract:
This article provides a thorough framework for incorporating artificial intelligence (AI) into higher education, emphasizing the importance of four key elements: ethics, governance, pedagogy, and infrastructure. It provides educational institutions with a methodical way to integrate AI, improving student outcomes, simplifying operations, and maintaining moral principles. Data centres, cloud services, AI platforms, and network security are important components of infrastructure. Personalized education, AI tutors, adaptive learning, and learning analytics are examples of pedagogical innovations that customize learning experiences to the needs of the individual student. For efficient AI administration, governance includes funding models, policy creation, accountability, compliance, and strategic planning. Data privacy, bias reduction, fair usage, transparency, and inclusive design are all addressed by ethical considerations. The framework also highlights the importance of ethical AI committees, collaborative tools, participation, interaction, and evaluation. The framework's advantages and applicability are demonstrated through real-world examples from South African higher education institutions. The information used in this work was taken from a number of academic articles and pertinent websites. The suggested framework helps policymakers and educational leaders enhance student results and get ready for new challenges by directing institutions to utilize AI's potential while upholding high standards of governance, ethics, and education.

Keywords: AI, AI integration, educational technology, ethics, governance, pedagogy, artificial intelligence, higher education, adaptive learning, data privacy, and South Africa

ID: 391 | The Implementation of Job Costing Accounting System in the Boeing Company

Nizar AlSharari (Jackson State University); Ra'ed Masa'deh (The University of Jordan); Yaser Allozi (The University of Jordan)

Abstract:
Job costing accounting systems are only one of the many areas of business that Artificial Intelligence (AI) is revolutionizing. These systems track the expenses related to particular tasks or projects, and artificial intelligence (AI) can improve their performance in a number of ways such as automated data entry and processing, predictive analytics, anomaly detection, real-time reporting, cost optimization, enhanced decision support, and machine learning for continuous improvement.
The job costing accounting system is often used when manufacturing a batch of products. It determines the cost of specific jobs that are performed according to outlined specifications. Key components are raw materials, work in progress, finished goods, and cost of good manufactured. The raw materials include any materials that go into the finished product. Work in progress consist of units of production that are only partially complete and will require further work before they are ready for sale to the customers. Finished goods are completed units of product that have been sold to customers and cost of goods manufactured are manufacturing cost associated with the goods that were finished during a specific period. There are pros and cons to all costing methods including conditions that help guide costing method use.
The company chose for this case study is Boeing. It is a large aerospace company and leading manufacturer of commercial jetliners. The company also designs, sells, and manufactures airplanes, they also manufacture satellites, telecommunication equipment, and missiles worldwide. Boeing's products are unique and costly, therefore job costing tracks cost associated with each product it manufactures. It is used to ascertain the profit or loss made on each job and identify inefficiencies and excess cost.

ID: 673 | The Role of Artificial Intelligence in Enhancing Cultural Sustainability through Translation

Moza Dr. Al Tenaijy (UAE University)

Abstract:
This research paper investigates innovative approaches to enhance and develop artificial intelligence (AI) technologies specifically tailored for the translation of poetry. Poetry presents unique challenges for translation due to its intricate use of language, meter, rhyme, and cultural nuances, which often elude standard machine translation systems. This study aims to address these challenges by exploring advanced AI methodologies, including neural networks, deep learning, and natural language processing techniques that can capture the artistic essence of poetic works.
Through a mixed-methods approach, we analyze existing AI translation tools and their limitations in handling poetic forms, employing case studies of translated poems to illustrate these shortcomings. We then propose a framework for developing AI models that incorporate linguistic features such as phonetics, imagery, and cultural context, which are essential for preserving the intended emotional and aesthetic qualities of the original text.
Furthermore, we conduct interviews with five poets and five translators to gather insights on their experiences and expectations regarding AI-assisted poetry translation. The findings suggest that incorporating human feedback into AI training processes can significantly improve translation quality and fidelity to the original work. This paper emphasizes the importance of interdisciplinary collaboration between AI developers, linguists, and literary scholars to create AI systems capable of translating poetry in a way that respects and preserves its artistic integrity. Ultimately, this research contributes to the broader field of translation studies by proposing actionable strategies for advancing AI technologies in the nuanced realm of poetic translation.

ID: 10 | Secure and Adaptive Approach for Prioritized Parking Resource Allocation and Deceived Parking Congestion

Shaista Tarannum (M S Ramiah University Of Applied Sciences); Fathimuz Zohra (GSSS Mysuru); Usha S M (JSS Academy of Technical Education Bengaluru)

Abstract:
LoRaWAN, short for Long Range Wide Area Network, is a wireless communication protocol designed for long-range communication between devices in the Internet of Things (IoT) applications. Smart parking systems utilize sensors installed in individual parking spots to detect the presence or absence of vehicles. These sensors can detect when a vehicle parks in or leaves a particular spot, sending this information wirelessly via LoRaWAN to a central server or gateway. The LoRaWAN protocol allows for the transmission of this data over long distances, even in urban environments. Network congestion refers to the overload of communication networks, particularly in wireless communication protocols like LoRaWAN, which are commonly used in smart parking applications. To eliminate the limitations and improve the performance and security of smart parking systems in LoRaWAN, a novel “Secure and Adaptive Approach for Prioritized Dynamic Parking Resource Allocation and Deceived Parking Congestion Misdirection Attack Mitigation” is proposed which includes Adaptive NeurOptiQ Network and Secure Triplet Embedding Network

ID: 174 | The Usage and Benefits of Jetson Nano for Deployment of Machine Learning Algorithms for Water Potability Prediction

Kokisa E Phorah (UNISA)

Abstract:
This research investigates the utilization and advantages of the NVIDIA Jetson Nano platform for deploying machine learning algorithms to predict water potability. With its powerful GPU capabilities and efficient energy consumption, the Jetson Nano offers a compact and cost-effective solution for real-time water quality analysis at the edge. This study demonstrates how the Jetson Nano can effectively handle complex predictive models, enabling rapid and accurate assessment of water potability in various environments, from remote areas to urban settings. The research highlights the integration of the Jetson Nano with sensors and data acquisition systems, emphasizing its ability to perform real-time data processing and machine learning inference with minimal latency. Through detailed case studies and experimental results, the paper showcases the Jetson Nano's impact on improving the accuracy and reliability of water potability predictions. Additionally, the research underscores the benefits of deploying such AI-driven solutions at the edge, including reduced dependency on cloud infrastructure, lower operational costs, and enhanced responsiveness. This study aims to provide a comprehensive understanding of the Jetson Nano's potential to advance water quality monitoring and promote the adoption of intelligent edge computing solutions in environmental and public health domain.

ID: 664 | Green Transition and Intersectionality in Africa: Challenges and Opportunities

Hebatallah Adam (O.P. Jindal Global University)

Abstract:
This study investigates the impact of overlapping social identities on vulnerability to climate change and their influence on the quest for a fair and sustainable future in Africa. Although Africa's contribution to global emissions is modest, it experiences a disproportionate impact from climate change. The significance of gender in climate vulnerability has been underscored in prior studies. However, this study extends its analysis by incorporating an intersectional approach. In this study, we examine the interplay between gender and multiple factors such as poverty, ethnicity, race, and disability, resulting in distinct manifestations of vulnerability and opportunity.
As a socially constructed distinction, gender has historically resulted in diverse inequality and hierarchies between women and men. Contemporary academic perspectives have adopted a broader comprehension of social equity that recognizes the complex relationship of gender with other intersecting factors. Adopting an intersectional perspective towards gender entails thoroughly analysing prevailing social inequities and power dynamics while acknowledging their multifaceted interrelationships, such as the intersection of gender-based inequality with ethnic, racial, socioeconomic, and age-related disparities (Lawhon & Murphy, 2012). This study aims to examine the complex linkages between various forms of oppression and privilege, such as gender, income level, ethnicity, race, age, geographical location, class, and disability, with the pursuit of sustainable development and a just transition in Africa. We utilise a combination of qualitative and quantitative research approaches to facilitate a thorough comprehension of the intersectional frameworks that promote social justice, gender equality, and environmental sustainability in Africa.

ID: 643 | Digital Transformation and Ethical Considerations in Geothermal Energy: Harnessing AI for Sustainable Futures

Behnam Askarian (West Texas A&M University)

Abstract:
Geothermal energy is gaining global traction as a renewable energy source that offers continuous power generation and low greenhouse gas emissions. However, its development presents ethical challenges, including environmental pollution, land usage, and community displacement. This paper explores these ethical concerns and examines how emerging technologies like Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT) can address these challenges. By integrating digital tools into geothermal projects, we propose solutions to optimize the drilling process, minimize environmental impacts, and enhance sustainability. We also align these solutions with the United Nations Sustainable Development Goals (SDGs), particularly SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action). Our findings offer pathways to responsible innovation in geothermal energy development, ensuring both ethical compliance and technological advancement in the pursuit of sustainable futures.

ID: 502 | Public Trust in the AI Era: Understanding Attitudes Toward Sustainable Technologies

Boglárka Eisingerné Balassa (Széchenyi István University); Réka Koteczki (Széchenyi István University)

Abstract:
The social perception of technological innovations and the accelerating pace of digital transformation have a significant impact on the future of sustainability. Our representative survey conducted in Hungary, involving over 2,000 respondents, aimed to explore public attitudes toward technology, with a special focus on autonomous vehicles, electric cars, as well as smartphone and mobile internet usage patterns. The findings provide insights into public trust in modern technologies, the acceptance of sustainability-driven technologies, and the societal impacts of artificial intelligence.

The results indicate a growing interest in electric and autonomous vehicles, especially among environmentally conscious groups. However, significant concerns remain regarding the safety and data security of self-driving cars. The study also highlights that openness to new technologies strongly correlates with demographic and socio-economic factors.

This comprehensive research contributes to a deeper understanding of the relationship between technological advancement and sustainability, uncovering factors that influence the acceptance and effectiveness of new technologies. These insights are crucial for shaping the future direction of digital transformation and sustainable development.

ID: 487 | Adopting Generative AI in Business Environments: A Systematic Literature Review with a Focus on Sustainability

Réka Koteczki (Széchenyi István University); Boglárka Eisingerné Balassa (Széchenyi István University)

Abstract:
Generative artificial intelligence and large language models reconfigures organizational approaches to efficiency, innovation, and decision-making. At the same time, acceptance and integration of this range of technologies into business environments presents a technological challenge coupled with key considerations about sustainability. Full adoption of AI responsibly would greatly contribute to the achievement of SDGs, particularly on promoting sustainable industrial innovation, SDG 9, and ensuring responsible consumption and production, SDG 12. This systematic literature review will study the methodologies applied within organizational set-ups for AI adoption, using the PRISMA framework, in relation to sustainability. The research investigates how some models, like the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology, could help ascertain the factors that most impact the process of AI technologies' adoption and integration. The review, secondly, assesses the way these methodologies can contribute toward sustainable business practices with regard to global sustainability goals. Conclusions will be drawn on the state of the current level of generative AI adoption in organizations. This review aims to provide a balanced view that helps decision-makers to navigate problems in integrating AI, fostering innovation while ensuring SDG goals and long-term sustainability practices are maintained.

ID: 615 | Green Last-Mile Logistics: Spatiotemporal CO2 Emission Modeling and Prediction for Sustainable Urban Mobility in Casablanca

Issam KRIMI (Abu Dhabi University); Nouhayla elayyachi (Université Hassan II de Casablanca); Othmane Chemlal (Université Hassan II de Casablanca); Hicham Bahi (Mohamed VI Polytechnic University; Hassan RHINANE (Université Hassan II de Casablanca); Fouad RIANE (Ecole Centrale Casablanca)

Abstract:
The rapid expansion of e-commerce and on-demand services has significantly increased last-mile delivery, contributing to rising urban CO2 emissions. This study focuses on greening urban logistics by developing a comprehensive framework for modeling and predicting emissions in this critical segment. Through the integration of IoT systems for real-time emission monitoring and a web-based platform for dynamic data visualization, the research provides key insights for optimizing logistics operations and reducing emissions. Sustainable interventions such as route optimization and fleet electrification are proposed to achieve significant emissions reductions. Focusing on Casablanca, this study offers a spatiotemporal analysis of CO2 emissions in urban mobility and residential electricity consumption. By integrating transportation statistics, traffic patterns, and climate data, this study uses machine learning models, such as Random Forest and Long Short-Term Memory algorithms, for future emission predictions. An innovative web-based mapping tool is introduced to enable real-time sharing and visualization of emission data, identifying CO2 hotspots and informing strategic interventions. The findings deliver essential insights for policymakers, aiming to enhance urban sustainability and reduce the environmental impact of urban logistics and growth.

ID: 512 | Is “Artificial Intelligence” a good concept? A conceptual adequacy analysis

Ahmed Iraqi (ESCA School of Management)

Abstract:
The widespread enthusiasm surrounding Artificial Intelligence (AI) calls for a conceptual clarification grounded in an objective approach. To this end, it is crucial to trace the origins of this concept in order to better understand the empirical reality it initially denotes, as well as to demystify the sociohistorical dynamics underpinning its development. The ongoing overuse of this term, whose designation is both controversial and highly debatable, generates a paradoxical semantic tension by linking two seemingly opposing terms: “intelligence” and “artificial.” Intelligence, by its very nature, is a cognitive faculty intrinsic to living beings and cannot be fully integrated into an artifact, regardless of its level of sophistication. Thus, the conceptual adequacy of artificial intelligence can indeed be perceived as an oxymoron. Using John Gerring’s conceptual goodness criteria (1999), including (1) familiarity, (2) resonance, (3) parsimony, (4) coherence, (5) differentiation, (6) depth, (7) theoretical utility, and (8) field utility, we critically assess its conceptual robustness and its implications for both theoretical and practical applications in contemporary discourse. By doing so, the paper aims to offer a thorough understanding of how the term is used in both theoretical and practical domains. Ultimately, this effort contributes to refining the concept of AI, making it more accessible and analytically useful for ongoing research and application.

ID: 506 | Enhancing Traffic Flow Prediction through Dimensionality Reduction and Clustering-Based Optimization

Abdelmonem M. Ibrahim (Al-Azhar University); Kheir Eddine Bouazza (Higher Colleges of Technology); Abdel-Rahman Hedar (Assiut Univesity); Alaa E. Abdel-Hakim (Umm Al-Qura University); Wael Deabes (Texas A&M University)

Abstract:
The vast availability of historical data presents new opportunities for predictive modeling and pattern recognition through advanced data mining and machine learning techniques. However, many real-world classification problems face challenges due to high data dimensionality and redundant features, necessitating the use of dimensionality reduction methods to enhance both the accuracy and efficiency of classifiers. This paper investigates two clustering-based approaches, Simulated Annealing combined with Ellipsoidal Clustering (SAELLC) and Simulated Annealing based on cloning k-means (CKM), applied to a set of benchmark classification problems. These methods are evaluated against popular optimization techniques such as the Artificial Bee Colony (ABC) algorithm and Particle Swarm Optimization (PSO), demonstrating their effectiveness in improving classification accuracy. Furthermore, a Scatter Search Rough Set Attribute Reduction (SSAR) algorithm is proposed for feature subset selection, which aids in reducing dimensionality and improving classifier performance. Experimental results indicate that both the SAELLC and CKM algorithms reduce classification error and offer an efficient solution to feature selection and clustering, with potential applications across various domains. The observed reduction in classification error highlights the importance of integrating feature selection with clustering techniques for robust predictive modeling. In addition, the proposed methods are applied to predict traffic conditions (e.g., heavy, moderate, light) at different times. Benchmark historical traffic datasets are invoked including time of day, weather conditions, and special events as features. The proposed classifier could predict that traffic is heavy during rush hour based on past data and current conditions.

ID: 197 | Applicability of Women Safety Apps in Lahore A Step Towards Defying Vulnerability

Sumera Shan Ahmad (University of management and Technology); Rabia Sohail (University of management and Technology)

Abstract:
The aim of this research is to explore women empowerment in terms of defying vulnerability. Many cases of harassment and abuse have been reported in Lahore recently. This has caused distress and frustration among masses, making women feel hesitant to go outside their homes. Therefore, women's safety is extremely important for peaceful, prosperous, and healthy environment. AI can elevate this situation through the use of various safety apps particularly designed for women. The current study explores the function of such an app designed by the Punjab government for the safety of women. A survey is conducted to collect responses from 50 adult women to measure the level of awareness regarding this app. A questionnaire consisting on open and close ended questions was designed for the study. The participants were selected from stratified random sampling technique. The results revealed that in a few cases AI has been significant in bringing positive changes. On the other hand, there is a strong need to spread awareness regarding the use of women safety apps as most of the women were found unaware of the existence of this app. The awareness of safety apps can avert danger and protect women from undesirable situations.

Keywords: AI, women safety app, harassment, danger, awareness

ID: 190 | Pipeline Leakage Detection Using AI and ML Techniques

Hassan Naanouh (Coventry University); Manus Henry (Coventry University)

Abstract:
Pipeline leakages pose a significant risk to the oil and gas industry, causing substantial material damage and environmental hazards. Traditional numerical methods for detecting leaks, such as those described by Vandrangi et al. [1], use adaptive thresholds-based leak detection with real-time transient modelling of two-phase (oil/water) flows. However, these methods are often limited in their effectiveness, prompting the exploration of advanced machine learning (ML) techniques. This research investigates the application of various ML algorithms to improve the detection of leaks in two-phase pipeline flows. Using simulated data with varying leak locations and severities, a series of supervised ML models were trained and tested. The models used are evaluated against the established numerical detection methods to assess their accuracy in identifying leak patterns and predicting leak locations and severities. The ML models utilize features extracted from the pressure and flow rate data at the pipeline inlets and outlets, and their performance is compared based on metrics such as detection accuracy, false positive rate, and detection time. By leveraging the complexity-handling capabilities of ML, this research aims to enhance the reliability and responsiveness of pipeline leakage detection systems. The comparative analysis of different ML models and traditional methods seeks to identify the most effective approaches for real-world implementation. This contribution represents a significant advancement in pipeline monitoring systems, promoting operational efficiency and reducing environmental risks.

ID: 173 | Water Potability Prediction Using Machine Learning on Jetson Nano for Research Applications (Work in Progress)

Kokisa E Phorah (University of South Africa)

Abstract:
This research aims to develop and deploy a machine learning classification model for predicting water potability using a provided water potability dataset. The research objectives include training a machine learning model on a (PC) to predict water potability based on various features, deploying the trained model on the Jetson Nano platform for real-time prediction, utilizing a 7-inch LCD display connected to the Jetson Nano for user-friendly interaction, evaluating the model's performance in terms of accuracy, speed, and resource utilization on the Jetson Nano, and exploring potential applications and scalability for water potabilty monitoring and assessment in research settings. The study seeks to contribute to advancements in water potability assessment through machine learning technologies, with a focus on practical usability and efficiency for water scientists and researchers.

ID: 124 | Surveying Digital Media Impact on Environmental Awareness

Viola Gjylbegaj (Abu Dhabi University)

Abstract:
In today's digital age, digital media platforms, including social media, websites, and mobile applications, play an important role in shaping public discourse on environmental sustainability. This study employed a survey-based approach to investigate how digital platforms could effectively enhance public understanding and engagement with environmental issues. Surveys were administered to 350 participants to explore their perceptions and experiences regarding environmental content on digital media. Participants provided insights into their interactions with environmental information, motivations for engagement, and the influence of digital media on their attitudes and behaviors towards sustainability. Using quantitative analysis, this study aimed to identify trends and correlations between digital media use and environmental awareness. It examined which communication strategies, content types, and interactive features were most influential in raising environmental awareness and promoting pro-environmental behaviors. The findings offered practical recommendations for mass communication practitioners, policymakers, and environmental organizations looking to optimize digital communication strategies for sustainable behavior change. By leveraging survey data from a substantial participant sample, this research will contribute with a valuable empirical evidence on the role of digital media in fostering environmental awareness and action in today's media landscape.

ID: 595 | Sustainability in Action: Agribusiness Startups Driving Circular Economy with Innovative Technologies in emerging economies

Rajitna Balakrishnan (Central University of Kerala)

Abstract:
The agritech sector is gaining increasing recognition for its critical role in transforming the agricultural industry, particularly in emerging economies, while contributing significantly toward achieving the United Nations Sustainable Development Goals (SDGs). This article aims to explore the role of agritech startups in contributing to the achievement of the United Nations Sustainable Development Goals (SDGs) and to analyze the disruptive innovative technologies driving these transitions. The study seeks to understand how agritech solutions enhance sustainability across agricultural processes.Agritech startups are contributing to several of these goals, particularly SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land).This paper also seeks to explore the the challenges associated with the implementation of agritech solutions, particularly in emerging economies. These challenges include issues such as limited access to technology, inadequate infrastructure, lack of digital literacy, and regulatory hurdles that may impede the full integration of agritech innovations into agricultural systems. Understanding these barriers is essential for devising strategies to overcome them and ensure that the benefits of agritech can be fully realized.The research methodology includes two main approaches: a comprehensive literature review of the agritech sector's intersection with sustainable development, and a multiple case study analysis of selected agritech startups. These case studies will highlight the implementation of technologies such as artificial intelligence, precision agriculture, IoT, and biotechnology. By examining these innovative technologies and their impact, this study will provide insights into how agritech startups are reshaping the agricultural landscape to address global sustainability challenges.

ID: 398 | Water Resources in Saudi Arabia: Challenges and Opportunities

Husam Baalousha (King Fahd University of Petroleum and Minerals)

Abstract:
Aquifers are the main source of natural groundwater in Saudi Arabia, as the climate is harsh and rainfall is little, except in mountain areas in the south of the Kingdom. The vast majority of the Kingdom has an average rainfall of 150 mm per year except for the southwestern part, which receives annually between 400-600 mm. With a high increase in population over the last few decades and subsequently, an ever-increasing demand for water, this pose a great challenge for relevant authorities to manage the water resources.
Most of aquifers in Saudi Arabia are non-renewable, as the annual recharge is estimated at 886 million m3, whereas the total reserve is estimated to be between 260 and 760 billion m3. The high reserve of groundwater has triggered unleashed pumping during over the last four decades, resulting on severe irreversible damage to the environment. For example, Saq aquifer, which is one of the largest in the Kingdom, was extensively used in the 1980s and 1980s to produce wheat and fodder crops. Abstraction from this aquifer increased to reach 5.7 billion m3 in the early 2000s. As a result, the groundwater level dropped by more than 60 meters, and the amount of water that was extracted exceeded was 630 million m3 over three decades. This amount exceeds the production of all desalination plants in the country over 500 years! Other aquifers experience high exploitation, which varies from one to another.
Future water demand in Saudi Arabia is a big challenge, as the country already has a big deficit in water budget. The growing demand for the industrial and economic development, population fast growing rate, and the new emerging tourism sector which will play big role in the future ambitious 2030 vision requires integrated water resources management (IWRM).

ID: 442 | Innovative IoT Framework for Promoting Sustainability in Hospitality SMEs

Raiza D Borreo (Higher Colleges of Technology)

Abstract:
The Internet of Things (IoT) is a symbol of continuously evolving paradigm of the digital era. The many applications of IoT in all forms of organizations became ubiquitous due to its promising performance to enhance productivity. One of the characteristics of IoT systems is their potential to preserve the sustainability in the organization it was designed with. Each organization has the full capacity to implement the widely used design of IoT systems for sustainability or develop their own. Since IoT implementation is complex and quite expensive, for many SMEs, adopting sophisticated IoT systems is not the first choice. This research paper presents an innovative IoT framework that is designed to promote sustainability among small to medium-sized enterprises in the hospitality industry balancing the three pillars of sustainable hospitality: people, the environment and the economy. The paper focuses on IoT framework to the SME's operational efficiency to optimize resource use, reduce waste and improve overall customer satisfaction.

ID: 387 | Beyond Smart Cities: Enabling Sustainable Smart Societies for a Resilient Future

Anton Manfreda (University of Ljubljana, School of Economics and Business)

Abstract:
The growing emphasis on smart cities often focuses on technological advancements and data-driven governance; however, many smart initiatives have failed to achieve the desired outcomes. Therefore, the broader transition towards smart societies requires a more holistic integration of social and environmental sustainability, including the well-being of residents and nudging toward sustainable behavior. This paper investigates the evolving research landscape connecting smart cities and sustainability, with a particular focus on smart mobility as a key resident-oriented service; yet not limites to smart mobility only. By analyzing public perceptions and existing literature, the paper not only explores the role of smart mobility in fostering sustainable urban living while ensuring inclusivity and resilience but also exposes several limitations of current technology-oriented developments in smart cities. The research highlights how enhancing resident engagement and trust within these services is critical for the success of sustainable smart societies. The paper contributes towards developing a conceptual framework that aligns smart mobility initiatives with the United Nations Sustainable Development Goals, emphasizing the importance of social equity and resilience in the design and implementation of urban solutions, using technology to enable a sustainable future and providing a critical perspective on "technology-first" approach in smart cities. The paper argues that transitioning from smart cities to smart societies requires placing human-centric, sustainable, and well-being principles at the core of development strategies, even if this causes a shift from the current urban trends.

ID: 403 | A sustainable future for AI virtual farming

Muhammad Khalid (Constructor University)

Abstract:
Agriculture has advanced digitally rapidly. The problem is that there is a considerable probability of grabbing humanity and preventing global hunger. This research is interested in what means large language models (LLMs) and retrieval augmented generation (RAG) flourish before environmental planting. These AI tools fire forecast mess and snatch knowledge on the split, getting into yield management, earth protection, and reserve use methods smarter. We are exploring exactly how AI explanations genuinely facilitate green planting. We are proving to you how machine learning challenges microclimate concerns, achieves reserve advancement and limits the break of the environment. We have developed real-world examples showing how AI and RAG make farming more than sustainable. They are tremendously good at turning a lot of agricultural data into practical tips, empowering farmers and policymakers with actionable insights. The paper is analytical, although the problem is continuously wrapped up with fine intelligence by what means AI is transforming agriculture. It's not just tech talk - it's about increasing the nourishment restored and acquiring maintenance of our globe. Furthermore, this study underscores the pivotal role of large language models (LLMs) and retrieval-augmented technology (RAG) in revolutionizing sustainable agricultural practices. By enhancing decisionmaking in crucial areas such as crop management, soil health, and resource efficiency, artificial intelligence offers a reliable and efficient solution. This is made possible by harnessing the predictive power of Language Model Machines (LLMs) and the real-time retrieval capabilities of Retrieval-Augmented Generative Models (RAGs), providing a solid foundation for the future of sustainable agriculture.

ID: 191 | An Indoor Environmental Quality Study in Higher Education Buildings with a BIM-based Solution

Mukhtar Maigari (University of West London), Charlie Chanfeng Fu

Abstract:
Indoor environmental quality (IEQ) of education buildings, particularly HE buildings is an important issue in the built environment sector. This study was driven by the need to optimize learning environments and enhance student comfort particularly following the COVID 19 pandemic. By utilizing the principles of Post Occupancy Evaluation (POE), various quantitative and qualitative data were collected in the form of environmental data through monitoring, perceptions through questionnaire survey and insights from professionals through semi-structured interviews. The data revealed acceptable environmental conditions in relation to the standards in most of the areas; however, the findings suggest that improvements can be made to better support the university community's comfort and health. A significant challenge identified from this research is the inability of the facility management to physically manage and operate the vast and complex spaces within HE buildings. In response to these findings, this research is developing a Building Information Modelling (BIM)-based prototype aimed at enabling real-time monitoring and automated control of IEQ. The outcomes of this study not only contribute to the ongoing discourse on sustainable building management especially post-pandemic, but also demonstrate an advancement in the application of BIM technologies to improve IEQ and by extension, occupant well-being in HE buildings.

ID: 66 | Mapping Scientific Knowledge and Trends in Sustainable Tourism: A Bibliometric Approach in Social Field

Agostino stavolo (University of Naples Federico II); Maria Gabriella Grassia (University of Naples Federico II); Marina Marino (University of Naples Federico II); Rocco Mazza (University of Bari Aldo Moro)

Abstract:
Tourism is one of the most dynamic and promising industries globally. It is crucial to plan and develop tourism purposefully and sustainably, balancing the environmental, economic, and social aspects of society. Effective sustainable tourism development management should aim to meet tourists' needs, provide meaningful and enriching experiences, raise awareness about sustainability issues, and promote sustainable practices among travelers. To gain a comprehensive understanding of sustainable tourism, it is essential to analyze and map the existing literature. This involves conducting a thorough review of relevant scientific articles to assess the current body of empirical research, identify potential research gaps, and highlight the limitations of existing knowledge. Bibliometric reviews serve this purpose by using quantitative methods to classify data and produce representative summaries. This approach is recognized for its utility in evaluating the performance of journals, institutions, authors, and research topics. This study focuses on science mapping, which facilitates the identification and visualization of themes and trends both within specific periods (synchronically) and over time (diachronically). The paper therefore aims to present a systematic review of the literature on sustainable tourism, analyzing its scientific productivity in the social field (Anthropology, Behavioral Science, Communication, Cultural Studies, Demography, Development Studies, Economics, Educational Research, Educational Scientific Disciplines, Educational Specializations, Environmental Studies and Sciences, Social Issues, Social Science, Sociology, Human Studies, Statistics Probability, Political Science, Social Psychology). Specifically, we examined 2568 English documents on the topic of sustainable tourism from 1992 - 2023 on Web of Science (WoS) defined by the queries TS=((“sustainable tourism”).

Advancing Antipoverty Solutions: Bridging Innovation, Sustainability, and Digital

ID: 658 | The role of corporate social responsibility: Evidence from market reaction to data breach announcements

Rahman Khokhar (Saint Mary's University)

Abstract:
This paper investigates the "insurance-like" role of corporate social responsibility (CSR) activities in mitigating the market's negative view of a firm's data breach. Using a sample of US data breaches and two major sources of CSR ratings, the authors utilize an event study framework and regression analysis to examine how breached firms' CSR performance impacts the market's assessment of their data breach announcements. The authors find that firms with higher pre-breach CSR performance measured using environmental, social and corporate governance (ESG) scores experience a significantly less negative stock market reaction to data breach announcements than their counterparts with lower pre-breach CSR performance. The results suggest that CSR performance insures companies against unexpected adverse events such as information security incidents. The variations in the extent to which the market assesses CSR performance for valuation purposes should concern practitioners. The findings would help investors better understand public firms' CSR performance and provide guidance on how to value firms using their non-financial performance.

ID: 140 | Towards a dynamic BIM-aided Waste Management System Application for Advancing Net-zero Waste Cities: A State-of-Art Review

Ademilade Olubambi (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg); Bolanle Ikotun (University of South Africa)

Abstract:
A greener built environment can be achieved in any construction industry by reaching net-zero waste. This study employs a state-of-art review to examines the potential of using a dynamic BIM-aided waste management system in reducing/or eliminating waste across construction lifecycle supply chain of construction and demolition actions. To achieve this goal, this study outlines the connection between BIM technology and construction and demolition waste management system, and applications of BIM in construction and demolition waste management were examined. The goal is to create a dynamic, lifecycle BIM-based waste management system that can effectively manage waste and advance net-zero waste realization. Throughout the construction life cycle, all relevant operations of the BIM-aided waste management system were shown. At the planning phase, findings show that BIM can be used for creating an effective schedule of material ordering, fabrication, and delivery of all building components. At design phase, any changes entered to the building model is automatically updated. At procurement phase, project sequencing, take offs, and integrating energy analysis can be carried out with the 3D geometry. At construction phase, virtual construction modeling which is extremely cost effective can be used, while at operation phase, maintenance scheduling, building system analysis, asset management, tracking and/ or space management, and disaster planning can be carried out using BIM technology. In conclusion, this paper shows the increasing awareness and operation of BIM-aided waste management system in construction, and how waste is being eliminated and subsequently avoided were possible with its application. In conclusion, exploiting the advantages invested in the process and design of the model should be a need based and aligned with the overall requirement of the construction industry since utilizing when there is no need is not productive overall.

ID: 326 | Policy for Advancing Innovation Ecosystems: Insights from the Arab SDG Index and Dashboards

Lama Zakzak (Mohammed Bin Rashid School of Government); Fadi Salem (Mohammed Bin Rashid School of Government).

Abstract:
For innovation to thrive, a robust ecosystem encompassing education, economy, industry, and inclusivity is essential. This paper explores the maturity of innovation ecosystems across the Arab region, identifying gaps and challenges that hinder their growth. By leveraging the comprehensive data of the upcoming Arab Region SDG Index and Dashboards, we conduct a data-driven analysis to assess the region's performance in fostering innovation. With over 110 indicators across all 17 SDGs, the index provides a granular view of the Arab world's progress. Our study focuses on key indicators related to education (SDG 4), economic growth (SDG 8), and industry (SDG 9) to identify regional disparities and inform targeted policy recommendations. By understanding the specific needs of different Arab sub-regions, this research aims to contribute to the development of effective strategies for nurturing innovation ecosystems and driving sustainable development in the region. Links: http://www.arabsdgindex.com/

ID: 330 | Institutional Drivers of Social Investments of Large Russian Companies in Monocities

Anna Veselova (Graduate School of Business HSE University); Maria Karacheva (Graduate School of Business HSE University)

Abstract:
This study investigates the crucial role of social investment programs implemented by manufacturing companies in sustaining the socio-economic viability of monocities within industrial Russian regions, where a significant personnel shortage persists. Data from a 2023 survey reveals that 62% of manufacturing companies struggle with staffing shortages, prompting an urgent need for strategies to retain populations in these areas, where socio-economic conditions often deteriorate due to population outflow. The research emphasizes stakeholder identification and engagement, particularly with local communities, authorities, non-profit organizations, and media, as critical for successfully implementing social investments. The findings suggest a growing expectation for businesses to collaborate effectively with these stakeholders, generating a synergistic approach to community development. Through qualitative interviews and a structured online survey involving 314 residents, the study identifies key drivers influencing individuals' intentions to remain in monocities, such as access to quality housing, healthcare, and education.

ID: 457 | Ethical Leadership and Corporate Social Responsibility: An Empirical Study of Large Russian Companies

Anna Veselova (Graduate School of Business HSE University); Andrei Sharonov (National ESG Alliance)

Abstract:
A leader influences his followers' behavior, mood, expectations, performance, and even their lives through various tools. Prominent among the evolving continuum of leadership theories and concepts is the theory of ethical leadership, or leadership ethics, which draws on the values, goals, and behaviors of leaders and examines the nature of the relationship between leaders and their followers, as well as the differences between corporate goals and policies and fundamental human values. This study investigates the effect of ethical leadership on corporate social responsibility through higher awareness and engagement of employees into CSR practices. The study differentiates between the leadership of top excutives and direct supervisors. Based on the sample of 2970 employees the study confirms both direct and indirect effects of ethical leadership on external and internal CSR performance accounting for different effects of various elements of leadership.

ID: 172 | The Role of Digital Platforms in Empowering Postpartum Women Entrepreneurs

Muhanad Hasan Agha (Moscow School of Management SKOLKOVO); Vladimir Korovkin (Moscow School of Management SKOLKOVO); Svetlana Mironyuk (Moscow School of Management SKOLKOVO);

Abstract:
Achieving gender equality and empowering all women and girls is an important goal within the Sustainable Development Goals (SDG 5). Supporting women's entrepreneurship is an effective strategy to achieve this goal. Child birth is a particular important point in the life of a woman, that creates new life context both economically and psychologically. On the economy side the event creates double strain on family budget, bringing new expenses and precluding a woman from employment for some time. Psychologically, the immediate joy of bringing new life often is followed by postpartum depression (PPD), which officially affects 10-15% of new mothers, while many cases remain undiagnosed. PPD encompasses several mood disorders that follow childbirth, leading to feelings of sadness, anxiety, and exhaustion. Engaging in work can be a vital coping mechanism to overcome the emotional and psychological impacts of PPD, providing a sense of purpose, achievement, and social interaction. However, traditional employment is often challenging due to the demands of caring for a newborn.
Digital platforms offer a unique solution by providing the flexibility needed to balance work and childcare responsibilities combined with ease of entry. Self-Determination Theory (SDT) by Deci and Ryan focuses on autonomy, competence, and relatedness as key factors for motivation. Drawing on SDT, this study examines how digital platforms can fulfil the psychological needs for autonomy, competence, and relatedness among women, particularly those experiencing PPD, thereby improving their mental health and leading to entrepreneurial success that can become a turning point in economic life of a woman. Through case studies, this research identifies factors that facilitate or hinder women's entrepreneurial endeavours post-childbirth and offers policy recommendations to enhance the effectiveness of digital platforms in empowering postpartum women and promoting their overall well-being.

ID: 537 | Procurement Strategy Prioritization for CO2 Emissions Reduction in the UAE Energy Sector: An Analytic Hierarchy Process Approach

Hamilton Rozario (Abu Dhabi Transmission & Despatch Company (TRANSCO)); Dr Alia Al Kaabi (TAQA Transmission)

Abstract:
The objective of this research is to develop a framework for procurement strategy prioritization within CO2 emissions reduction using the Analytic Hierarchy Process (AHP) for the UAE energy sector. In light of the recognized importance of such an activity within the landscape of sustainable procurement when fighting against climate change, the following paper aims to identify and assess procurement practices that would result in significant reductions of CO2. The energy sector is one of the biggest contributors to the UAE's carbon footprint. The energy sector provides another opportunity for procurement to be leveraged against a substantial environmental impact in its own unique way. This paper applies the AHP model to systematically assess various
procurement strategies in consideration of economic, environmental, technological, social and regulatory criterion. The methodology of such research would be experts' opinion solicitation from various stakeholders in
the UAE energy sector for the relative importance of these criteria and priorities of procurement strategies accordingly. The outcome is a decision-making frame that guides procurement professionals in the energy sector
within the UAE in making informed choices commensurate with the national agenda of sustainability and CO2 reduction. This type of research is, therefore, not only academically relevant within the ongoing discourse on sustainable procurement and the reduction of CO2 emissions; rather, it provides very practical insights for
policymakers, industry leadership, and practitioners committed to the environmental sustainability of the UAE.

ID: 68 | Managing Digital Information for Sustainable Development: The Case of Sweden

Proscovia Svard (Sorbonne University, Abu Dhabi)

Abstract:
The concept of sustainable development supports strong economic and social development, especially for people with low standards of living and underlines the importance of protecting the natural resource bases and the environment. Economic and social wellbeing cannot be improved with measures that destroy the environment. According to the Paris Agreement enacted in 2015, world leaders agreed to reduce global warming to 1,5 degrees C by the end of the Century. This requires the involvement of all sectors, both public and private, to work towards achieving this goal. This article investigates how Swedish local administrations and government agencies are managing their digital information resources to mitigate the impact they have on sustainable development. Government administrations and agencies invest in information systems to deliver effective services to the citizens. They therefore own large estates of information systems to effectively manage records/information and data that have become the new fuel that drives all operations in the digital society. Data needs to be managed and preserved for re-use and hence consumes energy. The rapid technological developments also force local government administrations and agencies to invest in new systems to avoid technology obsolescence. This creates e-waste that requires robust disposal policies. Research however confirms that e-waste ends up in environments that lack recycling plants. It is burnt and produces toxic gases that pollute the environment and cause health problems for poor people. Since the digital society is dependent on both information systems and data, computer scientists, data scientists and archivists need to work together to create information management systems that are sustainable that is, with longer-life spans and data stewardship strategies that will promote the management and maintenance of high-quality data avoiding redundant data to save energy and hence promote sustainable development.

ID: 220 | Maritime sector twin skills needs

Lydia PAPADAKI (ATHENA RC); Panagiota Koltsida, Conrad Landis, Eleni Toli, and Phoebe Koundouri

Abstract:
The maritime sector is confronted with substantial obstacles in its efforts to adjust to the changing requirements for digital and green skills, which are essential for the advancement of technological innovation and sustainability. In order to remain competitive and adhere to rigorous environmental regulations and technological advancements, it is imperative to address these skill disparities. The objective of this study is to examine the responses to two significant inquiries: what are the deficiencies in the job market within the maritime sectors, and which skills should educational and training programmes prioritise if there is a scarcity of green and digital skills in these occupations. This research is based on two components: desk research and field research. The maritime-related sectors were surveyed during the desk research, with a particular emphasis on five critical areas: (a) Shipping, (b) Ports and terminals, (c) Shipbuilding and ship repair, (d) Supply chain management and maritime logistics, and (e) Marine technology and equipment. The ESCO database was employed to categorise occupations within these five maritime sectors into “blue-collar” and “white-collar” categories. The objective of this approach is to identify current job market deficiencies and prioritise essential green and digital skills for future educational and training programmes in the maritime sectors.

ID: 138 | AI-based Object Detection and Material Classification for Scan-to-BIM - A Deep Learning Framework

Rana Muhammad Irfan Anwar (Auburn University); Salman Azhar (Auburn University)

Abstract:
Building Information Modeling (BIM) is a pivotal technology in the Architecture, Engineering, and Construction (AEC) industry, enabling the creation and management of digital representations of physical and functional characteristics of buildings. The integration of Artificial Intelligence (AI) comprising deep learning technology, particularly for object detection and material classification, can significantly enhance BIM’s capabilities. This paper explores the application of deep learning techniques, including Convolutional Neural Networks (CNNs), for the automated detection and classification of building elements and materials. We detail the workflows involved in training and deploying these models, encompassing data collection, preprocessing, model training, and validation. Furthermore, we discuss the integration of these models into BIM frameworks, emphasizing the benefits such as improved accuracy, efficiency, and cost-effectiveness. Despite the challenges like large data requirements and computational demands, the potential for deep learning to transform BIM processes is immense. This article suggests a framework as part of ongoing research to address current limitations and advance the automation of scan-to-BIM processes. It introduces sophisticated deep-learning models for object detection and material identification within the construction environment. The proposed framework will be implemented, and the final results will be presented in future research articles.

ID: 486 | The Shared Product at the Heart of the UNs Sustainable Development Goals

Batoul TAMIM (Cnam Paris)

Abstract:
This communication presents an innovative approach linking shared products to the United Nations Sustainable Development Goals (SDGs). Shared product or Cause-Related Marketing (CRM) is a charitable marketing strategy that allows a company to promote a product or service by funding a cause of public interest. The SDGs represent a global call to action for a better and more sustainable future for all. In this context, the concept of shared product emerges as a powerful synergy between businesses and the SDGs, playing a central role in achieving these goals. This strategy enables companies concerned with Corporate Social Responsibility (CSR) to create attractive offerings while aligning their actions with the SDGs. It allows companies to enhance their image and social impact while contributing to a more equitable future. The aim of this communication is to propose a methodology for aligning shared product operations with the SDGs, while maximizing the impact of these campaigns. The alignment methodology is based on categorizing shared products according to the different forms of contributions intended for partner NGOs. Thus, shared product proves to be an important lever for achieving the SDGs by integrating philanthropic actions into the CSR strategy of companies.

ID: 1 | Women Entrepreneurs and Social Networks: A Global Analysis

Ishara Maharaj (United Arab Emirates University); Raihan Taqui Syed (United Arab Emirates University); Safa Veeran Kutty (United Arab Emirates University)

Abstract:
This working paper aims to take stock of the state of research on the social networks of women entrepreneurs globally. Despite social networks being facilitators of economic activity and providing increased business opportunities, we know relatively little about how the gender gap is bridged in different cultures or how women entrepreneurs access opportunities, information, and resources, which are crucial for business success. We reviewed papers from 1992 to 2023 using bibliometric analysis and the Scopus database of reputable academic, peer-reviewed journals. Using bibliometrics is a highly effective way to analyze the conceptual structure of a research field and uncover potential areas for future research. Through the manual screening of abstracts, our final sample of 329 papers presents significant descriptive statistics and offers a thematic analysis to understand key areas of focus and the primary outcomes of past research. Previous research has pointed to the challenges, such as the need for more effective networks and the impact of family responsibilities on networking practices. The value of studying the social networks of women entrepreneurs offers several avenues for further program development and research. Our analysis identifies areas for future research that would contribute to growing this body of research in necessary and novel ways. For example, the emotional support offered by social networks and the advent of online networks and social media remain areas of interest that require further exploration. This finding highlights the potential to leverage relationships in diverse ways in the pursuit of entrepreneurial opportunities for women's economic empowerment.

ID: 188 | Sustainable Last Mile Delivery Opportunities and Challenges

Vikas Kumar (Birmingham City University); Yu-Hsuan Liu (University of Warwick); Archana Kumari (University of the West of England); Eileen McAuliffe (Birmingham City University)

Abstract:
Sustainable urban logistics face significant challenges in achieving efficient supply chain management and delivery operations, primarily due to the expanding influence of e-commerce. Developing and implementing innovative strategies that enhance these processes while considering sustainability, operational efficacy, and customer satisfaction have become increasingly imperative. This study conducts an in-depth investigation of various approaches in urban logistics through a systematic literature review of relevant articles. The study also explores the integration of public transport with crowdsourced delivery services. The study evaluates the effectiveness and feasibility of these strategies by reviewing and analysing existing models. The findings suggest that employing intelligent parcel lockers as transfer nodes and occasional crowdsourced couriers can significantly enhance delivery efficiency and customer convenience. Moreover, integrating crowdsourced delivery with public transport demonstrates the potential to reduce traffic congestion and emissions. The study also recognizes the role of effective consumer education in promoting sustainability. Ultimately, the study underscores the importance of adopting a balanced approach considering economic, social, and environmental factors when designing urban logistics solutions. The study highlights the necessity of implementing innovative methods to improve supply chain management and delivery operations, emphasizing the potential benefits of intelligent parcel lockers, part-time couriers, and integrated public transportation. Policymakers can leverage these findings to formulate regulations and incentives that promote the adoption of environmentally friendly vehicles and sustainable logistics solutions, thereby contributing to a broader urban sustainable development agenda.

ID: 204 | The Impact of War Displacement on Housing Conditions Among Displaced Sudanese in Egypt: Literature Review and Research Agenda

Amna Shibeika (University of Reading)

Abstract:
Background: The ongoing conflict in Sudan has led to extensive displacement, with millions seeking refuge in neighboring countries, including Egypt. Displaced individuals face significant challenges, such as substandard housing and reduced quality of life. This study examines the impact of displacement on housing conditions among Sudanese refugees in Egypt.

Methods: This scoping study employs a comprehensive literature review and survey to gather data on housing conditions, health status, and access to services among the displaced Sudanese population. The literature review maps existing research on displacement and housing, identifying gaps and informing the survey design. The survey collects quantitative data to provide a broad understanding of the current situation faced by displaced individuals.

Objectives: The study aims to understand the needs and perspectives of displaced Sudanese, assess their current housing situations, and develop evidence-based recommendations for improving housing and health outcomes.

Results: The findings will inform policy development aimed at enhancing the well-being and resilience of displaced populations, promoting health equity, and creating supportive communities.

Conclusions: This research will provide crucial insights into the housing conditions of displaced Sudanese in Egypt, guiding policies and interventions to improve their living conditions and overall quality of life.

Keywords: Displacement, Housing Conditions, Health Equity, Sudan, Survey, Scoping Study

ID: 152 | A Functional Model for Evaluating the Risk of Poverty in Italy

Ida Camminatiello (University of Campania L. Vanvitelli); Rosaria Lombardo (Università della Campania "L.Vanvitelli"); Jean-François Durand (University of Montpellier II); Corrado Cuccurullo (University of Campania L. Vanvitelli)

Abstract:
In 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, which includes seventeen Sustainable Development Goals. Among these, the 10th Goal aims to reduce inequalities, specifically the risk of poverty. In this paper, we propose to study the socio-economic determinants that affect inequalities among the 20 Italian regions using functional partial least-squares regression splines (FPLSS). In this functional regression model, the response variable is transformed using an identity spline, which facilitates desirable perturbations in its values. By applying these perturbations, decision-makers can explore various scenarios of different complexity, such as aiming to reduce poverty in a social context.

Sustainable Education for Innovation and Digital Transformation

ID: 505 | Role of Flanker Rotation Task for Younger Children: A Digital Transformation of Education

Dr Gunjan Khera Dr Gunjan Khera (United Arab University)

Abstract:
Perception of letters in 1st and 2nd languages is complicated or delayed, especially when children are raised in multicultural cosmopolitan environments. The study has been designed to investigate when the perception of letters happens. Participants tend to be faster in Arabic or English using flanker-rotation tasks. Inclusionary criteria in the bilingual groups were based on a detailed language history questionnaire and letter recognition tests (Arabic and English). Several assessments of English proficiency were given in both populations. An interesting question is how the 1st language influences letter identification in the 2nd language and are there any gender-related differences? The stimuli were letters from Arabic and English languages: (1) Phonologically Similar (2) Phonologically Dissimilar (3) 3D shapes. In different experimental setups, stimuli will be presented in different rotational angles, and the task was to respond to the normal or mirrored rotations using keypads. Preliminary data on bilingual healthy adults (males and females; mean Age 25.6; for all participants L1- Arabic and L2 - English) suggests that letters were processed faster in English than in Arabic despite being their mother tongue because of the complex orthographic structure of a language. This experimental paradigm will also help to have real-time identification of students struggling with reading problems in school, single language impairments and proficiency problems occurring at different stages. Language orientation, orthographies and frequency of a language while communicating have more valence than being the mother tongue in a simple act such as letter processing. This paradigm could serve as a digital transformation of paper-pencil tests to a digital version of assessments in education for younger children.

ID: 609 | Artificial Intelligence in Higher Education: Findings from the Lebanese Education Sector

May Merhej Sayegh (Saint Joseph University of Beirut, Lebanon); Rima Rouhana (Saint Joseph University of Beirut, Lebanon); Alain Osta (Université La Sagesse); ZIAD HADDAD (ULS)

Abstract:
This research project aims to understand the impact of Artificial Intelligence (AI) on student behavior in Higher Education (HE), considering various antecedent factors like Students' situational variables and Students' goals and orientation, to guide future practices and regulations on how to improve quality in education. It investigates whether these variables can foster the students' intention to perform while using the AI tools.
The survey was conducted among students in Lebanon and it collected 321 responses from students using AI in their daily academic education. This study relies on the SEM and the SPSS to analyze the suggested hypotheses about the opportunities and challenges associated with the integration of AI in HE.
Overall, the findings identify the main opportunities and challenges of the use and implementation of AI in HE. This study provides valuable insights into students' AI usage, but its findings may not be universally applicable due to factors like cultural differences, institutional policies, and technological advancements. Future research should explore these variables on a broader scale. As AI technology continues to evolve, longitudinal studies are necessary to track changes in perspectives and behaviors regarding AI in higher education.
This study focuses on the specific challenges and opportunities related to AI integration in higher education within the Lebanese context. This can help identify areas for improvement of using AI in HE by students' and universities' educators and inform future research on AI integration in Lebanese higher education. Insights from this study can inform policy development around the integration of GenAI technologies into higher education, helping to create well-informed guidelines and strategies for responsible and effective implementation.

ID: 474 | Transforming Education: Digital Era Strategies for Teacher Training and Professional Growth

Rita Gevorgyan (Khachatur Abovyan Armenian State Pedagogical University)

Abstract:
The digital era has revolutionized teaching and learning, necessitating a paradigm shift in teacher training and professional development. This research examines the transformative impact of digital technologies on teacher education, highlighting both opportunities and challenges. The integration of digital tools in professional development programs has enabled more flexible, personalized, and collaborative learning experiences for educators. Online platforms, virtual classrooms, and digital resources have expanded access to continuous professional development, allowing teachers to enhance their skills and adapt to rapidly changing educational environments.
In the context of Armenian schools, this study explores the experience of integrating digital pedagogical strategies with financial, and entrepreneurial knowledge education. The use of virtual classrooms further supports this integration by offering flexible and accessible learning environments.
To support these initiatives, the university has developed a special platform that leverages Google Classroom tools such as Meet, Chat, Sheets, Docs, and Slides. Future activities will focus on implementing virtual classes specifically designed for geography and language teachers, aiming to make these subjects more engaging and effective for students. By equipping teachers with the necessary tools and knowledge, we can ensure they are well-prepared to meet the demands of modern education and contribute to the development of a digitally literate society. This research contributes to the ongoing discourse on educational innovation, providing insights into best practices for teacher training in the digital age.

Keywords: Teacher training, professional development, digital literacy, financial education, e-learning, online platforms, virtual classrooms, blended learning, and educational technology.

ID: 209 | Coastal Cities' Waste Management Regimes and Marine Pollution: A Systematic Review

Lazarus Chapungu (University of South Africa)

Abstract:
Marine pollution presents a significant threat to coastal ecosystems and human health, particularly in densely populated coastal cities. This study examines the impacts of current waste management regimes of coastal cities on the marine environment. The study is premised on a systematic literature review, following the Preferred Items for Systematic Review and Meta-analysis (PRISMA) protocol. Two major databases, namely Scopus and Web of Science are selected, for rigorously peer reviewed literature. In addition, policy documents, government reports and case studies are also reviewed. All the documents are screened based on a predetermined inclusion-exclusion criteria. The evaluation seeks to provide a thorough understanding of the connection between urban waste management practices and marine environmental well-being. The study identifies typical marine pollution sources that originate from coastal cities, including industrial effluents, sewage discharge, and plastic garbage. It evaluates how various waste management techniques, such as waste disposal, recycling, and collecting, affect the decrease of marine pollution. The study also explores how to increase waste management efficacy using policy frameworks, regulations, and community involvement. Notably, the results demonstrate that whereas several coastal cities have effectively incorporated waste management techniques and laws, many continue to face obstacles such as inadequate infrastructure, budgetary constraints, and problems with enforcement. To improve waste management and reduce marine pollution, the study highlights innovative technology and solutions such advanced waste treatment systems and circular economy strategies. The need for integrated and flexible waste management plans that consider the local socioeconomic and environmental realities of coastal towns cannot be overemphasized.

ID: 487 | The Future of Sustainable Architectural Education in the Metaverse

Hebatallah Hamdy Mohamed (Jubail Industrial College)

Abstract:
The metaverse is an innovative domain for architectural education that generates a virtual environment where students create adaptive and resilient design strategies. This involves reducing the building's ecological footprint, enhancing energy efficiency, and employing sustainable materials. The metaverse significantly influences the environmental, economic, and social realms. The metaverse's potential to enhance financial development and profitability must be balanced with its ethical, social, and environmental implications. The metaverse offers a distinctive chance to transform architectural education. Virtual environments provide immersive and engaging educational experiences, enhancing comprehension of design concepts and stimulating creativity. Students can participate in real-time projects with classmates and mentors via virtual design studios and collaborative platforms, transcending geographical limitations and fostering global cooperation. These immersive educational experiences enable students to explore sustainable design ideas and foster a more ecologically aware generation of architects. The research aims to analyze the utilization of metaverse technology in achieving Sustainable Development Goals (SDG). It presents a literature review that investigates the integration of sustainability principles into metaverse design. It analyzes and discusses the relevant challenges and opportunities. Finally, the results present a prototype of sustainable building solutions in the metaverse.

Keywords: Architecture Education, Extended Reality (XR), Metaverse, Sustainable Development

ID: 337 | Looking for disruptive innovation in social work education in the digital transformation era: incorporating artificial intelligence (AI) in an undergraduate program curriculum

Raquel Marta (United Arab Emirates University (UAEU)); Vinnarasan Aruldoss (United Arab Emirates University (UAEU)); Khoula Al Riyami (United Arab Emirates University (UAEU))

Abstract:
This paper discusses the insightful and critical process of developing an Artificial Intelligence (AI) syllabus for social work undergraduate program in the United Arab Emirates University.
Unconsciously ubiquitous in our private and professional life, AI has been rapidly developing and expanding, and its application is already transversal to a broad range of social sciences and social care related fields, directly contributing to the pursuit of several Sustainable Development Goals (SDGs), such as good health and well-being (goal 3), quality education (goal 4) or decent work and economic growth (goal 8). Yet, adopting and incorporating different layers of AI in the social work arena is still rare.
This presentation focuses on three main points. The first one is predominantly reflective and takes us on a fascinating road trip by the emotions, intellectual inquiries and creative ideas that emerged as we advanced on the road towards the superhighway that AI is. On a more applied perspective, the second point presents and discusses the current final academic product: the syllabus. Aligned with the skills for the future (UNESCO, 2021), designed and fundamentally developed to be able to respond to the digital transformation existent and emergent needs, covers different sets of forward-thinking skills and competence levels.
Finally, will conclude by discussing the need of a multi stakeholders' approach to develop and deliver AI upskilling training programs for the social work workforce in different settings of practice while actively engaging with the future in imaginative, innovative and sustainable ways. UNESCO (2021). Reimagining our futures together: a new social contract for education. UN-UNESCO.

ID: 224 | Custom MATLAB GUI Simulators for Processing, Visualizing, and Analyzing Theoretical and Experimental Data in Undergraduate Physics and Engineering Application Laboratories

Muhammad Umair Khan (Abu Dhabi University)

Abstract:
This paper presents a set of custom simulator apps featuring Graphical User Interfaces (GUIs) developed in MATLAB. Unlike generic software solutions that offer limited compatibility and customization options, these simulators are designed to precisely meet the diverse requirements and learning objectives of undergraduate Physics and Engineering Application Laboratory experiments.

The simulators featured in this paper encompass a variety of experiments across Mechanics and Electricity, showcasing interactive functionalities for data input, visualization, and analysis. Emphasizing adaptability and customization, key features of these simulators include the ability to provide interactive and flexible interfaces that allow users to dynamically input data, adjust variable parameters based on the experiment setup, process both theoretical and experimental data comprehensively, plot results, perform data analysis and provide immediate feedback on calculations and graphical representations. These simulators promote digital transformation among students, enabling them to identify and correct anomalies from raw data processing to final analysis. This deeper engagement with experimental outcomes fosters greater clarity and efficiency in their experiments. These features directly cater to the requirements of the course experiments, seamlessly integrating into laboratory exercises. They can also be employed as robust tools for grading experimental outcomes, ensuring accuracy and consistency in assessment and evaluation.

Based on preliminary user feedback, these MATLAB simulators have resulted in significant improvements in student engagement and comprehension, particularly in the areas of experimental data processing and analysis. Moreover, these MATLAB GUI simulators can function as standalone applications, without requiring any external resources, subscriptions, or internet connectivity, thereby facilitating inclusive and sustainable digital practices in education.

ID: 166 | SAQR - A Smart Academic Quality and Review Management System

Adel Khelifi (Abu Dhabi University); Khaled Yaser Alnuaimi (Abu Dhabi University)

Abstract:
Academic institutions face significant challenges in the accreditation process due to outdated procedures that complicate compliance. The Smart Academic Quality and Review Management System (SAQR) addresses these issues by streamlining accreditation through features such as a Task Control Panel, Data Collection, Smart Assessment, and Visualization. Unlike traditional methods, SAQR automates data collection and report generation, enhancing accuracy and facilitating information sharing. It also includes tools like the Quality Enhancement Advisor and Dynamic Rubric Generator, which automate rubric creation and provide recommendations for program improvement.
Case studies and risk analysis highlight SAQR's effectiveness in resolving critical issues while protecting data integrity and privacy. Built with a user-centered design, SAQR prioritizes user feedback and iterative development to ensure its features meet user needs. This system represents a modern approach to university accreditation, offering continuous quality improvements and fostering transparency and collaboration. Overall, SAQR provides an efficient and responsive accreditation framework, benefiting academic institutions, faculty, and stakeholders.

ID: 125 | Smartly Walking the Talk for Transformative Global Education

Eman AbuKhousa (University of Europe for applied sciences)

Abstract:
Technological advancements are revolutionizing experiential learning by offering a range of digital tools and virtual simulations that enhance engagement and practical skill application. This paper examines the transformative learning process, detailing stages such as trigger events, critical reflection, liminality, emotional engagement, integration of new perspectives, and consolidation. Building on our previous work with the Metaverse and AI-driven learning cycles, we introduce a framework that identifies enablers and challenges at each transformative stage. Our framework emphasizes the deeply personal and context-specific nature of these journeys for both learners and educators. By integrating Education for Sustainable Development (ESD) and Global Citizenship Education (GCE) principles, we provide technological solutions to support and enhance these transformative processes. Our approach underscores the critical role of educators in fostering critical reflection, emotional engagement, and the integration of new perspectives. Ultimately, we highlight the interconnected transformation of learners and educators, advocating for a collaborative effort to cultivate global citizenship and sustainable development.

ID: 627 | A Model for Integrating STEAM and AI to Drive Digital Transformation in K-12 Learning

Abdesselam Bougdira (usmba); Ghadah Al Murshidi (UAE University); Badria Al murshidi (Arkan for Training, Research and Management Consulting); Ahmed Al Zaabi (Universiti Utara Malaysia)

Abstract:
Despite the rapid technological advancements in the 21st century, many education systems continue to struggle with outdated methodologies that fail to equip learners with the necessary skills for the digital age. A significant gap exists in how curricula are designed, as traditional approaches often neglect the integration of essential 21st-century competencies such as critical thinking, creativity, and problem-solving. Additionally, educational inequalities persist, with limited access to digital tools and resources, exacerbating the digital divide and hindering the scalability of innovative learning models. This paper addresses these challenges by proposing a sustainable education model that integrates STEAM (Science, Technology, Engineering, Arts, and Mathematics) and Artificial Intelligence (AI) into the K-12 curriculum. The model is designed to foster innovation, critical thinking, and problem-solving, emphasizing personalized learning pathways supported by digital tools and project-based learning. By embedding AI-powered feedback systems and interactive learning environments, this approach ensures that education is both engaging and adaptable to diverse learner needs. The paper also explores the model's potential to drive the sustainable transformation of education systems by addressing educational inequalities and offering scalable, accessible, and inclusive learning opportunities. The integration of STEAM-focused labs and teacher training is shown to enhance both students' and educators' digital literacy, ensuring preparedness for a rapidly evolving technological landscape. By offering a framework that bridges the digital divide and cultivates essential 21st-century skills, this model highlights the pivotal role of innovation in shaping the future of education.

ID: 668 | SIMULATING HUMAN RESPONSES TO ENVIRONMENTAL MESSAGING

Ian A Drumm (The University of Salford); Dr Atefeh Tate (University of Salford)

Abstract:
This paper describes our ongoing work to implement and evaluate virtual humans whose responses to environmental messaging are influenced by their media diet and social interactions. The project scraped thousands of social media post / comment pairs related to environmental issues, classified them according to viewpoints, and built a vector database of embedded social media interactions and associated metadata to act as a knowledge source for chatbots. Hence, the application leveraged local large language models with retrieval-augmented generation to create chatbots who gave comments to new Reddit posts based on stereotypical attitudes. A qualitative and quantitative evaluation was conducted to demonstrate the validity of the approach, though its full value is still to be assessed.

Keywords: Climate, AI Chatbots, Political Discourse Simulation

ID: 603 | Revolutionizing Education: The Role of Artificial Intelligence in Fulfilling the Promise of SDG 4

Alsaeed S Alshamy (Sultan Qaboos University)

Abstract:
Artificial intelligence (AI) is a transformative technology that can enhance the quality and accessibility of education, thereby accelerating progress towards Sustainable Development Goal 4 (SDG 4) on quality education. AI has the potential to enable personalized and adaptive learning, improve learning outcomes, facilitate access for marginalized groups, and foster innovation. However, as with any new technology, AI also presents challenges such as ethical, legal, and pedagogical issues, and risks like bias, inequality, privacy violations, and reduced human interaction. This paper explores the role of AI in achieving SDG4 through reviewing primary and secondary sources to assess the associated opportunities and challenges and through a SWOT analysis of AI in achieving SDG 4. The key findings revealed that AI can accelerate the achievement of SDG 4 by predicting student performance, customizing curriculum, enabling lifelong learning, automating administrative functions, and improving inclusive and equitable quality education, especially in developing countries. However, alongside the potential benefits, the widespread adoption of AI in SDG 4 efforts also raises ethical, social, and regulatory considerations that must be carefully addressed for its full potential to be achieved. Concerns related to data privacy, algorithmic bias and digital divide require proactive strategies and policy interventions to ensure that AI-driven solutions contribute to inclusive and equitable quality education, and support opportunities of lifelong learning. The paper offers recommendations for policymakers, educators, and researchers to harness AI's potential while mitigating its negative impacts. Key suggestions include developing ethical standards for AI in education, enhancing teacher capacity and agency in using AI tools, ensuring data security, promoting digital literacy, and evaluating the impact and effectiveness of AI interventions on learning outcomes and equity.

Key words: artificial intelligence (AI), education, SDG 4, promises, challenges, SWOT

ID: 630 | Transforming Education for the Digital Age: The Essential Role of Innovative Curriculum Frameworks and Adaptive Accreditation

Zahra Zohair Arab (University of Technology and Applied Sciences Ibri); Frizha Melgarejo (University of Technology and Applied Sciences Ibri); Uzma . Hasan (KSAU-HS)

Abstract:
Change happens rapidly in the modern era of technology. To keep abreast with it, educational transformation is necessary not only for students to survive but also to thrive. This research aims to critically review the potential role of an innovative curriculum framework in designing learning strategies that give due importance to digital competencies, and provide personalized learning with interdisciplinary education. Along with the technological advancements, engaging learning experiences by incorporating core competencies, such as digital literacy and critical thinking skills, while creating a safe learning environment that promotes creativity and collaboration can be provided. The paper also discusses the importance of adaptive accreditation in which standards need to be developed, and modified for a totally new form of education turnaround, ensuring that quality assurance safeguards digital learning is maintained. Additionally, involving stakeholders as well as tackling challenges such as technology accessibility equity are important parts of this change. Eventually, this study highlights our need for a comprehensive educational renovation that equips students to succeed in a multifaceted, technology-driven world.

Keywords: Educational transformation, Innovative curriculum framework, Learning strategies, Digital competencies, Personalized learning, Interdisciplinary education, Digital literacy, Critical thinking skills, Safe learning environment, Adaptive accreditation, Quality assurance, Technology accessibility, Comprehensive educational renovation

ID: 145 | Knowledge-Intensive Services Innovation Model for Malaysian Island Tourism Sustainability

Noor Aina Amirah (Universiti Sultan Zainal Abidin); YUSNITA YUSOF (UNIVERSITI MALAYSIA TERENGGANU); Kalsitinoor Set (Universiti Malaysia Terengganu); YUSNITA YUSOF (UNIVERSITI SULTAN ZAINAL ABIDIN)

Abstract:
Malaysian tourism industry has been identified as slowing down and unattractive compared to other ASEAN countries due to lack of creativity, less innovation and over reliance on traditional marketing which bypassed the industrial revolution 4.0. The industry must embrace digitalized tourism to drive innovation and competitiveness towards high value tourism sustainability. Therefore, investigating this particular segment will give full advantage in understanding the fundamental issue of why sustainable innovation through identifying knowledge-intensive services will help island tourism to stay competitive and vibrant. This research objective is to develop a model of knowledge-intensive services innovation for island tourism competitiveness and sustainability. This study has employed qualitative method by utilizing in-depth interview process with 20 personnel using criterion and snowball procedure in 3 islands in Terengganu, Malaysia to find out their perceptions, understanding and perspectives of knowledge-intensive services. The results showed that technological innovation, service delivery innovation, sustainability and social innovation, and organizational innovation has played an important element of knowledge-intensive services innovation in Malaysian island tourism industry. The significance output of this research can assist policy makers in evaluating and crafting better policy, assisting tourism industry players in capitalizing on the new development of innovation application towards more sustainable and competitive island tourism management, the enhancement of local workers' skills based upon knowledge-intensive services, and finally the innovation can promote eco-friendly initiatives in vulnerable island tourism setting to enhance the competitiveness and marketability of tourism products and services through understanding of knowledge-intensive services and innovation.

ID: 482 | Digital transformation of language learning at universities in the Gulf region

Ivana Roncevic (Prince Sultan University)

Abstract:
This paper examines the digital transformation of university teaching with a focus on blended learning, gamification and digital learning in linguistics and communication classes at university level after the pandemic. The focus is on the use and influence of software applications in the context of blended teaching methods. In view of the abrupt and necessary switch to digital teaching and learning formats as a result of the pandemic, this work asks the essential question of how teachers and students have adapted to the use of software tools and what concrete effects this has on the learning process and learning motivation.

In order to paint a comprehensive picture of the situation, ten structured interviews were conducted with university lecturers at universities in two GCC countries. These interviews were analyzed and interpreted using qualitative research methods. On the basis of this analysis, categories were formed that play a particularly significant role in examining the potential and of digitally supported learning. Some categories include digital literacy and accessibility of digital resources, the reaction of students to online teaching and the use of software apps, and the differences in language and communication teaching before and after the pandemic, especially in the use of software apps in the digital classroom.

The results show that the use of software applications not only increases the flexibility and interactivity of teaching, but also brings new challenges in terms of the digital divide and teacher training.

ID: 39 | Education on Digital: The FabLabs Contribution for Innovative Educational Technologies

Luis J Rocha (CATIM); Nuno Araujo (CATIM); Tomaz Berlec (University of Ljubljana); Rok Vrabič (University of Ljubljana); Maria Malmierca (CESGA); Abraham Felpeto (CESGA); Robert Hellbach (BIBA Bremen University); Reyan Erben (BIBA Bremen University); Edita Lorenzo (Universidad Vigo); Ana Estevez (Universidad Vigo); Giovanni Portello (T2i); Marco Galanti (T2i); Marco Braga (T2i)

Abstract:
Fabrication Laboratories (FabLabs), play a pivotal role in promoting innovative educational technologies in the digital era. These community-based or academic space designers, equipped with digital fabrication tools such as 3D printers, laser cutters and CNC machines, foster a hands-on learning environment that bridges the gap between theoretical knowledge and practical application. By integrating FabLabs into educational institutions, students gain access to experiential learning opportunities that enhance their creativity, problem-solving abilities and technical skills. FabLabs support STEM education by enabling learners to design, prototype and test their ideas, fostering an iterative learning process. In addition, FabLabs promote interdisciplinary collaboration by giving students from different backgrounds the opportunity to work together on projects and foster teamwork and communication skills. Open access to FabLabs democratises education by providing resources and tools to underrepresented and underserved communities, promoting inclusivity and equity. In addition, FabLabs contribute to lifelong learning by offering workshops and short-term courses for people of all ages, supporting continuous skills development in an ever-evolving digital technology landscape. FabLabs represent a transformative approach to education that addresses the needs of the digital era by empowering learners to become innovative thinkers and skilled practitioners. A consortium of six European institutions is developing new learning materials and training approaches on Artificial Intelligence (AI), Blockchain and Internet of Things (IoT) for use in Fablabs contexts. In the present paper, the authors will share how they have started to listen to the new needs of stakeholders and how they are developing new learning materials and training approaches.

ID: 418 | Integrating Creative Thinking into Digital Curriculums to Achieve SDG 4

Dalwinder Kaur (Manipal GlobalNxt University); Rana Altounjy (Manipal GlobalNxt University); Shibu Rajamonyammal (AbuDhabi University)

Abstract:
In recent years, the world has entered an age of polycrisis, characterized by a multitude of unprecedented changes, including a significant surge in digitalization. While the pandemic served as a major catalyst for the rapid adoption of digital technologies in education, it also intensified the challenges associated with achieving the 10 targets set forth under SDG 4 to ensure quality education for all. This shift has not only widened existing divides but has also exacerbated inequalities in access to and quality of education.

Education remains a cornerstone of sustainable development, making it crucial for both educators and students to adapt to the evolving landscape. As highlighted in the Future of Jobs report in 2024, those who fail to keep pace with the rapidly changing job market risk becoming obsolete, much like the dinosaurs of a bygone era. While AI and other technology-related roles are projected to dominate the job market over the next five years, the importance of equipping students with creative thinking skills cannot be overstated. In an increasingly digitalized world, creative thinking is essential for navigating complex challenges and fostering innovation. Therefore, this paper aims to propose a theoretical framework for integrating creative thinking into digital curricula. Developing this skill is crucial for empowering students to thrive in a dynamic, digital world and for advancing global efforts to achieve SDG 4.

Keywords: creative thinking, digitalization, SDG4

ID: 53 | Financial literacy and cryptocurrency adoption around the world

Reem Alsuwaidi (Abu Dhabi University); Charilaos Mertzanis (Abu Dhabi University)

Abstract:
The impact of financial literacy on cryptocurrency adoption is crucial in academic research and policy discourse. Financial literacy empowers individuals to make informed decisions about cryptocurrencies, fostering trust and financial inclusion. Evidence links financial literacy with higher cryptocurrency adoption rates. Cryptocurrencies revolutionize financial services, offering efficiency and convenience over traditional methods. Understanding cryptocurrencies requires solid financial and technological knowledge, making education essential.

Our study examines this relationship across countries using data from the Bank of International Settlements. We find a strong positive association between financial literacy and cryptocurrency adoption. Financially literate individuals better assess risks, make informed decisions, and recognize cryptocurrency benefits.

The study enhances understanding of the cryptocurrency market, user adoption, risk management, and informs policymakers on educational and regulatory needs. Financial literacy is vital for a sustainable and inclusive financial ecosystem. Future research should explore this relationship further, providing insights for stakeholders.

ID: 307 | Technological innovations and the transformation of biology education technology-The vision for the future of the Albanian educational system

Ariana Lacej (University of Shkodra 'Luigj Gurakuqi')

Abstract:
The study is about how technological advances are being used to teach biology in the Albanian school system, and how it will change in the future. Technological advancement has the potential to considerably improve learning and teaching experiences as applied in education. The results were based on the ' National programme for the professional development of teachers', initiated by the quality assurance agency in pre-university education in Albania and the Ministry of Education and Sports. During a two-months period almost 140 teachers were trained. The study will also contain the final results and evaluations of the teachers,as well as parts from the worksheets and biology-related stimulations,that are becoming more and more important nowadays to create a better learning environment for students. It examines up-and-coming technologies such as interactive digital platforms,and advanced simulation tools that have impacted biology education. It also shows how these technologies can increase student involvement, make learning more immersive, and improve comprehension of intricate biological concepts. The research further looks into issues like limitations on infrastructure, teacher training and curriculum development. This study therefore should offer suggestions for aligning these advancements with the Albanian educational framework by proposing a strategic vision for the future. This vision aims to update biology instruction so that it becomes in-house with modern scientific achievements hence making students well-prepared for tomorrow's science-based industries.

ID: 33 | Wellbeing Interventions: A Synthesised Meta Model Framework for Early Career Teachers Wellbeing

Eqlima W Dinar (United Arab Emirates University)

Abstract:
While teaching has a profound impact on generations to come, it takes a toll on anyone who decides to tread its path. This is particularly evident in the level of stress reported by lower secondary Dubai teachers in the Teaching and Learning International Survey (TALIS), dating back to 2018. 28% of said teachers reported that they suffered stress from doing too much marking, being held responsible for student achievement, and having too many lessons to teach (OECD, 2020). Despite the introduction of various wellbeing frameworks in Dubai and Sharjah, along with other federal initiatives across the United Arab Emirates (UAE), these are often focused on students' wellbeing rather than the teachers. This study aims to synthesise a contextualised meta-model wellbeing framework for promoting Early Career Teachers' (ECTs) satisfaction and happiness. A purposeful sample of participants within one emirate will be selected guided by suggestions from the Emirates School Establishment (ESE) based on their teacher happiness and wellbeing survey conducted in 2022, making the sample both random and credible. A Mixed Method Grounded Theory (MM-GT) design in this study aims to discover both individual and contextual factors that impact ECTs' wellbeing in the UAE. The study will have three phases starting with an exploratory phase, which will include a review of literature and qualitative data collection via semi-structured interviews, guided by grounded theory framework. A confirmatory phase will follow, which will include a quasi-experimental and qualitative data collection via semi-structured interviews with the same participants. Lastly, a model completion phase to integrate the obtained quantitative and qualitative data into the meta-model will take place. This study is hoped to provide policy makers and educational institutions in the UAE with unified and tested interventions to promote ECTs' wellbeing in alignment with the country's National Strategy for Wellbeing 2031.

ID: 350 | Develop Students' Skills and Promote Sustainability Concepts Through Photonics Technology Experiments

HAIDER M. Al Juboori (South East technological university)

Abstract:
Incorporating sustainability into education might be enhanced through engaging photonics experiments. The work seeks to describe how to use photonics experiments to teach students about photonics sciences/engineering while embedding sustainability concepts.
This experiential activity uses a selection of innovative teaching materials to explore some optoelectronic technologies that can achieve sustainability concepts and engage participants in contextualised negotiation and comprehensive discussions of multiple facets of sustainability. Participants first assume one of the science and engineering roles to identify specific sustainability priorities based on their responsibilities and expertise. Also, they represent the perspective of their assigned role to optimise sustainability in the design. This work provides the outline of an activity designed to teach innovative learning outcomes, material to assist the facilitator in preparing, and slides and handouts for teaching the activity.
By integrating photonics, optoelectronics, and experiments with sustainability education, students can develop a deeper understanding of both scientific principles and their applications in creating a sustainable future. These hands-on activities not only make learning engaging but also highlight the importance of innovation in achieving environmental goals. The paper will show the instructional plan that is applied to help students acquire abilities that advance sustainability. This 75-minute activity is designed for university-level students at Universiti Putra Malaysia and targets developing the following skills: a. scientific perspective-taking, applied to diverse stakeholders. b. systems thinking applied to facets of sustainability. c. basics of insightful reflections or professional negotiation.
The outcomes showed increasing students' engagement in discussing creative ideas and linking them with scientific innovations that can help them develop a promising, sustainable future.

ID: 78 | Sustainable choices? University students and online second-hand resale platforms

Giuseppe L. Gaeta (University of Naples L'Orientale); Eleonora Guadagno (University of Naples L'Orientale); Tullio Menini (University of Naples L'Orientale); Mauro Pinto (University of Campania Luigi Vanvitelli)

Abstract:
Second-hand internet platforms are widely acknowledged for their 'supposed' role in promoting sustainability through the extension of product lifecycles and the reduction of environmental impact. This study investigates the attitudes and behaviors of a cohort of medium-sized university students in Southern Italy towards these platforms. Without any claim to exaustivity, the research aims to ascertain whether considerations of 'sustainability' influence students' preferences for these platforms and to examine if the extent to which their purchasing behaviors are intentional or impulsive. The study thoroughly explores key factors that shape student decisions, including gender, place of origin, price sensitivity, environmental consciousness, product diversity, and trust in sellers.

ID: 594 | Education and Sustainability: Increasing the Awareness of Undergraduate Students for SDGs by Participating in Research Projects

Mahmoud M. Elgendi (United Arab Emirates University); Maryam AlMallahi (United Arab Emirates University); Mohamed Murad (United Arab Emirates University); Faisal AlJaberi (United Arab Emirates University); Mohamed AlJaberi (United Arab Emirates University); Ali Alblooshi (United Arab Emirates University); Mahmoud Hasan (United Arab Emirates University)

Abstract:
Higher Educational Institutions (HEIs) play a crucial role in teaching and imparting knowledge of Sustainable Development Goals (SDGs) to undergraduate students and projects. Based on this, United Arab Emirates University (UAEU) has undertaken several projects to improve undergraduate students' awareness of the SDGs. These projects focus not only on Quality Education (SDG 4) but also other SDGs. This study aims to improve the awareness and education of undergraduate students on Clean Water and Sanitation (SDG 6). The water crisis has developed as a severe environmental concern on a global scale. The world faces a scarcity of drinking water because of a lack of cost-effective and efficient wastewater treatment facilities. Therefore, solar stills application is vital for people in rural areas. SDG 6 aims to ensure sustainable production of water for all. However, solar still applications are not productive; thus, many improvements have been made to enhance efficiency. This paper presents the assembly for pyramid solar still coupled with automatic feedwater for a constant water feed rate. The automatic feedwater system helps regulate the water level for maximum evaporation, which enhances water productivity. This technique enables a continuous control system for water level and improves the solar still's overall productivity.

ID: 605 | Smart University Digital Transformation of Higher Education: A Systematic Review

Rolou Lyn R Maata (Gulf College Muscat)

Abstract:
As the landscape of higher education has evolved in response to technological modern approaches, the concept of smart universities becomes a fundamental approach for institutional transformation. This study investigates the role of smart universities in the digital transformation of higher education by leveraging data analytics, digital technologies, and innovative pedagogical strategies, and the fourth industrial revolution. By analyzing the number of significant peer-reviewed studies published over the last decade, this research identifies the key components of smart universities, specifically the integration of internet of things (IoT), artificial intelligence, and cloud computing.
The result of this study reveals that smart universities significantly enhance teaching and learning experiences through increased student engagement, improved access to digital resources, personalized educational pathways, and improved teaching and learning strategies. Furthermore, these academic institutions optimize data-driven decision making, enhanced operational efficiency, and optimize administrative processes. On the other hand, this study highlights various challenges that institutions may face during the transition to smart universities including resistance to change and the need for faculty training and support.
To address the identified challenges, the study emphasizes the significant role of strategic planning, stakeholder involvement, and established governance framework. As a result, the researchers provide comprehensive overview of the current state of research on smart universities and its valuable insights for policymakers, educators, researchers, and institution administrators to harness the potential of smart technologies to foster an adaptable and resilient higher education system in the digital age.

ID: 570 | SIMULATING HUMAN RESPONSES TO ENVIRONMENTAL MESSAGING

Dr Atefeh Tate (University of Salford); Dr Ian Drumm (The University of Salford)

Abstract:
The effectiveness of environmental messaging is deeply cultural, as messages must resonate with diverse values, beliefs, and social norms, adapting to different online and offline cultural contexts to inspire meaningful engagement, debate and behavioral change. This paper describes our ongoing work to implement and evaluate virtual humans whose responses to environmental messaging are influenced by their media diet and social interactions. The project scraped thousands of social media post and comment pairs related to environmental issues, classified them according to viewpoints, and built respective vector databases to act as knowledge sources for chatbots. Hence, the application leveraged local large language models with retrieval-augmented generation to create chatbots who gave comments to new reddit posts based on stereotypical attitudes. A qualitative and qualitive evaluation was conducted to demonstrate the validity of the approach, though its full value is still to be assessed.

Keywords: AI, Environmental responsibility, audience engagement, Sustainability.

ID: 128 | GENDER ROLE MODELS AMONG TOP MANAGERS OF MBA GRADUATES AS A SOURCE OF WOMEN EMPOWERMENT

Aleksandra Bordunos (Graduate School of Management, Saint Petersburg State University)

Abstract:
Current research supports discussion of gender differences in the behavior and career development of top managers in the era of digital transformation. The aim of this study is to examine gender role models of top managers' behavior from the agentic-communal and leadership-follower perspectives. The differentiating aspects are discussed as possible sources for empowerment and causes of gender imbalance among top managers. The dataset was collected using a survey of graduates of an MBA program at one of the leading Russian business schools during the period 2018-2024 (n=523, including 147 female respondents). We relied on the following instruments: Cattell's 16PF Questionnaire and Belbin Team Roles Test. For analysis we applied T-test. Findings show preference by women of the follower roles in follower-leadership dyad and communal aspects in agentic-communal dyad. The data obtained can be used to develop effective programs for the development of women's leadership and overcoming gender barriers in organizations. It allows to explore country leadership profile, highlight key gender differences in top management behavior preferences. Additionally, the research provides practical recommendations for companies to create favorable conditions for the career advancement of women, as well as help women managers develop the necessary competencies and strategies to achieve success in senior management positions.

ID: 344 | TERTIARY EDUCATION CURRICULA AND DIGITAL COMPETENCES IN FUTURE TEACHERS

Eranda Bilali (University of Shkodra)

Abstract:
Teachers today face a series of new choices that require professional responsibility regarding the ways of integrating digital skills during classroom activities. This article aims to analyze how the content of university syllabi fits the knowledge that a future teacher should have to develop digital competences in learning and teaching specific subject skills according to the criteria of the curriculum framework for pre-university education in Albania. The qualitative research design attempted to identify the perceptions of 14 university lectures who provide teacher professional development trainings of revising the tertiary education curricula. Data were collected by means of reports assessment, semi-structured interviews and a focus group. Findings showed that university syllabi should be revised to meet the needs of future teachers to integrate more quickly and easily the elements of digital competences with the elements of the curriculum based on the needs of the students.

Key words: digital competences, curricula, teachers, high education

ID: 305 | Utilizing Artificial Intelligence (AI) for Sustainable Learning and Educational Outcomes Enhancement

Mona Said (Abu Dhabi University)

Abstract:
The inclusion of artificial intelligence (AI) in educational systems offers an innovative approach to sustaining educational outcomes and advancing feasible learning advancement. This paper investigates the effect of AI on creating learning practices that are productive, successful, personalized, and adjusted to curriculum objectives. Williams et al. (2021) stated that AI integration "can contribute to supportability by diminishing dependence on physical assets and advancing more proficient use of instructional framework" (p. 78). Through the presentation, the researcher explores the current AI innovations connected within the instructive segment and how they customize instructive substance to suit differing learning styles and paces. In addition, the researcher draws on the economic aspects of AI in education, such as optimizing authoritative forms, minimizing the need for physical assets, and empowering nonstop learning. Furthermore, the moral elements of AI utilization, including impartial access to AI tools and information protection, are addressed. Therefore, we are going to examine developing patterns and advancements in AI that have the potential to assist in moving forward sustainable learning. The paper will give experiences into the viable integration of AI into instructive frameworks to support personalized, comprehensive, and economical learning situations, eventually upgrading educational objectives that are tailored for all learners.

ID: 210 | The impact of integrating ChatGPT in Learning Statistics on student motivation at ADU

Mohamed NA Ahmed (Abu Dhabi University); Norasykin Zaid (University Technology Malaysia); ABDUL HALIM BIN ABDULLAH ABDULLAH (Universiti Teknologi Malaysia)

Abstract:
Context: The potential for artificial intelligence (AI) tools to improve educational experiences is increasing as they become more sophisticated. Nevertheless, there is a lack of understanding regarding the influence of sophisticated AI, such as ChatGPT, on student motivation in difficult subjects like statistics.

Objective: The objective of this study is to assess the effectiveness of incorporating ChatGPT into a Flexible Blended Learning Model and the effect it has on the motivation levels of adult learners in a general statistics course at Abu Dhabi University.

Method: The study will engage 160 students who are enrolled in a general statistics course. The students will be divided into three experimental groups, each consisting of 40 students, and one control group. A quasi-experimental design will be employed. ChatGPT will be incorporated into the learning process of the experimental groups to varying degrees. Motivation levels will be assessed through surveys administered prior to and following the intervention. Analysis will be performed in SPSS using ANOVA and MANOVA to compare variations in motivation among the groups.

Anticipated Outcomes: We anticipate that the experimental groups will exhibit a range of motivational enhancements in comparison to the control group. It is anticipated that the degree of motivational change will be inversely proportional to the degree of ChatGPT integration.

Implications: This study has the potential to inform pedagogical strategies for integrating AI tools such as ChatGPT into challenging STEM courses, thereby contributing to the expanding corpus of knowledge on AI in education. These findings may serve as a resource for educational policymakers and instructors who wish to employ AI to improve student motivation and, as a result, learning outcomes in the fields of statistics and related disciplines.

ID: 64 | Fostering Sustainable Digital Innovation in UAE Higher Education: Assessment of Quillbot Tool in Learning English amongst Students

Mohamed NA Ahmed (Abu Dhabi University); Norasykin Zaid (University Technology Malaysia); ABDUL HALIM BIN ABDULLAH ABDULLAH (Universiti Teknologi Malaysia)

Abstract:
The rise of technology in the education sector has brought about the integration of tools such as Quillbot to promote learning and streamline writing processes. This research delves into the utilization of Quillbot for English language education in universities across the UAE, aligning with both UN Sustainable Development Goal 4 (Quality Education) and the educational vision set forth by the UAE.
Through a quantitative approach, this study examines students' perceptions regarding the accessibility and efficacy of Quillbot in settings focusing on inquiries;
1. How do students perceive Quillbot's accessibility for studying purposes?
2. What are students' opinions on how effective Quillbot's features are in supporting writing tasks?
3. How do demographic variables like age and gender influence students' attitudes toward using Quillbot?
A stratified sample of 200 university students across the Emirates will be used.
This study conducts a thorough analysis of student feedback and perspectives, Utilizing techniques such as confirmatory factor analysis, binary logistic regression, and chi square tests.
This research holds value in shaping strategies that bolster digital literacy and innovation. Crucial elements for realizing the UAE's goal of a knowledge-based economy. By assessing AI-powered tools like Quillbot this study contributes to discussions surrounding methodologies, in todays digital era.
The results will provide information, for teachers, policymakers and tech experts backing the UAEs aim for higher education and technological advancement. By meeting the requirements of students and teachers while staying in line with the UAEs educational and innovative goals, the research delves into how technology, language learning and student views intersect. Its goal is to offer advice to promote lasting methods and back up the UAE's ambitions for a tech-savvy society.

Keywords: artificial intelligence, confirmatory factor analysis, digital tools.

ID: 390 | Advancing the Malaysian Qualifications Framework: Integrating Online Education, Digital Transformation, and Sustainability from 2017 to 2024

Rana Altounjy (Manipal GlobalNxt University); Dalwinder Kaur (Manipal GlobalNxt University)

Abstract:
The Malaysian Qualifications Framework (MQF), established in 2007, underwent a significant review in 2017 to align with the ASEAN Qualifications Reference Framework (AQRF). This revision restructured outcome domains into five clusters, emphasizing skill sets and integrating Technical and Vocational Education and Training (TVET) within an inclusive framework. In response to rapid globalization, the rise of lifelong learning, and the growth of digital learning technologies, the Malaysian Qualifications Agency (MQA) initiated further enhancements to the MQF. These efforts aimed to strengthen Values-Based Education (VBE), as outlined in the National Education Philosophy and the Malaysia Education Blueprint 2015-2025, and to ensure that all stakeholders are included and considered in the educational system through Flexible Learning Pathways (FLPs). This study delves into the MQF's transformative journey from 2017 to 2024, uncovering how these pivotal changes have redefined the educational landscape. The MQF, by embracing the shift to online education, the digital era, and sustainability, has positioned itself as a leader in educational reform. It highlights the alignment of these reforms with the Global Sustainability Agenda (GSA) and Sustainable Development Goals (SDGs), further solidifying the MQF's position as a forward-thinking framework that addresses the evolving demands of modern education.

ID: 517 | Evaluating School Librarians Knowledge, Awareness and Activities with United Nations' Sustainable Development Goals

Abdulmohsen F Alshuail (Kuwait University)

Abstract:
This research aims to evaluate school librarians' knowledge, awareness, and their activities towards attaining Sustainable Development Goals (SDGs) in various levels of education in public schools of Kuwait, more specifically United Nations' (UN) Sustainable Development Goal number four (SDG4). This study adopts a qualitative method of interviews for data collection, the interviews will target school librarians working in different levels of public schools in Kuwait. Findings have revealed that school librarians are participating in activities that support the attainment of SDG4, however awareness and knowledge on SDGs among school librarians is poor. Lack of funding, poor infrastructure and lack of technology were identified as some of the limitations towards attaining SDGs. This article brings a unique insight for professionals and researchers to understand the current awareness of school librarians and their activities towards attaining SDGs as well as understanding the important role of librarians with SDGs.

ID: 159 | Navigating the AI Revolution in a Higher Educational Context: A Call for Proactive Policy Frameworks

Basma Abu-Hassan (University to Business Education and Innovation Ecosystem); Diego Navarra (EU Business School & Studio Navarra)

Abstract:
The rapid advancement of artificial intelligence (AI) technologies in higher education presents both transformative opportunities and complex challenges. As AI technologies permeate higher education institutions, they hold transformative potential for teaching, learning, and administrative practices, necessitating a proactive approach to maximize their benefits while mitigating potential risks in order to ensure sustainability. This study argues that AI's integration into educational institutions necessitates the development of proactive and dynamic policy frameworks. Drawing lessons from the Industrial and Digital Revolutions, this research analyzes AI's potential for transforming pedagogical practices and administrative efficiency while highlighting critical ethical risks such as algorithmic bias, data privacy, and the potential deepening of educational inequalities. Through case studies of leading European and US institutions, this paper develops actionable policy recommendations aimed at ensuring responsible, equitable AI adoption in alignment with the United Nations Sustainable Development Goals (SDGs). The study underscores the need for multi-stakeholder collaboration in designing AI governance structures that preserve academic integrity and institutional autonomy.

ID: 165 | Information Seeking Behaviour of Climate Change News in UAE

Mohamed R Al Attar (Liwa College); Rafif Al Faisal (Liwa College)

Abstract:
In light of the growing focus of the Emirati media on environmental sustainability and climate change, this study delves into the information-seeking behaviour of the UAE population. It tries to understand media consumption patterns related to climate change in the UAE and explore the media outlets they depend on to seek information about climate change and how they perceive it. Additionally, it examines how news consumption on climate change affects people's knowledge of the problem and how exposure to the media helps in adopting behavioral patterns related to climate change issues which helps to understand media's role in encouraging individuals to adopt environmentally friendly behaviors and attitudes towards climate change mitigation and adaptation.

Keywords: Information Seeking Behaviour- Sustainability – Climate Change – Media Consumption

ID: 110 | Site Adaptation of Reanalysis GHI Using In-Situ Measured Data in Somaliland

Muhammad Umair Khan (Abu Dhabi University); Mohamed Jama (Abu Dhabi University)

Abstract:
Accurate solar resource assessment is critical for optimizing the performance and economic feasibility of photovoltaic (PV) installations. Global Horizontal Irradiance (GHI) data, derived from reanalysis models, provide extensive temporal and spatial coverage but often suffer from site-specific inaccuracies due to the limitations in capturing local factors such as local weather conditions and terrain characteristics. Site adaptation methods are deployed to correct the modeled GHI data using in-situ measurements. These methods provide a scalable solution for enhancing solar resource datasets, contributing to more accurate PV performance predictions and better-informed decision-making in solar energy projects.

In this study, site adaptation methods are applied to GHI data of seven reanalysis datasets, using linear and non-linear regression models. The site-specific adaptation process is evaluated using one-year of hourly, six-hourly, daily and monthly data along with analyzing the seasonal variations and clear-sky conditions at two locations in Somaliland. The preliminary results revealed pattern of an overall underestimation of GHI with varying degrees of accuracy in the estimated GHI datasets prior and post site adaptation. The annual ranges for rMBE, rMAE, rRMSE and R2 extend from 3–31%, 12–33%, 19–53% and 0.797–0.979, respectively, across all datasets for six-hourly data in the two observed stations. Following site adaptation, the ranges for rMBE, rMAE, rRMSE reduce to is 0%, 8–31%, 11–34% and R2 increase to 0.897–0.984 respectively. While certain datasets such as MERRA-2 and SARAH-2 demonstrated close alignment with ground data before site adaptation, others especially ERA5-Land exhibited exceptional improvement post site adaptation. Results indicate a significant reduction in all error metrics across both investigated sites, underscoring the effectiveness of the site adaptation models.

ID: 271 | Enhancing Cultural sensitivity and digital health communication through sustainable approaches: A critical review from the Global south perspectives.

Sydney Ndhlovu (Amrita Vishwa Vidyapeetham); Ram Chandra Kalluri (Amrita Vishwa Vidyapeetham)

Abstract:
Cultural sensitivity and digital health communication are crucial in various domains. Digital health communication has emerged as a vital tool for improving health outcomes in the Global South, but its effectiveness is often limited by a lack of cultural sensitivity. Culturally sensitive communication involves understanding one's cultural background, maintaining an open and sensitive approach to communication to ensure the best possible care. Aligning cultural sensitivity and digital transformation with the Sustainable Development Goals (SDGs) ensures a focus on sustainable perspectives and developmental accuracy.
This paper endeavours to ensure a harmonious combination of digital health communications and cultural sensitivity perspectives to educate Global south villagers on the varied roles of culture as both as a hindrance and a promoter in respective facets of its manifestation in establishing and executing proper while being sustainable sanitation practices. This paper critically reviews sustainable approaches to enhancing cultural sensitivity in digital health communication, drawing insights from case studies in Africa, and Asia. By integrating local cultural contexts into health communication strategies, we propose a framework for more effective and sustainable digital health initiatives.

ID: 623 | GREEN CAMPUS INITIATIVE: INTEGRATION OF SUSTAINABLE PRACTICES IN MANAGEMENT OF UNIVERSITY EDUCATION IN NIGERIA.

Mathew Sunday Dada (University of Abuja, Nigeria)

Abstract:
The Green Campus Initiative (GCI) is an innovative approach to integrating sustainable practices into the management of university education in Nigeria. Sustainable management practices involve developing strategies to efficiently and effectively meet the present needs of a university system with the limited resources without compromising the needs of future generations. Sustainability seeks to ensure that available resources are used responsibly and conserved for the long term; while addressing social and economic development challenges. The aim of GCI is to transform university campuses into models of environmental stewardship by promoting the efficient utilization resources, reducing carbon footprints, and enhancing the overall quality of education through sustainability. This study explores the implementation of GCI in Nigerian universities, focusing on areas such as energy conservation, waste management, water efficiency, and green building practices in the university administration. The implementation of GCI could foster a culture of sustainability among staff and students and catalyze climate action within university communities while achieving long-term cost-effectiveness in the management of university education thereby promoting environmental consciousness. It is hoped that the findings will not only address environmental concerns but also align with global trends in education management, positioning universities as key players in driving Nigeria's transition to a green economy. The recommendations of the study would offer insights that could inform policy reforms, capacity building, and community engagement to ensure the sustainability of GCI within the education system.

Keywords: Green Campus, Sustainable Practices, University Management, Energy Conservation & Waste Management.

ID: 48 | Application of LCA approach to design NetZero Buildings

Shrirang Bhoot (Department of Civil Engineering, Visvesvaraya National Institute of Technology (VNIT), Nagpur); Dr. Rahul Ralegaonkar (Department of Civil Engineering,Visvesvaraya National Institute of Technology (VNIT), Nagpur)

Abstract:
In order to design the Net Zero buildings considering the lifespan, the emissions before the building operation phase and end-of-life phase of the building are to be incepted. Hence, it is important to do a complete assessment of the building right from the selection of appropriate construction materials till its end-of-life. The life cycle assessment (LCA) approach is helpful in evaluating the impact of new products or processes in terms of CO2 emission values. However, there are several other important parameters for evaluating the life cycle impact assessment. These parameters are used in studying the damaging effect on human health, ecosystem, and resources, which also need to be considered while planning for designing net zero buildings. The present study shall brief the contribution of these parameters that can be assessed and quantified to achieve net zero buildings. This can also help to access the possible sustainable alternatives while designing the buildings. ReCiPe2016 method is elaborated in detail for assessing the impact of buildings. Based on the presented study the recommendations and a strategy plan are framed for selecting the LCA approach to net zero buildings. The present approach will help relevant stakeholders to recognize the importance of the LCA approach in designing the net zero buildings.

ID: 212 | Socio-Economic Inequalities in the Goals of Agenda 2030: A Model for European Countries

Mario Muella (University of Naples Federico II); Ida Camminatiello (University of Campania L. Vanvitelli); Rosaria Lombardo (Università della Campania "L.Vanvitelli")

Abstract:
In the context of current global commitment towards achieving the Sustainable Developments Goals outlined in the United Nations' 2030 Agenda, understanding the interconnections between various indicators is essential for optimizing policies and interventions. In the literature, there is a debate regarding which indicators to use for monitoring the 2030 Agenda's goals. The most common methods used to evaluate 2030 Agenda include the SDG Index explicitly designed to assess 2030 Agenda, the Organization for Economic Cooperation Development Distance Measure, and the Progress Measure developed by Eurostat. It has been observed that the choice of which of these indicators to use can influence the perceived progress of the Agenda's goals [2].
Our focus is on poverty and inequality. One study on dependencies has already been conducted in Italy, considering Italian regions and a regression technique that accounts for multicollinearity [1], identifying a dependency among various indicators of different Agenda 2030 goals. For example, improving education (goal 4) shows a significant correlation with progress in reducing poverty (goal 1).
Based on these premises, this study aims to extend the analysis to the European case, considering international indicators and European countries. These findings not only provide crucial insights for policymakers but also contribute to a more integrated understanding of sustainable development dynamics within the European context. This study offers an innovative contribution to the existing literature by proposing a methodological approach for analyzing the interdependencies among SDGs and providing practical recommendations for improving sustainable development policies.

ID: 462 | Smart System Architecture in Higher Education with a Cyber-Physical System (CPS) Approach

Azizah Zakiah (School of Electrical Engineering and Informatics, Bandung Institute of Technology)

Abstract:
The Cyber-Physical System (CPS) architecture for higher education integrates cyber-physical system technologies to enhance efficiency and innovation within academic environments. CPS employs sensors, actuators, and computing systems to bridge the cyber-physical worlds, enabling improved monitoring and control. This architecture consists of an instrumentation layer for data collection, an information system layer for processing, and a business intelligence layer for strategic decision-making. Gamification is incorporated to boost user engagement. Additionally, CPS focuses on people (stakeholders), processes (workflow and system interactions), and technology (hardware and software) to create an adaptive and connected educational environment. The implementation of CPS supports campus management efficiency and innovation in education, contributing to sustainable digital transformation. This abstract outlines how CPS architecture can be effectively implemented in higher education, highlighting its main benefits and challenges

ID: 461 | TEACHER TRAINING AND PROFESSIONAL DEVELOPMENT IN THE DIGITAL ERA

Maha Yaqoob Al Balushi (University of Technology and applied sciences-SUHAR)

Abstract:
In the fast-evolving landscape of education, continuous professional development is crucial for adapting to the demands of the digital era. This paper argues for the necessity of regular, diversified professional development, combining both online and in-person approaches. With the rise of new technologies, including artificial intelligence (AI), machine learning (ML), and digital learning platforms, educators must be equipped with hands-on experience in using and critically assessing these tools. The study also explores recent research emphasizing the importance of face-to-face training for practical experimentation, ensuring that teachers can apply digital skills in diverse educational contexts; thus, students will be well educated and trained for the bright digital future of their countries and the world.

ID: 86 | AKE index: Awareness, Knowledge, Education on environmental pollution in Italian high-school students

Gianna Serafina Monti (University of Milano-Bicocca); Sara Villa (University of Milano-Bicocca); Ilaria Corsi (University of Siena)

Abstract:
Promoting environmental education is essential to cultivate an informed and attentive society. Accordingly, it is crucial to evaluate the degree of knowledge on environmental issues among young individuals. This article aims to assess high school students' perception and knowledge of these matters with a case study in Italy.
A comprehensive questionnaire addressing several questions on environmental pollution on a broad scale was distributed to a sample of high-school students across the country. The variables examined include gender, location of residence, and curriculum. These variables have been considered to develop the AKE (Awareness, Knowledge, Education) index, which is proposed as a novel metric to summarise teenagers' level of understanding, expertise and education with respect to the environmental pollution issue.
Our findings indicate that Italian adolescents exhibit a moderate to high level of AKE, with a discernible increase among older cohorts. Nonetheless, subtle gender differentials have emerged. Moreover, the curriculum exerts a considerable influence on the AKE index, indicating unequal emphasis on environmental issues across high school curricula.
Therefore, Italian educational establishments are encouraged to uphold consistent standards of education, ensuring that society is adequately educated about environmental issues and equipped to address them effectively in the future.

ID: 215 | Exploring the Institutional Factors Affecting the Development of Social Entrepreneurship in Different National Contexts

Yulia Aray (GSOM SPbU (Russia), MBRSG (UAE)); Karina Bogatyreva (GSOM SPbU); Daria Leus (GSOM SPbU)

Abstract:
This paper explores the development of social entrepreneurship from an institutional perspective. The study focuses on how formal and informal institutions impact the state of social entrepreneurship in different national contexts. We build up our research on two opposing perspectives in institutional theory: institutional voids and institutional support. We test both perspectives based on the Global Entrepreneurship Monitor (GEM) 2022 country-level data. Our key results show that strong formal institutions enhance the development of social entrepreneurship, while institutional voids do not support. In light of the two previously described conflicting perspectives and the duality of formal institutions' effects, we next present evidence of a curvilinear inverted U-shaped relationship between social entrepreneurship and formal institutions. This novel result opens an avenue for policymakers in shaping the regulation and institutional environment in social entrepreneurship. This paper contributes to the institutional theory, of social entrepreneurship field of research and discusses ways to encourage its development to further foster achievement of the UN SDGs.

Philanthropy and Corporate Social Responsibility in Digital Age

ID: 206 | Global business citizenship and SDGs: Bibliometric analysis mapping corporate social responsibility and related engagements (2016-2024)

Godwell G Nhamo (University of South Africa)

Abstract:
The subject of global business citizenship and corporate social responsibility (CSR) is not new. However, new impetus emerged propelled by the need to move quicker towards the attainment of the 2030 Agenda for Sustainable Development whose heartbeat pivots on the 17 inseparable Sustainable Development Goals (SDGs). To this end, this paper utilises the Scopus database and its embedded analytical tools, as well as VOSviewer to undertake a bibliometric analysis teasing out global citizenship as portrayed by companies' CSR activities undertaken in the context of SDGs. The findings show that CSR activities and reporting remains as one of the pathways to attain SDGs. Results further advocate for the use of the SDGs as a framework for CSR engagements as such a framework still lacks with over 70 years of CSR reporting. The SDGs framework and its localised indicators could unlock integrated, strategic, balanced, and effective and genuine CSR engagements by all businesses, whether small, medium, or large scale. Apart from focusing on environmental SDGs (SDG13-15), socially oriented SDGs (SDGs 1-6, SDG8 and SDG10) remain critical. CSR implementation activities also assist in partnership development, thereby addressing SDG17. The SDGs framework is also informing the development of corporate strategies that inform CSR activities. Moving forward, all businesses are encouraged to remain and/or jump into the businesses of implementing CSR projects drawing from and/or aimed at attaining the SDGs. Both voluntary and regulatory regimes promoting genuine CSR activities should be put in place to guard against corporate window-dressing and greenwashing tendencies.

ID: 652 | Opportunities for the Growth of Social Entrepreneurship in Kazakhstan Amid the Development of Digitalization

Dzhulaeva Almazhan (Al-Farabi Kazakh National University); Yerezhepova Aimankul Abdykaimovna(Al-Farabi Kazakh National University)

Abstract:
The purpose of this article is to identify opportunities for accelerating the development of socially-oriented entrepreneurship in Kazakhstan in the context of digitalization.

ID: 79 | The Role of Artificial Intelligence in Enhancing Corporate Governance and Achieving Sustainable Development "A Comparative Analytical Study"

Dina Imad (Abu Dhabi University); Suzali Sulaiman (Abu Dhabi University); Mohamed Al Aryan (Abu Dhabi University)

Abstract:
Corporate governance is one of the key mechanisms aimed at ensuring the effective performance and ethical behavior of companies. It involves establishing the necessary rules and structures to control the direction of companies, with the goal of achieving the required balance among the stakeholders in the company. Therefore, the responsibility of implementing governance rules and standards falls on the boards of directors of companies or their managers, as appropriate. In fact, violating the regulatory decisions of governance leads to the imposition of financial fines according to Articles 6 and 7 of Federal Decree-Law No. (32) of 2021 concerning Commercial Companies.
Artificial intelligence (AI) technologies have significantly transformed traditional business models and methods of management and decision-making in the field of corporate governance. These technologies possess tremendous capabilities in identifying various patterns, conducting predictive analyses, and automating decisions. This transformation reflects the enormous potential of AI in improving corporate governance, which plays a crucial role in achieving sustainable development. Despite the immense potential of AI, its application in corporate governance remains largely unexplored, with uncertainties surrounding its implications. Furthermore, it faces significant legal challenges, particularly concerning ethics related to privacy, fairness, accountability, transparency, and disclosure.

Keywords: artificial intelligence, corporate governance, sustainable development, accountability, financial penalties.

ID: 633 | Corporate Governance and Social Responsibility in the Digital Era

Ghadeer Aseri (Kuwait International Law School); Dr. Ghadeer Aseri (Kuwait International Law School)

Abstract:
This research article focuses on the contemporary developments in the area of corporate governance and social responsibility in the digital era. The purpose of this research is to examine the impact of technology on governance systems and corporate accountability through technology such as AI, big data and automation. Analyzing the legal instruments of the contemporary world like the Sarbanes-Oxley Act, the GDPR, and the EU's CSRD, the article gives an overview of the governing policies in corporate governance in the digital environment. The research methodology includes a doctrinal and comparative analysis of the existing legislation, an assessment of the activities of the companies, such as Facebook, Tesla, and Amazon, and a detailed consideration of ethical and legal consequences. The article describes how organizations are using tools and data analytics to enhance and refine CSR strategies by using technology to enhance the ethical standard and sustainability agenda. Results reveal that although digitalization has the potential to improve the effectiveness of transparency and ethical responsibility, it presents threats that pertain to privacy and security, data protection and displacement of the workforce. Setting up good standards of technological innovation along with good corporate governance has become mandatory due to rising societal expectations. It points out that there is a need to enforce rules on top of currently existing ones, and companies' conduct to become more ethical given the trend of digitization.

Keywords: Corporate Governance, Social Responsibility, Sarbanes-Oxley Act (SOX), General Data Protection Regulation (GDPR), Modern Slavery Act.

ID: 551 | Corporate Social Responsibility (CSR) and Sustainability

Zainurin bin Dahari (Higher Colleges of Technology(HCT)); Rachid Moustaquim (Higher Colleges of Technology (HCT))

Abstract:
Many studies refer to social, environmental, and governance practices of businesses as corporate social responsibility (CSR). Other studies refer to the same practices as corporate sustainability (CS). Some other research refers to both concepts at the same time, leading to confusion between these two concepts among researchers and practitioners. This article reviews the literature that discusses simultaneously CSR and CS. The objective is to identify what relationship these articles establish between these two concepts (intentionally or unintentionally). We discovered that these articles establish four types of relationships between the two concepts. They are Complementarity: one of the two concepts complement the other; Component: one of the two concepts is a component of the other; Mediation: one of the two concepts is a means to achieve the other; and Similarity: The two concepts are similar. However, this differentiation only creates more confusion around these concepts. Managers and company directors need greater clarity to be able to integrate these concepts as practices into their activities, and this lack of consensus prevents them from performing well in this field. We believe that unifying these two concepts can have a positive effect on their adoption at company level.

ID: 187 | Building Sustainable Supply Chains: Collaboration Capacity in Emerging Markets

Ioannis Christodoulou (Graduate School of Management, Saint Petersburg State University); Polina Potapova (Graduate School of Management, Saint Petersburg State University); Yulia Aray (GSOM SPbU)

Abstract:
This study investigates the capacity for Sustainable Supply Chain Collaboration (SSCC) among companies in emerging markets. Despite growing interest in sustainability, the mechanisms for SSCC in these markets remain under-explored. This research aims to address this gap by establishing a theoretical framework and analysing practical applications of SSCC through ESG reports and expert interviews. The study's primary objective is to assess SSCC capacity within emerging markets, particularly Russia. The methodology includes a country-level assessment of ESG reports, and expert interviews to elucidate the specifics of building sustainable supply chains. The analysis of ESG reports is expected to reveal that most companies are in the early stages of SSCC, focusing on partner selection based on ESG criteria. Common practices likely include local supplier prioritisation, ESG due diligence, and external certification. Expert interviews are anticipated to highlight the barriers in this process political instability, lack of standardisation, and many more.
Key factors influencing SSCC in emerging markets are expected to include robust mechanisms for information sharing, goal alignment, and resource integration, all in digital formats. The regulatory environment often lacks necessary frameworks for SSCC, necessitating collaboration with local governments and industry associations. Integration of digital tools is anticipated to enhance SSCC through improved transparency, traceability, and efficiency.
The anticipated contributions of this research are both theoretical and practical. Theoretically, it aims to bridge SSCC foundations with empirical evidence from an emerging market. Practically, it seeks to provide insights for companies in emerging markets on implementing SSCC practices, offering insights for developing effective SSCC strategies and contributing to SDGs.

ID: 295 | Integration of Artificial Intelligence in Strategic Communication Practices: An Ethical Perspective

Engy Dr. Khalil (University of Sharjah)

Abstract:
Artificial intelligence encompasses technologies designed to emulate advanced human cognitive abilities and mental functions, including learning, reasoning, responding, and devising intelligent solutions. This field is predicated on the assumption that human intelligence can be sufficiently articulated to allow machines and digital systems to replicate it. In recent years, organizations have increasingly sought to leverage the capabilities of artificial intelligence, not only to automate and refine service delivery but also in areas such as content creation, stakeholder relationship management, media campaigns, and other facets of strategic communication that fundamentally depend on the cognitive and intellectual understanding of human practitioners. This application raises pertinent questions regarding the ethical dimensions of artificial intelligence and its unity with corporate social responsibility in the modern era.
Given the profound impacts of artificial intelligence on various aspects of strategic communication, this study aims to systematically review and evaluate contemporary research concerning the ethics of artificial intelligence in this context. The review focuses on studies published from 2020 to 2024 to offer a nuanced ethical perspective on the research trends in this area. The study endeavors to delineate critical issues addressed by these research efforts, identify the theoretical frameworks employed, analyze and compare the methodological approaches adopted, and discuss the principal findings and recommendations of the reviewed studies. This research constitutes a second-level analysis, focusing on systematic and analytical reviews of existing scholarly literature. One notable finding of this study is the observed decline in scholarly attention to the ethical challenges associated with utilizing artificial intelligence in strategic communication practice.

ID: 79 | The role of artificial intelligence in enhancing corporate governance and achieving sustainable development A comparative analytical study

Mohamed Aly Ahamed Mohamed(Abu Dhabi University); Dina Imad (Abu Dhabi University); Mohamed Al Aryan (Abu Dhabi University); Suzali Sulaiman (Abu Dhabi University)

Abstract:
Corporate governance is one of the key mechanisms aimed at ensuring the effective performance and ethical behaviour of companies. It involves establishing the necessary rules and structures to control the direction of companies, with the goal of achieving the required balance among the stakeholders in the company. Therefore, the responsibility of implementing governance rules and standards falls on the boards of directors of companies or their managers, as appropriate. In fact, violating the regulatory decisions of governance leads to the imposition of financial fines according to Articles 6 and 7 of Federal Decree-Law No. (32) of 2021 concerning Commercial Companies.
Artificial intelligence (AI) technologies have significantly transformed traditional business models and methods of management and decision-making in the field of corporate governance. These technologies possess tremendous capabilities in identifying various patterns, conducting predictive analyses, and automating decisions. This transformation reflects the enormous potential of AI in improving corporate governance, which plays a crucial role in achieving sustainable development. Despite the immense potential of AI, its application in corporate governance remains largely unexplored, with uncertainties surrounding its implications. Furthermore, it faces significant legal challenges, particularly concerning ethics related to privacy, fairness, accountability, transparency, and disclosure.

Keywords: artificial intelligence, corporate governance, sustainable development, accountability, financial penalties.

ID: 561 | EXPLORING YOUNG ADULTS' INTENTION TOWARDS ADOPTION OF SUSTAINABLE TRANSPORTATION

Dr Soney Haris (St Joseph's College of Commerce); SYRIAC NELLIKUNNEL DEVASIA (Perdana University)

Abstract:
Travelling has been a hobby for every individual these days. Most of the journeys are made through the usage of different modes of transportation. Transportation has been a major flow of commutation purpose to access various destinations "to and fro" and has negatively impacted nature.

Sustainable mobility plays a vital role in developing a better environmental strategy. The term "Sustainable mobility" simply means "Green driving" which aims to promote vehicles to run that do not affect nature. They provide various measures to reduce the negative impact on the environment by promoting society's usage of carpooling, public transportation, and other measures such as walking, cycling, etc. (Coconea, 2023).

The city of Bengaluru, in India is expanding and developing quite faster, but the problem arises when traffic congestion takes out the disadvantage of the city. This is where a solution is needed to be raised to make awareness for every individual to shift towards sustainable transportation practices. Younger adults tend to be more active towards changing the world. They are meant to adapt towards encouraging the use of sustainable transportation that could play a lead role in national development in the future. Hence, this research study has been taken forward to find a better solution to this problem. The research study explores the intention and adoption of sustainable transportation among young adults in Bengaluru, Karnataka, India. The major elements focused in this research study are perceived benefits, affordability, and environmental values. The research study identifies the opinion and attitude of young adults' intention and adoption towards sustainable transportation. Overall, this research study provides various recommendations to the government, policy-makers, and the public regarding practicing sustainability in transportation.

Keywords: Sustainable, Sustainable Transportation, Young Adults, Intentions, Environmental Values, Behaviour

ID: 81 | Sustainability Practices: A Study for Retailers

Hans Harischandra Tanuraharjo (Universitas Bunda Mulia); Siti Yasmina Zubaedah (Universitas Bunda Mulia)

Abstract:
The increasing concerns over global warming and in order to fulfill corporate obligations, especially for public companies in Indonesia, have led to the necessity for embedding sustainability programs in corporations. Despite the complexity in managing retail operations, especially for chain retailers, sustainability practices are essential to ensure compliance and maintain competitiveness. This article provides an overview of a series of programs initiated by a large chain retail company to demonstrate the increased value created when thriving to achieve the Sustainable Development Goals (SDGs). Based on the analysis on one of the largest retail chains in Indonesia, the objective of this study is to show evidence on attaining competitive advantage through the implementation and development of sustainable practices in retail. Thick descriptions on the implemented Environmental Social Governance (ESG) programs detailed in the Company's Sustainability Reports over the course of five years offer insights on the effective approach for organizing sustainability principles in retail. Specifically, the investigations addressed the necessary approach for formulating sustainability programs that go beyond compliance. The results of this study show that a gradual shift in retail practices towards sustainability allows for increased efficiency and perpetually growing value for all stakeholders. Ultimately, this study marks the beginning of the instillation of sustainability practices in Indonesian retail and hopes to inspire more retailers to adopt such valuable practices that aim to contribute to community well-being, environmental preservation, and profitable gains.

ID: 710 | Healing Through the Senses: Transforming Patient Experience at Medcare Royal Specialty Hospital, Dubai

Dr. Priyanka Pathak (Ganpat University); Dr. Suraj Shah (Ganpat University); Dr. Remi Mitra (Ganpat University); Dr. Mahendra Sharma (Ganpat University)

Abstract:
In an increasingly competitive healthcare landscape, hospitals are turning to innovative strategies to improve patient experience and build lasting connections with their communities. Medcare Royal Specialty Hospital in Dubai has emerged as a frontrunner by implementing sensory branding to enhance the patient journey. Sensory branding goes beyond traditional branding by engaging multiple senses (sight, sound, scent, and touch) to create a memorable and comforting atmosphere that resonates emotionally with patients and their families. This case study explores how Medcare Royal has leveraged sensory branding to shape a unique patient experience, setting a benchmark for patient-centered care in the region and reinforcing its position as a leader in healthcare excellence.

Shaping Tomorrow: Health, Nutrition, and Social Science Advancements

ID: 115 | Predicting Carbon Footprint Using Machine Learning Models

Ajmila Islam (American University in Dubai); Ajmila Islam (American University in Dubai); Marwa EL RAI (American University in Dubai); Siba Moussa (American University in Dubai)

Abstract:
The global rapid climate change due to the advent of technologies is increasingly impacting on the well-being of current and future generations. Carbon footprint is an important indicator directly reflecting the contributors of greenhouse gas emissions and climate change. This paper introduces machine learning (ML) based predictions of carbon footprint across 25 countries. The current cross-sectional study was designed to include participants of different ages and countries of residence. Participants were selected randomly to self-complete survey questionnaires and record their carbon footprint percentage, and CO2 emissions linked to five major contributors such as food, shelter, mobility, goods, and services. This study used nine different machine learning (ML) algorithms such as linear regression, random forest regression, and support vector regression to predict carbon footprints and identify demographic and socio-economic variables among the countries. Our ML-based predictions of carbon footprint are shown to be impacted by age and country of residence of the participants. Thus, this work highlights the importance of age-based and regional factors in policymaking for controlling and minimizing carbon emissions.

ID: 564 | Neurotoxic Effect of In-vitro Exposure of lMSG and CAMSG on Rat PC12 Neuronal Cells

Rukhsana Nawaz (UAE University)

Abstract:
Glutamate plays a crucial role as a neurotransmitter in the central nervous system, but its analog, l-monosodium glutamate (lMSG), can induce excitotoxicity at elevated levels. Excessive dietary intake of lMSG has been associated with symptoms such as muscle tightness, headaches, arrhythmias, and general fatigue. Although the neurotoxic effects of lMSG have been widely studied, the impact of commercially available MSG (CAMSG) remains underexplored. Recent studies have shown that over 30% of individuals consuming high levels of MSG experience adverse reactions, including neurological symptoms. This study aimed to compare the neurotoxicity of CAMSG and lMSG on PC12 cells (rat adrenal pheochromocytoma) to identify safe consumption levels. Using MTT and lactate dehydrogenase assays, we assessed cell viability and toxicity, while qRT-PCR was employed to measure the expression of apoptotic genes caspase3 and Bcl-2. Results indicated that both CAMSG and lMSG reduced cell viability and increased toxicity in a dose-dependent manner, with CAMSG exhibiting greater toxicity. Notably, while the NMDA blocker MK801 mitigated caspase3 expression in lMSG-treated cells, it failed to do so for CAMSG-treated cells. These findings underscore the higher toxicity of CAMSG, suggesting the need for caution in its dietary use to prevent potential health risks.
Key Words: Monosodium glutamate, toxicity, rat adrenal pheochromocytoma cells, caspase 3, Bcl-2 gene.

ID: 565 | Potential Biomarkers in Association with Depressive Disorder in UAE Patients Compared to Healthy Controls: A Preliminary Study

Rukhsana Nawaz (UAE University)

Abstract:
Background: Major depressive disorder is a major health problem around the world. A pilot study was designed to investigate the effect of psychotherapy and/or psychiatric medication on gene expression in patients with depressive features. It is believed that epigenetic factors such as environment, lifestyles and/or psychiatric medication affect gene expression without altering DNA sequence.

Method: In this study, we included 50 patients with depressive disorder and 50 healthy controls. The age range of participants was 18 to 65. Participants were clinically assessed by using self-report depression scales such as the Patient Health Questionnaire-9 (PHQ-9) and Beck's Depression Inventory (BDI-II). Blood samples were collected from all participants and a gene expression profile was analyzed to determine the relative expression of target genes ADCY3, DGKA, FAM46A, CADM1, MARCKS, KIAA1539, and RAPH1 in RNA samples of depressive patients and controls using Quantitative Real-Time PCR (qRT-PCR).

Results: Independent t-test was employed to compare the differences in gene expression levels between studied groups. Our results showed no significant difference in gene expression between the patients and healthy controls.

Conclusion: These results exposed several options for Similar and further research with a larger sample size may provide future insight for better understanding.

Key Words: DNA, Quantitative Real-Time PCR, DNA, Quantitative Real-Time PCR, Depression, ICD-10, Potential Biomarkers, Gene Expression

ID: 666 | UAE's Green Diplomacy: A transition of UAE Foreign Policy towards Sustainable Collaborations

Aditi Chatterjee (Abu Dhabi University)

Abstract:
UAE's foreign policy in the past couple of years have leaned increasingly towards green diplomacy for fostering a sustainable future. In the past decade, there has been a significant shift from the security centric and interventionist Emirati foreign policy especially in Yemen, Syria and Libya to a more non-aligned, trade and economy centric foreign policy making, with a major policy thrust on climate, sustainability and environment. The paper argues that whist, during Arab Spring the UAE was regarded as an overbearing regional actor prepared for strong military intervention when required, this changed when UAE launched the vision of 2021 of Soft Power plan in 2010. Gradually since then there was shift from the oil-based economy's hard-power strategy to a more tolerant and knowledge-based economy. In 2015 since the UAE government launched the UAE Green Agenda of 2030, there has been a further transition in UAE's foreign collaborations towards promotion of green technology and renewable energy. This dynamic change in UAE's foreign policy making has been implemented under the robust and visionary leadership of HH Sheikh Mohamed bin Zayed al-Nahyan, the President of the UAE. The Emirati leadership through its comprehensive foreign policy making has been successful in the creation of a global image of the UAE as a socially inclusive and politically neutral nation of the Middle East. The paper also enunciates how climate change resilience and environmental sustainability has become the cornerstone of UAE foreign policy. Through collaborative efforts and continuous innovation such as hosting of the COP 28 in December 2023, the UAE has signaled that its foreign policy has recognized the urgent need of transition from a major hydrocarbon exporter economy to a sustainable post-oil economy. UAE's foreign policy strategies are now a combination of its economic growth goals and decarbonization agenda fostered through green diplomacy with her global and regional partners.

ID: 670 | Bridging Healthcare Disparities: How Public Policy Can Foster Corporate Philanthropy in Digital Health

Hagar Mohamed Aly (Liwa college); Mahmoud Khalifa (College of Administrative Sciences, Applied Science University – Bahrain)

Abstract:
This article aims to identify public policy tools that can encourage companies to engage in digital health corporate philanthropy to address these persistent inequities. Research documents how state governments can promote corporate philanthropy in digital health. Corporate philanthropy provides social welfare for governments, businesses and citizens to support vital public services and opens up opportunities for research into implications, research, and potentially greater public-private partnerships. This article sought to respond to research key question: What are the contributions of corporate philanthropic tendencies in digital health for national policy implementation? The findings contribute to gaps in the literature on inclusive health care and provide insights into policy implementation, as well as the potential to inform government policies. This article addresses interdependent issues of health disparities through the evolving worldview and the role of corporate philanthropy in its implementation. The study identifies public policy tools that can encourage corporate philanthropy in digital health, and highlights the potential for closing health disparities by strategically aligning public policy with corporate social responsibility initiatives. The findings provide policymakers and philanthropic corporate executives with an actionable framework for working together to increase access and equity in healthcare.

ID: 671 | Digital Transformation Policy in the UAE Healthcare

Hagar Mohamed Aly (Liwa college); Amina Toumi (Liwa College); Mahmoud Khalifa (College of Administrative Sciences, Applied Science University – Bahrain)

Abstract:
The Department of Health (DOH) in the Emirate of Abu Dhabi plays a vital function in overseeing and guiding the healthcare sector, consisting of licensing experts and centers and making sure of extremely good services. Recognizing the significance of digital transformation, the DOH has emphasized adopting eHealth technologies, with public area hospitals now linked beneath a unified affected person information system. This coverage paper outlines the DOH's vision for using digital health technologies to promote man or woman-centric healthcare, aiming to enhance verbal exchange, responsiveness, get entry to, excellent, and safety of healthcare offerings. It defines virtual health because the value-efficient, stable, and ethical use of records and conversation technologies for fitness. The paper explores the one-of-a-kind classes of faraway technology servicing telemedicine, along with far-flung physician consultations and telemonitoring, which may be deployed on committed or non-committed platforms. It additionally highlights the range of telemedicine specialties, Biochips, and Biosensors. The policy considerations mentioned encompass the quantity to which digital fitness technologies can be used in care transport, and the ability for monetizing information to boost research and innovation at the same time as defensive character privateness and records possession. The transformation expected might convey cutting-edge patient administration, electronic fitness file, and medical statistics systems to the healthcare setup.

ID: 678 | “Investigating Surface and Anticancer Properties of Novel Ti(IV) Complexes with Cationic Surfactants”

Hend Mohamed Ahmed , Sameh Elsonbsty , Amina Eltomi (liwa college) , Rania Hamdi, Al Shaimaa M Hamoda(Sharjah University) ,Sahar Ahmed Mostafab , Dina Abdel Kaderb (Egyptian Petroleum Research Institute (EPRI))

Abstract:
This investigation centered on synthesizing and characterizing a series of cationic titanium-based surfactants, involving the complexation of fatty amines (ranging from C10 to C18) and amino acids (Histidine and Arginine) with titanium (IV) chloride. The resulting metallo surfactants were rigorously identified through elemental microanalysis, FTIR, and 1H NMR spectroscopy. Key properties such as water solubility, surface tension, and antitumor activity were comprehensively assessed. The study revealed that these compounds exhibit good water solubility and distinct surface properties, including critical micelle concentration (cmc), effectiveness, efficiency, maximum surface excess (Γmax), and minimum surface area (Amin). Additionally, standard free energies of micellization and adsorption were calculated to understand the thermodynamic behaviors of these surfactants. Cytotoxicity assays conducted against A549 cancer cells highlighted two complexes, Ti2 and Ti4, as exceptionally potent, demonstrating significant antitumor activities with favorable therapeutic indices. These findings suggest that the structural and surface-active properties of these titanium-based complexes can be effectively harnessed for biomedical applications, particularly in targeted cancer therapies. The detailed characterization of these metallo surfactants not only advances our understanding of their potential in medical applications but also confirms their capability to balance efficacy with safety, making them promising candidates for further development in the field of cancer treatment.

ID: 98 | Obesity: gluttony, sloth and a lack of willpower?? A case report on combating obesity and cardiovascular disease through healthy lifestyle behaviors.

Reimara Valk (American University in Dubai); Haitham Solh (American University in Dubai); James Hammill (American University in Dubai)

Abstract:
The objectives of this case report on obesity and cardiovascular disease are twofold:
• to expound on the lifestyle factors that contribute to the onset and perpetuation of obesity and CVD.
• to illustrate how personalized lifestyle behavior changes focused on diet, intermittent fasting, physical activity and stress management can result in reversing obesity and regaining good cardiometabolic health.

ID: 552 | “The Earth Has Fever”: Anthropomorphism and “Ecological Sensibility” in Children’s Literature.

Ghadeir Alkindi (United Arab Emirates University)

Abstract:
This paper aims to examine the use of anthropomorphism the—depiction of non-human creatures or objects as humans—in children’s literature to raise awareness of “ecological sensibility” among children. To explore this idea, the study will analyze sixty children’s books (both Arabic and Western texts) and compare and contrast them.
While searching for children’s books on this topic, I found many Western resources but only a limited number of Arabic ones. Additionally, Emirati children’s books on this subject are limited, which highlights the need for more production and creativity in this area. This is particularly significant as the government is focused on sustainable projects to enhance the quality of life in the UAE.

ID: 490 | Psychological Factors Influencing Consumer Adoption of Sustainable Mobility in EuropePsychological Factors Influencing Consumer Adoption of Sustainable Mobility in Europe

Nikolett Gyurián Nagy (Széchenyi István University)

Abstract:
The transition to sustainable mobility represents a pivotal step in the attainment of Europe’s environmental objectives. Notwithstanding the technological advancements in sustainable transportation solutions, consumer acceptance remains a significant obstacle. The objective of this study is to examine the psychological factors that affect the uptake of sustainable mobility solutions among European consumers through a systematic review of the relevant literature. The study focuses on one of the newest and most innovative technologies, namely the adoption of hydrogen technology. The research employs the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology to identify and synthesize existing scientific evidence, with a particular focus on key psychological factors such as attitudes, perceived behavioral control, social norms, and values that influence consumer behavior. The review examines the extant literature and concludes by proposing a research model delineating the most influential psychological factors in consumer acceptance. The model incorporates validated scales that have been adapted to align with the European market. The central element of this model is the intention to adopt a given behavior, which is influenced by a number of factors, including motivation, attitude, environmental awareness, risk perception, general perception, and cost perception. The interplay of these factors and their mechanisms of impact constitute a complex system, the comprehension of which is crucial for facilitating the proliferation of sustainable mobility. This model serves as a point of reference for future empirical studies to bolster the adoption and implementation of sustainable mobility in Europe. The findings will offer valuable insights for stakeholders to develop strategies to promote sustainable mobility solutions tailored to consumer psychology.

ID: 260 | Determining Factors Influencing Curtailment Behavior: An Empirical Study on Students in India

Sheenam Ayyub (Jamia Millia Islamia)

Abstract:
Environmental degradation is affecting all prospects of our life, be it ecological, economic, and, social. Pollution kills more than 1.2 million people every year and is the fifth principal cause of death in India (Times of India, 2017). It has become necessary to change people's behavior and promote sustainable resource usage. Owing to the increased prominence of environmental concerns and the subsequent efforts of governmental agencies, non-governmental organizations, and local environmentalists raise awareness of society's impact on the environment (Brown, 2008; Kilbourne and Pickett, 2008; Manaktola and Jauhari, 2007). Youths are the ones who have shown more concern towards environmental problems (Adnan et al., 2017). Understanding the youth's perspective and lifestyle towards environmental behavior is crucial as they are the future consumers and representatives.
In this paper, the authors aim to determine factors that influence curtailment behavior among the students of different Universities. Improved education levels and purchasing power have made India's consumer story more compelling. The present study will further help in gaining a more in-depth insight into not only the economic future of the sustainable market but also suggest factors that motivate the users to curtail unnecessary usage of available resources.

ID: 321 | The Association between Mortgage Delinquency and Suicide in the US

Jenny Berrill (Trinity College Dublin); Rawayda Abdou (Technological University Dublin); Damien Cassells (NUI Maynooth); Jim Hanly (Technological University Dublin)

Abstract:
The impact of home foreclosure on suicide has recently been investigated within the literature but the impact of mortgage delinquency on suicide has not yet been explored. We examine this relationship using a unique dataset of mortgage delinquency rates produced by the Mortgage Bankers Association and suicide data from the U.S. Centers for Disease Control and Prevention WONDER database. We find that mortgage delinquency is positively associated with the suicide of individuals aged 35-44 and 45-54 in wealthier states, whereas the relationship is negative for individuals aged 45-54 in poorer states.

ID: 516 | Porous Silica Nanoparticles: Insights into their cytotoxicity, genotoxicity and immunogenicity

Trisha Patel (De Montfort University); Umakhanth Girija (De Montfort University); Zeeshan Ahmad (De Montfort University); Neenu Singh (De Montfort University)

Abstract:
Porous silica nanoparticles (PSNs) hold immense promise as drug delivery carriers owing to their high surface area, silanol groups, varied pore/particle sizes, and surface modification capabilities. However, a detailed toxicity assessment of PSNs is imperative to ensure their biocompatibility. This study evaluated various toxicological endpoints, cytotoxicity, genotoxicity, and immunogenicity, using cell lines to represent exposure routes of PSNs. Physicochemical characterisation of the PSNs involved dynamic light scattering, zeta potential, x-ray diffraction, electron microscopy and fourier-transform infrared spectroscopy. Lymphoblastoid TK6, monocytic THP-1, and liver HepG2 cells were exposed to functionalised PSNs, polyethylenimine (PEI), amine, carboxyl, thiol or silanol at varying concentrations (0 to 200 µg/ml) for 24-72 hours. The MTT assay showed cell line-dependent and PSN type-dependent cytotoxicity. Genotoxicity analysis using the micronucleus assay showed an increased micronuclei frequency in all three cell lines. Exposure to fluorescently tagged PSNs showed a correlation between cellular uptake and toxicity.
Immunogenicity studies revealed interactions between PSNs and C3b protein. PSN-Silanol showed binding to complement proteins C1q, C3 and MBL, suggesting activation of all three complement pathways – classical, alternative and lectin, respectively. Complement activation could cause PSN opsonisation, affecting the therapeutic use of PSNs. By exposing PSNs to complete cell growth media, the protein corona was characterised and showed a differential composition of proteins with all the five PSNs tested. Future research will investigate mechanisms behind the observed genotoxicity and intracellular signalling events associated with toxicity to better understand the impact of PSNs, thus supporting safe nanocarriers for drug delivery.

ID: 377 | Land-Sea Interaction in Marine Spatial Planning: A Case Study of Jeddah, Saudi Arabia

Omar M Dakhil (King Abdulaziz University); Hosny Azizalrahman (King Abdulaziz University)

Abstract:
Coastal and marine areas are essential natural resources for all humans with strong financial returns. However, with the neglect of human activities toward natural resources, the marine ecosystem faces a significant negative impact, such as increased CO2 emissions, climate change, marine pollution, the unjustifiable removal of marine resources, and physical adjustments and damage to coastal and marine habitats. This neglect has led countries and organizations to establish an international agreement and take action to preserve and manage the marine environment. One of these actions is spatial planning in the coastal environment. Jeddah, Saudi Arabia's coastal city, suffers from coastal damage from increasing coastal construction, human growth and urbanization, tourism, and, most significantly, the threat to the coral reefs. The research aims to understand the international marine policies developed by different organizations to implement new spatial planning policies and land use for human activities in Jeddah's coastal areas. Finally, the research outcome provides a list of recommendations that generate better coastal management and habitat protection through Marine spatial planning and integrated coastal management for a valuable result

ID: 404 | Digital Twin for Precision Dermatology: A Roadmap

Nithin Tom Mathew (Birla Institute of Technology and Science Pilani)

Abstract:
The progress in Industry 4.0 has created significant attention on developing Digital Twins, particularly in the manufacturing industries. The digital twin is a virtual replica of a physical object that can evolve in real time based on data obtained from the physical object, reflecting the integration and mapping between the virtual and physical. There is growing interest in implementing digital twins in the healthcare sector to make precision medicine a reality. A digital twin in dermatology represents a virtual replica of a patient's skin and physiological characteristics, integrating real-time data from imaging, sensors, and patient history. This advanced model allows for personalized diagnosis, precise treatment planning, and predictive monitoring by simulating various clinical scenarios and treatment responses. The implementation of digital twins in dermatology offers significant potential for improving patient outcomes, reducing trial-and-error in treatment, and advancing research through data-driven insights. The significant feature of a digital twin is the dynamic bidirectional link that allows it to be customised for different purposes. Precision dermatology enabled by digital twins can offer a new understanding of personalised risk factors, procedure safety, drug interactions, and treatment options. The success of the approach depends on several data sets, such as behavioral, clinical, molecular, lifestyle, and environmental data. This article outlines the roadmap for integrating digital twin technology into dermatological practice, highlighting key challenges, opportunities, and future directions.

ID: 559 | Family Dysfunction and Attachment Styles as Risk Factors for Eating Disorders among University Students

Abdalla A. R. M. Hamid (UAE University)

Abstract:
Eating disorders are characterized by a persistent disturbance of eating-related behaviors that can result in altered food consumption. The main objective of the current study was to examine family dysfunctional types and attachment styles as potential risk factors for eating disorders among university students in the UAE. Using a cross-sectional design, data was collected from 375 students. Measures used were the Family Adaptability and Cohesion Evaluation-IV (FACES-IV), the Eating Attitude Test-26 (EAT-26), and the Revised Adult Attachment Scale (RAAS). Multiple regression results revealed that chaotic and rigid family dysfunctions were significant risk factors for eating disorders. Specifically, they were associated with dieting behaviors, and bulimia and food preoccupation behaviors. Further, rigid family dysfunction predicted oral control behaviors. Anxious attachment also emerged as a risk factor for eating disorders. It predicted dieting and oral control behaviors. Moreover, close and anxious attachment styles were associated with bulimia and food preoccupation behaviors. In conclusion, this study emphasizes the multifaceted nature of eating disorders and the significant role that family dysfunction and attachment styles play in the development of eating disorders. These findings suggest the need for family-related programs to enhance family dynamics and mental health.

Keywords: Eating Disorders, Risk Factors, Family Dysfunction, Attachment, Eating-related Behaviour.

ID: 446 | Digital Transformation in Healthcare through Real-Time ECG Monitoring Using IoT

Mohd Maroof Sidddiqui (Dhofar University)

Abstract:
This paper explores the digital transformation in healthcare by leveraging IoT technology for real-time ECG monitoring. The system integrates wearable ECG sensors that continuously capture and transmit patient data to a cloud-based platform, where it is analyzed in real time using advanced machine learning algorithms. This innovative approach enhances traditional ECG monitoring by offering increased accuracy, reliability, and the ability to monitor patients remotely. The system's real-time capabilities ensure that healthcare professionals can promptly identify and respond to cardiac irregularities, improving patient outcomes. This digital transformation in healthcare reduces costs by facilitating remote access to critical health data. It enhances the efficiency of medical decision-making, ultimately contributing to better patient care and reduced complication rates

ID: 276 | The Impact of Human-AI Collaboration on Caring Behaviors in Nursing: A Job Self-Efficacy Perspective

Wang Ziwen (Jinan University)

Abstract:
Purpose: Based on Social Cognitive Theory(SCT), the study aimed to investigate how nurses' human-AI collaboration affects their caring behaviors and its potential mechanisms and boundary conditions.

Design: The study adopted a time-lagged research design.

Methods: The study was conducted from February 2023 to August 2023, with a sample of 545 clinical nurses from eight Southern hospitals, China. The study used bootstrapping to test the hypotheses.

Results: Human-AI collaboration had a significant positive effect on caring behaviors, and job self-efficacy completely mediated the relationship between Human-AI collaboration and caring behaviors. Furthermore, mistreatment negatively moderated the direct relationship between job self-efficacy and caring behaviors.

Conclusion: The study is the first to examine the relationships among nurses' human-AI collaboration and caring behaviors, demonstrating that the Enhanced Self-Efficacy can effectively Promote nurses' caring behaviors. Additionally, by emphasizing the moderating effect of mistreatment, the study contributes to finding a way for hospitals to enhance the effectiveness of caring behaviors.

ID: 367 | Revisiting Traditional Contract Concepts in Light of Sustainable Development

Hayssam M.S. Hammad (Abu Dhabi University)

Abstract:
This paper delves into the multifaceted relationship between sustainable development and civil law rules specifically regarding contracts. The paper particularly explores the concept of sustainable development, which gained global recognition at the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, and the legal dimensions of the right to development as a fundamental human right, as established by the 1986 Declaration on the Right to Development.
This paper examines the profound impact of sustainable development on contractual law, illustrating how the integration of sustainability principles has transformed the legal landscape of contracts globally. It explores how contracts, traditionally focused on individual interests, are increasingly incorporating broader societal, environmental, and economic considerations. Introducing sustainability clauses in contracts to ensure alignment with public welfare and environmental preservation. These clauses extend the impact of contracts beyond the immediate parties, affecting third parties such as workers, consumers, and local communities, particularly within international supply chains. This shift challenges traditional legal doctrines, such as the principle of privity of contract, by recognizing the rights of those indirectly affected by contractual agreements. The paper also highlights the role of governments and international organizations in driving this evolution, mandating greater transparency and accountability in contractual dealings, especially in sectors with significant environmental and social impacts. By analyzing these changes, the paper underscores the emergence of hybrid contracts, where private agreements increasingly serve public policy goals, ensuring that economic activities adhere to sustainable development principles.

ID: 274 | Professional Master Degree of Nursing in China: Advantages and challenges

Xiaowen ZHU (Jinan University); Huafang GONG (Jinan University)

Abstract:
Background: The rapid development of the nursing industry in China has increased the number of nurses. Consequently, an increasing number of nurses are considering to expand their education through a master's degree. This trend has influenced the requirements for the quality of master's education in nursing.

Objective: To introduce the Chinese nursing master's training system and summarize relevant experience, clarify the advantages and challenges of the current system, and provide a basis for the development of master's education in nursing in China.

Method: Descriptive analysis was used to explore the changing characteristics of master's programs over time and geography.The current nursing master's training model in China is examined, combined with the training programs stated by several representative universities.

Results: This study found that the number of nursing master's programs in China is consistent with the economic development process. The number of nursing master's programs in the eastern region is larger and growing faster than that in the western region. However, in terms of time, the development speed of nursing master's programs in the western region is also gradually accelerating. The training model of China's nursing master's degree is divided into three stages, namely curriculum, clinical practice, and scientific research training.

Conclusion: The master's program offers numerous advantages and valuable experience. However, several challenges remain to be overcome, including the promotion of equality in education, improvement of integration and alignment with advanced practice nursing, and the need for more empirical research studies on the training process as evidence for process reform.

ID: 90 | Promoting Early Childhood Newborn Parenting Education Using Digital Platforms for Sustainable Health

Shelina Bhamani (Aga Khan University); Misbah Shams (Aga Khan University); Nizar Dawoodani (Aga Khan University); Kiran Aslam (Aga Khan University); Sara Fahim (Aga Khan University); Haseeb Khan (Aga Khan University)

Abstract:
Background: Nurturing care in earliest years of life have transgenerational impact. The role of HCPs in providing responsive caregiving education to the parents become essential as they are the primary caregivers. However, the capacity development in its traditional sense becomes resource heavy. The digital platform provides a cost-effective and efficient solution to enhance the quality, accessibility, and expansion of workforce training on ECD. Considering this the investigators, initiated a project using digital platforms to train primary caregivers, healthcare professionals, and early childhood educators in effective newborn-responsive caregiving practices.

Objective: The objective was to explore the effectiveness of the digital platform on online training program participants evaluation and their knowledge regarding ECD newborn responsive caregiving.

Methods: This implementation study involved a total sample size of 109 individuals from Afghanistan and Pakistan. Training sessions were conducted both synchronously and asynchronously (self-paced) using three digital platforms of google classrooms, zoom and whatsapp support group. We collected the data using structured questionnaire on training evaluation and ECD knowledge.The ethical approval of the study was sough from AKU ERC.

Results & Discussion: A significant difference was observed in the knowledge. As for the efficacy of the training using digital platform, the participants rated the training as highly beneficial. Additionally, they found the combination of synchronous and asynchronous modalities to be an efficient use of time and resources. Using digital platforms could be crucial for the scalability of ECD and responsive caregiving practices and for enhancing workforce capacity. This approach yields multifold benefits including helping countries work on SDGs 4,5, and 10 respectively.

ID: 69 | Balancing Quality Care with Ecological Responsibility: Future Directions in Green Surgery

Maria Gabriella Grassia (University of Naples Federico II); Francesca Paola Pastena (Campus Bio-Medico of Rome); Simone Paesano (University of Naples Federico II); Dario Sacco (University of Naples Federico II); agostino stavolo (University of Naples Federico II); Salvatore Massa (A.O. R.N. Sant'Anna e San Sebastiano Caserta)

Abstract:
According to the principles proposed by the Centre for Sustainable Healthcare (CSH), we define 'green surgery' as a comprehensive approach that aims to prevent and optimize conditions requiring surgical interventions. This involves ensuring efficient surgical pathways by avoiding unnecessary procedures and adopting low-impact environmental products and processes, such as reusable instruments and recycling. Additionally, 'green surgery' focuses on raising awareness and changing the culture within the surgical community while collaborating with other healthcare professionals to achieve these goals. The necessity for these practices arises from the significant environmental footprint of surgical activities. For example, operating rooms consume 3 to 6 times more energy per square foot than other parts of the hospital and contribute to 20% to 30% of a hospital's total waste. Furthermore, surgical waste is often incinerated as regulated medical waste (RMW), a process that is extremely costly to the environment. This information underscores the necessity of gaining a better understanding of the environmental impact of surgery to identify actionable steps to reduce its ecological footprint without compromising standards of care. The aim of this work is to provide a bibliometric analysis of green surgery to understand the current state of the art and identify future research topics. We use science mapping techniques for identifying and visualizing themes and trends within this specific scientific field. By examining the scientific production on Web of Science (WoS) regarding green surgery, we will chart a path towards more sustainable surgical practices that balance ecological responsibility with high-quality patient care.

ID: 356 | Best Practices For Safety Leading Indicators Implementation For Construction Site Safety

Pheladi Mogane (University of Johannesburg); Samuel Adekunle (University of Johannesburg); Clinton Aigbavboa (University of Johannesburg)

Abstract:
Safety leading indicators play a crucial role in proactive safety management within the construction industry. Despite their importance, there is a lack of comprehensive studies outlining best practices for effective implementation. This study addresses this gap by examining safety leading indicators at various levels of a construction project: organizational, project, and individual. Key implementation practices include aligning strategic planning with indicator deployment, engaging workers and clients at the project level, and emphasizing regular safety training for individuals. By identifying and sharing best practices, this study contributes valuable insights for contracting organizations seeking to enhance safety performance through indicator implementation. It is, however, important that emerging technologies, especially AI, should be adopted in predicting issues relating to safety and management of safety leading indicators. The adoption of AI will help overcome the challenges of achieving a proactive safety culture.

Sustainable Project Management: Leveraging AI and Disruptive Technologies

ID: 443 | Sustainable Strategic Management for the Construction Industry: A systematic Literature Review

Emmanuel Ayorinde (University of Johannesburg)

Abstract:
The construction industry encompasses anything from minor projects that a single person can complete to massive power plants and buildings that require hundreds of employees and years of planning and construction. Strategic management in the construction industry is a continuous process that requires top-level managers to apply effort or work continuously to adapt their construction organisation to its environment by creating competitive advantages based on skills and qualities that cannot easily be duplicated to reach organisational goals. This paper focuses on the crucial aspects/components of sustainable strategic management for the construction industry. It investigates sustainable strategic management for the construction industry, with hopes of building a strategic management portfolio by incorporating sustainability into the vision, mission, and goals of the construction organisation. Conference papers and journal articles from databases including ScienceDirect, Taylor and Francis, ASCE, and Scopus were reviewed for pertinent material. Literature distilled by theme analysis explored crucial aspects/components of sustainable strategic management for the construction industry. This paper, therefore, recommends owners and managers to manage their organisations strategically rather than only operationally. By implementing strategic planning, construction organisations will facilitate sustainable development and likely have better profit margins, higher returns on assets, higher returns on investment, and inventive employee growth. The study's findings will be valuable to construction professionals as well as academics.

ID: 444 | Effective Government policies as mechanism building a sustainable construction industry: A Systematic Literature

Emmanuel Ayorinde (University of Johannesburg); Mpho Maiwashe (University of Johannesburg)

Abstract:
Government policies are rules, regulations, and guidelines enacted by the government to govern how individuals and organizations behave within a specific sector. Nonetheless, government policies in the construction industry are critical in supporting sustainable practices, boosting innovation and efficiency, and minimizing the industry's overall environmental effect. This study looked at the existing government policies for promoting sustainability in the construction industry and the gaps that need to be filled in those policies. This study analyzed journal article literature to emphasize the necessity of government policy in achieving sustainability in the construction sector. This study gathered relevant literature using Sabinet and Science Direct based on search parameters that included the following keywords: "sustainable construction", "green policies", "circular economy", "sustainable business", "sustainable procurement practices", and "government policies". According to the conclusions of this study, green building technology policy is one of the most successful and recommended policies within government policies for reducing environmental consequences. As a result, innovative technology is at the forefront of developing an efficient and sustainable construction industry. Professionals tasked with infrastructure development must be informed of government policies produced within the construction sector, which will help ensure the construction industry's improvement and effectiveness. Improving Existing government policies in the construction industry will aid in the success of the sustainable construction industry by delivering quality construction projects and enhancing the standard of living.

ID: 708 | Rational Decision Making in Consumer Behavior for Shaping Sustainable Future: A Bibliometric Analysis

Saleh Md Arman (Poznan University of Economics and Business); Maged Farouk (Onaizah Colleges)

Abstract:
Rationality in decision-making involves using logic and reasoning, but consumer choices can be influenced by emotional, cognitive, and situational factors that may not always align with preferences. The study aims to analyze publication trends, key contributors, and emerging themes in Rational Decision-Making (RDM) research within consumer behavior (CB) for shaping sustainable future. The paper provides a comprehensive overview of RDM in CB, using science mapping to identify key themes, trends, and future research directions. This study uses a systematic literature review and bibliometric analysis of Web of Science data of 385 documents (1962 – 2024). Out of them, 94 papers were related to SDG 12: Responsible Consumption and Production. The study found that rational decision-making in consumer behavior is influenced by key factors such as attitudes, e-commerce, perceived risks, and trust, with emerging topics like green consumption and information adoption models shaping decision processes. Additionally, social media have a significant impact on consumer behavior, with specific factors such as brand image, CSR, and purchase intention playing crucial roles in rational decision-making for assuring sustainable future. The study aligns SDG 12 with other SDGs based on the thematic clusters. The study suggests 10 research propositions based on the five thematic clusters to facilitate future research directions. The study also suggests academic and managerial implications with limitations.

ID: 717 | Managing Change: How Nomination Committees Drive Value for Indian Companies

Jacob Cherian (Abu Dhabi University); Aghila Sasidharan (Indian Institute of Forest Management); Aswin Alora (Indian Institute of Management); Sobhith Mathew Jose (Bennett University); Sherine Farouk (Abu Dhabi University); Moza Al Nahyan (Abu Dhabi University)

Abstract:
This study investigates the effect of nomination committees on firm value within a sample of companies listed on the National Stock Exchange (NSE) of India. We used the difference-in-differences (DID) approach to examine the effects of pre and post regulations of nomination committee on firm value. Using fixed-effect panel regression, we find that nomination committee positively impacts firm value implying that the nomination committee facilitates improved collaboration among board members, enabling them to work more efficiently towards the shared objective of maximizing shareholder wealth. Using Companies Act of 2013 as a focal point for conducting a Difference-in-Differences (DID) analysis, it is seen that the regulatory provisions pertaining to the nominating committee have a favorable influence on company value. Furthermore, this relationship is particularly accentuated during the time after the implementation of the necessary regulations. Resource dependence theory is a significant factor in demonstrating that the inclusion of independent directors within the nominating committee is crucial for bringing in the necessary expertise and capabilities to enhance shareholder value.

Keywords: Corporate Governance, Nomination committee, Firm Value, Emerging Markets, Resource dependence theory

ID: 40 | AI Tool for Sustainable Project Management Construction 2 (SPMC)

Mohamed Y Laissy (University of Prince Mugrin); Omar Dakhil (University of Prince Mugrin)

Abstract:
Project management efficiency is essential for civil engineers to guarantee sustainability and minimize the delay of projects. This work aims to introduce a sustainable project management construction (SPMC) tool as an AI-based method to predict the project's delays and optimize the allocation of resources. Due to the increase in the building projects' complexity, the use of innovative tools such as SPMC is considered essential to improve the project management efficiency and to promote sustainable practices. The SPMC tool utilizes machine learning (ML) techniques using the data provided by many projects. This data includes the project's timeframes, distribution of resources, and sustainability metrics. The project delay and resource requirements were predicted using the enhanced random forest regressor model, attaining a mean R2 value of 0.85 for the cross-validation. The predictive accuracy was confirmed by the statistical data, and the simulation scenarios demonstrated reliability for the theoretical contexts. The residual analysis demonstrated a few systematic errors, indicating a strong link between the actual and predicted results. This study emphasizes the need for artificial intelligence in construction management to enhance efficiency and sustainability. SPMC enhances construction project management by promoting proactive decision-making, reducing resource waste, and steering it towards a more sustainable future.

ID: 333 | Green Level of Information Need: Sustainability Assessment through BIM

Ahmed Alsehrawy (Glasgow Caledonian University); Michael Tong (Glasgow Caledonian University); Omar Amoudi (Oxford Brookes University)

Abstract:
The growing global challenges as climate change, resource depletion, and increasing populations have intensified the focus on green buildings. Building Sustainability Assessment (BSA) schemes, like US LEED, provide frameworks for evaluating and certifying the sustainability of buildings. However, BSA processes are often seen as fragmented, inconsistent, and resource intensive. Meanwhile, Building Information Modelling (BIM) has gained widespread adoption in the building industry, yet its potential to enhance BSA remains underutilized. This paper addresses this gap by proposing a framework named Green Level of Information Need (GLOIN), which utilizes BIM for advancing BSA. GLOIN integrates BIM data with BSA system requirements, drawing from the new international standard ISO 7817 and tailored specifically for the U.S. LEED green certification system. A proof-of-concept computer application is developed as a Revit plugin using Microsoft Visual Studio, Autodesk Revit API, and based on the GLOIN framework principles. The plugin extracts green data from BIM models to generate real-time BSA scores. GLOIN offers numerous benefits by linking BSA and BIM, streamlining sustainability assessments and certification processes. It ensures accuracy and integrity by centralizing assessment information into a single, reliable source, allowing for real-time assessments throughout the project lifecycle. The paper also highlights how emerging trends like Digital Twins and Artificial intelligence could be integrated into the GLOIN framework to enable effective dynamic BSA during buildings operational phase. By bridging the gap between BIM and BSA, GLOIN supports broader adoption of green certifications, contributing to a more sustainable built environment in line with global environmental goals.

ID: 244 | How will AI impact knowledge sharing within construction Clustering? Bringing back the conversation on social contagion within construction clusters

Oluwasegun Seriki (TU Dublin); Mark Mulville (TU Dublin); Ruairi Hayden (TU Dublin)

Abstract:
Construction clusters and innovation systems play a crucial role in enhancing competitiveness and fostering sustainable development in the construction sector. These clusters facilitate knowledge sharing, interactive learning, and collaborative innovation among firms, institutions, and other stakeholders. The success of construction clusters depends on various factors, including firm size, economic climate, and attitudes towards innovation. While some clusters transform into innovation systems by becoming tacit-knowledge intensive, there is not much data or investigation into how they may adapt to changing demands spurred by advances in artificial intelligence(AI). There is some preliminary research highlighting the lack of dispersed innovation networks within construction and how social contagion affects construction knowledge clusters and lead to eroding differentiation (cf. Seriki & Murphy, 2018). This paper adopts a multi-method approach to the issue of AI research and its impact on Construction Clusters using an Irish case study. Construction is a strategically important sector for economic growth and employment in Ireland and inter-organizational cooperation within clusters can lead to enhanced performance and innovation within the sector. An autoethnography and subsequent analyses of narratives of other construction professionals within Ireland's Construction Cluster is used to present the opportunities and threats of AI within knowledge sharing within the cluster. An Irish case is adopted based on the fact that the effectiveness of clustering may vary across regions and countries, necessitating tailored approaches to cluster development and innovation policies. Future directions to ensure diversity of thought and strategic differentiation are also discussed. Recommendations are also presented for implementation in similar clusters across international construction contexts, especially in the increasingly convergent world of AI in knowledge management

ID: 101 | The use of hemp as a construction material in earthquake-resistant buildings in Morocco.

Fatima KANOUN (Faculté des sciences et techniques); Carmen Maftei (Transilvania University); Radu MUNTEAN (Transilvania University); Adil HAFIDI ALAOUI (Abdelmalek Essaadi University)

Abstract:
In 2021, Morocco legalized hemp for industrial purposes, opening new opportunities in sustainable construction. Hemp, known for its ecological properties and varied applications, is being explored as a substitute for reinforced concrete in earthquake-resistant buildings. Reinforced concrete, while mechanically strong, has drawbacks such as a high carbon footprint and poor seismic vibration absorption. In contrast, hemp is renewable, sequesters CO_2 during growth, and can be locally cultivated, reducing transportation costs and emissions.
This thesis examines hemp as a construction material, aiming to optimize its use in reinforced concrete for earthquake-resistant buildings. The primary objective is to assess hemp's mechanical and ecological properties and its effectiveness as a sustainable alternative to traditional methods. Key aspects include analyzing hemp's tensile strength, flexibility, and vibration absorption compared to conventional concrete. The carbon footprint of hemp is also analyzed over its full life cycle, and its environmental benefits are compared to traditional construction materials.
Case studies of hemp-based structural elements are reviewed to evaluate their seismic performance, illustrating hemp's potential in sustainable construction. The research explores recent innovations in hemp usage and proposes recommendations for integrating hemp into Moroccan construction practices, particularly in seismic risk areas.
Building on scientific advances and the opportunities from hemp legalization, this thesis aims to improve construction practices and promote ecological and resilient solutions to seismic challenges, providing a foundation for adopting hemp in the construction sector and transitioning to greener, sustainable, and earthquake-resistant infrastructures.

ID: 56 | Using 3D modelling tools to map carbon emissions and noise for implementing Nature-Based Solutions (NBS) with a City of Interconnected Walking Islands

Mohammed Mazen Hariri (Abu Dhabi University); Ioannis Zuburtikudis (Abu Dhabi University)

Abstract:
Nature-Based Solutions (NBS) are recommended as beneficial actions to mitigate climate change, enhance quality of life, and maintain sustainability. One proposed action is creating a City of Interconnected Walking Islands (CIWI).

The selection of specific walking islands and the development of an interconnection plan should be critically enhanced by Data-Driven Decision-Making (DDDM) to ensure the efficiency of these natural climate solutions (NCS). Many factors should be considered, including the six main elements of weather and climate: temperature, atmospheric pressure, wind, humidity, precipitation, and cloudiness. Other important considerations include ancient monuments, infrastructure, the convenience of residents, and their behaviors.

Mapping carbon emissions and noise levels is essential for determining compatibility with NCS, NBS, and the efficiency of CIWI. Noise maps have been created due to their importance in reflecting a high quality of life within the city and their broader impacts. Additionally, carbon emissions maps have been drawn for four scenarios in specific areas to manage transportation based on traffic flow and different times of movement. These maps have identified critical nodes that should be prioritized and can serve as models for similar cities.

Keywords: Carbon Emissions, Carbon & Noise Mapping, Nature-Based Solutions (NBS), Natural Climate Solutions (NCS), City Interconnected Walking Islands (CIWI)

ID: 556 | Leveraging Machine Learning for Defect Detection in Irrigation Concrete Canal Lining in Egypt: Advancing Construction Quality and Efficiency

Ahmed Alhady (The British University in Egypt- BUE); Aya Hassan (The British University in Egypt- BUE); Mohamed Nabawy (The British University in Egypt- BUE); Mohamed Hegazy (The British University in Egypt- BUE)

Abstract:
Defects during the construction phase of projects pose significant challenges, particularly in terms of safety, cost overruns, delays, and labor inefficiencies. In irrigation concrete canal lining construction with mega investments, early detection of defects is critical to ensuring quality and project success. This study explores the application of machine learning (ML) for onsite defect detection, focusing on the development and deployment of an object detection mobile application specifically tailored for identifying visible defects in concrete canal lining construction. Leveraging the machine learning capabilities of Microsoft Azure, a custom object detection model was trained and validated to recognize defects such as cracks, honeycombing, and steel reinforcement corrosion in canal lining structures. The results demonstrated that the application effectively identified defects, though further enhancements to its accuracy and robustness are needed.
To evaluate the potential project-wide impacts of such technology, the study also examined the effects of implementing ML-driven defect detection on cost, time, and labor productivity through an online survey of experienced engineers in the Egyptian construction industry. The findings highlighted the promising potential of machine learning in transforming defect detection processes, improving project performance, and addressing key construction challenges. However, the study also identified practical barriers, such as technology adoption and training, that must be addressed for broader implementation. This research underscores the transformative potential of ML in irrigation infrastructure projects and its role in advancing construction quality and efficiency.
Keywords: (Construction Defects, Machine Learning, Object Detection, Project Performance)

ID: 475 | Enhancing Digital Collaboration Through AI Integration: A Holistic Framework for Sustainable Digital Transformation

Inga Stankevice (Kaunas University of Technology)

Abstract:
This paper explores the role of digital collaboration tools and AI technologies in modern organisational workflows. It aims to develop a comprehensive framework for enhancing digital collaboration through AI integration. The research begins with an in-depth analysis of theoretical perspectives on digital collaboration tools and AI integration. A consolidation of relevant literature and frameworks establishes a robust theoretical foundation for building the holistic framework for digital collaboration improvement. This framework is validated through a case study involving qualitative and quantitative (n=96) methods at an organisation that requested the results to remain confidential. While specific organisational details cannot be disclosed, the research design and selected anonymised results are presented to demonstrate the validation and application of the framework. The framework includes four dimensions comprised of 31 factors in total: business strategy and structure, management and processes, technology, and culture and behaviour. In each dimension, digital collaboration maturity is measured, with AI tools helping bridge the gap between technical and social aspects of collaboration. The validated framework, supported by structured content analysis, expert feedback, inductive categorisation, and CARL framework for gained insights, underscores the need to balance AI technologies with human oversight. The paper presents a framework that tackles such issues as digital fragmentation, collaboration maturity, and cultural barriers to technology adoption, thereby enabling sustainable digital transformation.

ID: 310 | AI Driven E2E Supply Chain Integration in a Circular Economy

Pravitha Vijaykumar (Manipal GlobalNxt University); Madhumita Das (Manipal GlobalNxt University); Habibullah Khan (Manipal GlobalNxt University)

Abstract:
The AI boom everywhere brings various challenges and opportunities for organizations to achieve sustainable development goals. Today, comprehensive global governance frameworks are lacking to ensure that AI technologies are developed and deployed responsibly and ethically. The frameworks available today need to holistically cover the diverse socio-economic and technological environments. At the same time, the World Economic Forum, with its AI Governance alliance, is a catalyst for using its platform to drive change. Secondary research is carried out to understand the options available for AI in E2E SCM and the challenges it addresses. The outcome of the research is to provide an overall framework for AI-driven E2E Supply Chains that can integrate across all the supply chain components, with an understanding of each component and their integration.

ID: 80 | Pilot projects as drivers of smart city maturity: Reflections from Smart Liveable Neighbourhoods in Australia

Andrew W Tovey (University of Technology Sydney)

Abstract:
Smart city technologies have the potential to support solutions to fundamental city challenges. Emerging practice emphasises human-centred design, collaboration, and social and environmental outcomes as critical sector maturity goals. Smart city pilot projects are widespread, and while they may play an important role in driving innovation and sector maturity, they have also been criticised for hindering genuine systemic change. The Smart Liveable Neighbourhoods project in Lake Macquarie, Australia, is presented as an example of a smart city pilot project that typifies an emerging human-centred paradigm. The research was conducted using a Participative Action Research (PAR) methodology, where the smart city pilot project was led by the researcher and delivered as a collaborative partnership between the University of Technology Sydney, Lake Macquarie City Council, industry and community. Direct experience of project design, delivery and outcomes is used to explore the question of how local governments might work to increase the social and environmental impact of their smart city pilot projects. Reflections support a series of prescriptive recommendations for broader smart city maturity progression, in line with a socio-technical model of strategic niche development. A case is made for local government leadership in smart cities through the development of critical strategies and policies. New standards and guidelines are also recommended for the use of smart technologies and data management. If future pilot projects can explore and build upon these ideas and approaches then we can expect to see progress towards more genuinely transformative smart city initiatives and outcomes in the future.

Data-driven development of sustainable Made in Italy products

ID: 265 | Data-visualization studies for Circular and Sustainable Made in Italy heritage and for his evolutionary scenarios

Ami Licaj (University of Florence); Giuseppe Lotti (University of Florence); Elisa Matteucci (University of Florence); Bianca Chiti (University of Florence)

Abstract:
The designation “Made in Italy” has historically been synonymous with excellence in the symbiosis of design and production, celebrated for its aesthetics, quality, and craftsmanship. However, the digital transition poses the risk of oversimplifying these complex values, potentially overshadowing the heritage of innovation and sustainability that is integral to the brand. Communicating these values, particularly sustainability, presents challenges due to the technical nature of the information involved, which can be difficult for consumers to understand.

To address these challenges, the Emotional project aims to use storytelling through data visualization (DataViz) to enhance the understanding and communication of these intangible values. The project gathers data from three primary sources: semantic text analysis, a public perception survey, and a company survey. These data sources converge to form a vision of the evolution and current state of Made in Italy, with a particular focus on sustainability and circularity. The DataViz based on these results will aim to make the complex interaction of these concepts accessible and engaging, providing insights into the evolving discourse on sustainability and circularity in the context of Made in Italy.

One of the final objectives of the Emotional project, , on which the contribution will focus, is to foster a deeper understanding of how the language surrounding Made in Italy products reflects broader cultural and social dynamics. By revealing how terms such as “circular” and “sustainability” have evolved, the project aims to raise awareness among the public and industry about the importance of these concepts. This, in turn, supports the development of more sustainable practices and innovations within the Italian manufacturing sector.

ID: 259 | Evaluating Sustainability Reporting in the Leather Tanning Supply Chain: a NLP Approach

Nicolo’ Biasetton (Unipd); Marcos Dieste (University of Padova); Laura Macchion (University of Padova); Luigi Salmaso (University of Padova)

Abstract:
In recent years, sustainability has become a critical focus for industries worldwide, and the leather tanning sector is no exception. This study presents a comprehensive sustainability analysis of the leather tanning supply chain, examining the alignment and discrepancies among sustainability reports issued by various stakeholders within the industry. By adopting advanced Natural Language Processing (NLP) techniques, we systematically analyze sustainability reports that were collected from the websites of different companies involved in the leather tanning process. Our research aims to identify the coherence of sustainability information across the supply chain, highlighting areas of consistency as well as divergence. The NLP methodology enables a detailed and nuanced analysis of the textual data contained in these reports, providing deeper insights into the sustainability practices and communications of the industry. The findings of this study offer several advantages. Firstly, they provide a clear picture of the current state of sustainability reporting in the leather tanning industry, identifying best practices and areas needing improvement. Secondly, the study fosters greater transparency and accountability among industry players by exposing inconsistencies in sustainability communication. Finally, by pinpointing alignment or misalignment in sustainability practices, the research supports stakeholders in making informed decisions, driving industry-wide improvements, and fostering a more sustainable leather tanning supply chain. This study not only contributes to the academic discourse on sustainability in supply chains but also serves as a practical tool for industry practitioners seeking to enhance their sustainability reporting and performance. The insights gained from this research will aid in promoting more sustainable practices, ensuring the long-term viability and social responsibility of the leather tanning industry.

ID: 280 | Integrating Consumer Insights into Sustainable Product Design Through Data-Driven Innovation: The Case of ‘Made in Italy’

Najeebullah Arghistani (University of Brescia); Anna Codini (University of Brescia)

Abstract:
Sustainable product design (SPD) is vital for environmental and economic sustainability, necessitating a shift from linear to circular economic models. This study explores the integration of consumer values into SPD, focusing on the “Made in Italy” brand, renowned for quality, craftsmanship, and design. Despite rising consumer demand for eco-friendly products, a gap exists between environmental attitudes and purchasing behaviors, influenced by factors such as price sensitivity and doubts about product efficacy. This research addresses how consumer values can bridge this gap, enhance sustainable product attributes, and leverage data-driven methodologies. Through a systematic literature review and qualitative analysis of consumer reviews, key insights were identified pertaining to contributions in the areas of sustainable product attributes, consumer values, and methodologies used to investigate consumer perceptions of sustainable products. The analysis of consumer reviews found that consumers prioritize quality and functional values over sustainability when purchasing products. To promote sustainable products, a comprehensive and data-driven approach is needed to integrate consumer values, enhancing quality and utility, and clearly communicate environmental benefits.

ID: 258 | Multi-label text classification for identifying consumer values and attributes in Made-in-Italy product reviews

Riccardo Ricciardi (University of Brescia); Nicolo’ Biasetton (Unipd)

Abstract:
This research is part of the Made in Italy – Circular and Sustainable (MICS) Extended Partnership, which aims to make Made in Italy (MI) design and production practices “circular, self-sufficient, self-regenerative, reliable, safe and sustainable”. Understanding consumer purchasing preferences towards MI products, particularly those that emphasize sustainability, is crucial to achieving this purpose. We analyze these preferences by proposing a classification model that identifies combinations of consumer values and product attributes within a textual review. The former are defined as the perceived benefit a consumer derives from a product, as a functional value, due to the physical use of the product, and an emotional value, which evokes memories and affective states. The latter are features of a product which can be objectively evaluated, such as price, quality, or after-sales services. This goal cannot be pursued by training a traditional classification model for text documents. Since a review can simultaneously mention multiple values and attributes, the model must predict not a single label for the document, but a vector of labels, with each element indicating the presence/absence of a specific value or attribute. Therefore, we propose a multi-label classification model trained on a sample of Amazon reviews that have been human annotated, that will be used to label a larger corpus of product reviews with combinations of consumer values and product attributes. This labeling will enable the analysis of how specific value-attribute pairs influence consumer appreciation of products.

Early Career Researchers

ID: 713 | Design and Analysis of a 10 MW OTEC System Plate Heat Exchanger with Various Airfoil Corrugations

Osama El Wawi (Abu Dhabi University); Mehwish Khan Mahek (Abu Dhabi University); Hasan Hamdan (Abu Dhabi University); Sharul Sham Dol (Abu Dhabi University)

Abstract:
This research investigates efficient heat exchanger designs for Ocean Thermal Energy Conversion (OTEC) systems, focusing on optimizing these designs to enhance system efficiency and reliability. OTEC systems exploit the temperature differential between warm surface seawater and cold deep seawater to generate electricity, and heat exchangers play a critical role by enabling effective thermal energy transfer within these systems. The study explores three distinct heat exchanger configurations: a plate-fin heat exchanger, a shell-and-tube heat exchanger, and an advanced plate heat exchanger with Chevron corrugations and a NACA0012 Airfoil section. The plate-fin heat exchanger incorporates a permeable aluminum structure that enhances heat transfer efficiency, successfully increasing the water exit temperature from 20°C to 40°C. The shell-and-tube design utilizes a straight, crossflow, one-pass configuration, which reduces the initial temperature gap of 75°C between ammonia and water to approximately 25°C at their respective outlets. The third design under investigation, a plate heat exchanger featuring Chevron corrugations and an airfoil section, demonstrated superior performance, achieving a 10°C increase in the temperature of the cold fluid, which matched the theoretical calculations. This study highlights the importance of optimizing the design and configuration of heat exchangers to maximize energy transfer efficiency, minimize losses, and ensure sustainable performance in OTEC systems. The results include refined geometric specifications, detailed analytical calculations, and comprehensive simulation outcomes, contributing to the understanding of the most effective heat exchanger designs for improving OTEC system efficiency and reliability.

ID: 660 | Solar PV Generation Forecasting Model for Off Grid Power System Using ANN by Considering Various Weather Parameters

Kumaravel G (University of Technology and Applied Sciences,Ibri)

Abstract:
Recently, the solar Photovoltaic (PV) system is considered as a prominent renewable energy system for mass power production in the renewable energy sector. the performance of the solar PV system is depending on the solar irradiation in the site. The solar irradiation is mostly affected by the environmental conditions in the site like wind, temperature, dust and cloud cover. So, the solar PV forecasting is essential for smooth and consistent operation of the solar PV plant. the physical and stochastic models are used to predict the performance of the solar PV system based on the weather conditions. In this paper, an Artificial Neural Network (ANN) is used to predict the solar PV output power based on the historical data of wind, solar irradiation and temperature in the site during different time horizons. The performance of the ANN is estimated using mean squared error and regression of the output. The proposed system is also validated by other exiting methods.

ID: 283 | 20-Minute Dubai: Towards a Sustainable and Resource Efficient Urban Neighborhoods

Fatma Alhaddad (Rochester Institute of Technology); Ghalib Kahwaji (Rochester Institute of Technology); Fabiola Fonseca (University of Guanajuato)

Abstract:
The 20-minute city concept is considered a viable strategy for developing livable, resilient, and sustainable urban areas. The concept has emerged to promote the outcomes of urban planning, smart growth, and accessibility through the development of compact, diverse, and connected neighborhoods. However, due to Dubai's sprawling urban form, low-density areas, and absence of self-sustaining neighborhoods, adopting this notion is difficult. This paper explores the critical issues hindering the execution of 20-minute neighborhoods in Dubai and proposes potential solutions to address current obstacles. It analyzes successful 20-minute city examples to create a reliable framework for Dubai's urban development, reviews Dubai neighborhoods against the criteria of a 20-minute model, and provides design recommendations to resolve planning defects and shortcomings. The ultimate goal of this paper is to create a framework for transforming Dubai into a 20-minute city while encouraging sustainable urban development, smart growth, and enhancing the quality of life for city dwellers.

ID: 489 | Artificial Intelligence-based Predictive Maintenance Technique for Enhanced Fault Detection in Wind Turbine Blades

Aadith Sukumar (Symbiosis Institute of Technology); Kermi Kotecha (Symbiosis Institute of Technology); Rawan Mubarak (United Arab Emirates University); Aaisha Al Adawi (United Arab Emirates University); Shruti Patil (Symbiosis Institute of Technology); Hany Alashwal (United Arab Emirates University); Harsh Dhiman (Symbiosis Institute of Technology, Pune)

Abstract:
Wind turbine installation and grid integration are rising continuously with growing energy demands globally. Under extreme environmental conditions, wind turbines suffer from intense mechanical stresses and component failure. According to the literature, operation and maintenance (O&M) expenditures for current wind turbines account for 25% to 30% of total production costs, emphasizing the need to optimize these costs in order to lower the general cost of producing wind power. To address this problem, the authors propose a deep learning-based technique for fault detection and predictive maintenance of wind turbine blades. Secondary sensor data of healthy and cracked blades obtained from multiple single-axis accelerometers, strain gauges, and acoustic emission sensors are used to predict the health of turbine blades based on the measured vibrations. Machine Learning and deep learning techniques are utilized to make informed decisions on the turbine blade's health/degradation. The proposed system is reliable and efficient, aiding early fault detection and providing a cost-effective solution to reduce maintenance expenses, thereby ensuring the long-term sustainability of wind turbine blades.

ID: 2 | AI-Assisted Recovery Physiotherapy Practices by Stroke Patients Using Convolutional Neural Networks

Dilliraj Ekambaram (SRM Institute of Science and Technology); vijayakumar ponnusamy (SRM institute of science and technology)

Abstract:
As per the statistics, stroke is one of the major reasons for human death and increasing physical disabilities. After a stroke, a patient may experience severe back pain, inability to move certain body parts, and difficulty controlling their motor skills; a physiotherapist can help alleviate these symptoms and help the patient return to their normal, active lifestyle. This work mainly focuses on identifying various rehabilitation training exercises like Dorsi Flexion, Extension, and Flexion of Neck, Trunk, Wrist, Knee joints, etc., for stroke patients. In this work, Recognition of exercise poses for the post-stroke patients can be achieved through Deep Learning (DL). DL is one of the most popular techniques widely used for detecting human activity with improved accuracy. A 3-layer Convolutional Neural Network (CNN) with multi-class classification is used to extract the feature from the data and differentiate the various exercise poses. The dataset contains 12 distinct exercise poses for post-stroke rehabilitation training. These datasets were created independently with the help of an RGB (red, green, and blue) camera. We achieved 100% training data accuracy and 81.08% validation data accuracy with the help of a fully connected 3-layer CNN architecture. This system provides good accuracy compared to existing rehabilitation systems.

ID: 85 | Towards a sustainable digital future: Legal frameworks for cybersecurity and data protection in the UAE

Dina Imad (Abu Dhabi University); Nagwa Fawzy Abouhaiba (Nagwa Abouhaiba); Buthayna Alshehhi (Abu Dhabi University)

Abstract:
With the UAE's rapid digital transformation, the intersection between cybersecurity, data protection, and sustainability has become increasingly critical. Through this research paper, the challenges and legal solutions in establishing sustainable frameworks for cybersecurity and data protection in light of the digital development in the United Arab Emirates will be identified, with an explanation of the current criminal and civil laws, including the Law on Combating Rumors and Cybercrime (Federal Decree Law No. 34 of 2021) and the UAE Data Protection Law (Federal Decree Law No. 45 of 2021), examining their role in promoting sustainable digital practices.
The study highlights the importance of incorporating sustainable practices into data and privacy management to ensure long-term digital sustainability. It delves into the ethical considerations of cybersecurity practices, focusing on the need to balance security measures with sustainable practices and individual rights. The role of legal professionals in promoting ethical and sustainable standards is also examined.
Through comparative analysis, the paper identifies best practices from other countries that can be adopted to strengthen legal frameworks in the UAE. It discusses sustainable legal measures to combat cyber threats, protect critical infrastructure, and ensure strong data protection.
Recommendations for future trends include strengthening cybersecurity and data protection frameworks with a focus on sustainability, addressing emerging threats, and enhancing international cooperation towards sustainable cybersecurity measures. By promoting sustainable practices within legal frameworks, the UAE can ensure a safe, resilient, and ethically sound digital future.
This paper aims to contribute to the dialogue on legal frameworks and sustainability ethics in the context of digital transformation, and to provide practical insights and recommendations for policymakers, legal professionals, and stakeholders in the UAE.

ID: 105 | The importance of local-level analyses to promote sustainability

Mauro Pinto (University of Campania Luigi Vanvitelli); Lorenzo Cicatiello (University of Naples L'Orientale); Salvatore Ercolano (Unviersity of Basilicata); Giuseppe L. Gaeta (University of Naples L'Orientale)

Abstract:
Consensus around policies is considered crucial for designing effective policies that promote sustainability. Therefore, from the perspective of public decision-makers, individual perceptions of the relationship between the environment and the economy, as well as environmental issues in general, are particularly relevant. The literature has analyzed how the perception of local and global issues influences individual attitudes and behaviours pro-environment (Uzzell, 2000). To contribute to this body of literature, this study explores the importance of individual perceptions of environmental problems and the economic costs of environmental protection policies on a local scale. Specifically, it proposes a model for analyzing individual behaviours that highlights how the presence of polluting activities in a territory can shape the assessment of the costs associated with both pollution and environmental policies. The results demonstrate the importance of individual variables and the environmental and economic characteristics of territories, emphasizing the need to develop local-level analyses to design effective policies that promote environmental protection and sustainability.

ID: 524 | Impact of Artificial Intelligence Adoption on Humanitarian Logistics Performance: The Mediating Role of Risk Management Strategies and Organizational

Ameera A Bin Ofai (University of Sharjah); Matloub Hussain (University of Sharjah)

Abstract:
In an era of escalating geopolitical risks and intensifying global crises, the demand for resilient, adaptive humanitarian logistics systems has become more critical than ever. Humanitarian logistics play a crucial role in the rapid and efficient distribution of aid during crises, significantly affecting the welfare of those in need. Integrating Artificial Intelligence (AI) into humanitarian logistics has emerged as a transformative approach to enhancing logistical performance. AI adoption plays a critical role in improving the speed, accuracy, and agility of humanitarian logistics. However, the successful implementation of AI requires robust risk management strategies to ensure its effectiveness.
This study investigates the role of Risk Buffering (RBu), Risk Bridging (RBr), and Organizational Transparency (OT) as mediators in the relationship between AI adoption and Humanitarian Logistics Performance (HLP). Risk Buffering allows organizations to absorb disruptions and mitigate operational risks, while Risk Bridging enables them to adapt and maintain continuity in the face of unforeseen challenges. Additionally, the study examines the role of Agility as a moderator, which enhances the responsiveness of humanitarian organizations in rapidly changing environments.
This conceptual paper comprehensively reviews relevant literature, analyzing various academic articles and reports on Artificial Intelligence, risk management, and humanitarian logistics, focusing on how RBu, RBr, and OT mediate AI's impact. Additionally, it examines how these factors, combined with Agility, improve the overall performance of humanitarian logistics operations. The findings have practical implications for humanitarian organizations, suggesting that integrating AI, alongside strong risk management and organizational agility, can significantly improve logistics operations, reduce disruptions, and increase the resilience of humanitarian efforts in complex crisis environments.

ID: 480 | Simulating Abnormal Head Movements Using the FLAME Model: A Dataset for AI-Driven Healthcare Applications

Saja B. Al-Dabet (United Arab Emirates University); Fizza Ramzan, Sherzod R Turaev (United Arab Emirates University)

Abstract:
Abnormal head movements (AHMs) create significant challenges for patients' quality of life, affecting motor functions and social interactions. The limited availability of comprehensive datasets hinders current research on AHMs. This paper introduces a method for simulating and generating a dataset for AHMs using the FLAME (Faces Learned with an Articulated Model and Expressions) model. This model allows for the manipulation of global head orientation. The dataset consists of over 4,000 samples covering four primary types of head movements (tilt, turn, chin-up, and chin-down) categorized by angle of deviation (mild 0°-15° to severe 31°-45°), frame rate (3-15 FPS), and direction. This dataset aims to improve the development of AI systems for identifying and treating motor disorders such as Parkinson's disease. It can potentially enhance diagnostic accuracy and treatment planning in neurology and physical therapy. This methodology showcases the effectiveness of 3D facial modeling in creating diverse, controlled datasets for medical research and AI-driven healthcare applications.

ID: 471 | What Factors Influence Kuwaiti Entrepreneurs in the Retail & Wholesale Sectors to Adopt Integrated AI-enabled Sustainable Business Model, Considering their Entrepreneurial Intentions & the Influence of Sustainable Marketing Strategies in Promoting Consumer Sustainable Purchase Behavior??

Nada Bonna (MSM-Kuwait)

Abstract:
The rise of entrepreneurship, artificial intelligence (AI), and the growing focus on the UN's Sustainable Development Goals has encouraged sustainable entrepreneurship and consumption. Despite this emphasis, the Global Entrepreneurship Monitor Report 2023 highlights a significant gap in the adoption of new technologies in starting businesses as it remains uncommon in most economies. This research investigates the integration of AI-enabled business models with sustainable business models to promote sustainable entrepreneurship in the Gulf region, leveraging the power of AI to drive innovation and efficiency in achieving environmental and social goals. This study addresses this gap by developing a comprehensive AI-enabled sustainable business model that offers a readily adaptable framework for entrepreneurs to implement within their startups or established businesses, fostering sustainability and technological innovation. It also examines the influence of sustainable entrepreneurial intentions. Additionally, the research analyzes sustainable marketing strategies, considering the potential negative impact of greenwashing on consumer sustainable purchase behavior. This research aims to answer 1) How can AI-enabled business models be integrated with sustainable business models to promote sustainable entrepreneurship in Kuwait's retail and wholesale sector?, 2) What are the factors influencing Kuwaiti entrepreneurial intentions for sustainable entrepreneurship?, 3) How can sustainable marketing strategies be implemented to promote consumer sustainable purchase behavior while mitigating the risks of greenwashing? The study will utilize a mixed-methods approach, combining quantitative surveys with qualitative interviews to collect data from Kuwaiti entrepreneurs and consumers. The findings will contribute to the body of knowledge on sustainable entrepreneurship and offer guidance to policymakers and entrepreneurs seeking sustainable innovation in the Gulf region.

ID: 599 | Fill a Bowl: A Participatory Design Approach for Creating Feeding Stations for Stray Cats in the UAE for a Sustainable, Animal-Friendly Urban Environment

Marya Al Halabi (American University in Dubai); Juhri Selamet (American University in Dubai)

Abstract:
This case study project-based research focuses on the increase of stray cats in Dubai, United Arab Emirates, and seeks to find solutions to the challenges faced by rescuers and the societal implications. Stray cats have become increasingly visible in urban areas, raising concerns about animal welfare, public health, and urban management issues. This research highlights ethical questions regarding the well-being of stray cats and seeks sustainable solutions to a growing urban problem.

To address this issue, participatory design (PD) is employed in the creation of a feeding station prototype for stray cats called 'Fill A Bowl.' This prototype model considers weather compatibility and sustainability, ensuring that it is both functional and visually appealing while maintaining minimal disturbance to residents. Integrated with digital AR technologies, this prototype aims to promote awareness about stray cats and emphasize the community's role in providing essential support. The insights and challenges in the prototype development are discussed, highlighting the potential for implementation and the role of the participatory design approach in tackling these inquiries.

ID: 488 | Improving Energy Efficiency in Office Buildings: A Comparative Simulation of Insulation Materials

Nicolas N Monje (United Arab Emirates University); Maatouk Khoukhi (United Arab Emirates University)

Abstract:
This study investigates the impact of different insulation materials on the energy performance of the HSBC Bur Dubai branch, a multi-story office building. Building on previous studies, there is a need to improve the thermal transfer qualities of the biomaterial, and it is essential to experiment with hygroscopic properties to continue characterizing the material. This will help enhance the overall performance and functionality of the material to be simulated. Using DesignBuilder and Opaque 3.0 software for detailed energy modeling and thermal performance analysis, we compared three scenarios: the current non-insulated base case, polystyrene insulation, and puffed rice insulation. The results demonstrated that both polystyrene and puffed rice insulation significantly reduce the building's energy consumption. Specifically, polystyrene insulation achieved the greatest reduction, lowering annual energy use by approximately 414,000 kWh compared to the base case. Puffed rice insulation, while slightly less effective, still resulted in substantial savings of around 386,000 kWh annually. The improved thermal resistance of insulated walls, indicated by higher R-values, not only reduces energy consumption but also enhances indoor comfort. These findings underscore the importance of insulation in promoting energy efficiency, cost savings, and environmental sustainability in office buildings, particularly in the context of energy efficiency in Dubai. Furthermore, the study highlights the potential of bio insulation materials like puffed rice insulation, which, despite slightly lower thermal performance, offer significant environmental benefits. Future work should focus on long-term performance monitoring, economic analysis, and expanding case studies to diverse climate regions to generalize the findings and further validate the benefits of different insulation materials.

ID: 109 | Conceptualising the relationship between AI – Country Image – Poverty Reduction and Governmental perceptions

Marietta Fragkogianni (University of Surrey)

Abstract:
Country Image is deemed as the perception about a country that is created by every aspect and element of a country at an internal and external – international context (Roth and Diamantopoulos, 2009). Consequently, country image can serve as a strong nation-branding tool (Hakala et al., 2013). Anholt (Pathak, 2014) established 6 key constituents of a country image's hexagone: Exports, Governance, Culture, People, Tourism, Immigration and Investment. One of the most sound scientific sectors that has long started emerging is Artificial Intelligence (AI), and it is common ground that AI advancements have been incorporated in every day private and public life in such a way that processes have been highly facilitated and efficient. This path can lead to an undoubtful economic growth and enhance a country's global differential advantage and attractiveness paving the way for the establishment of future international cooperation amongst countries (Bondarenko et al., 2020), elimination of poverty being one of them. It is therefore understood that governmental initiative is crucial to this effort, thus, the aim of this research is to lead to a conceptual paper that focuses on governmental agents' perceptions on the advancement of AI and its role to the relationship between a country's image and its employment as a tool for poverty reduction, a gap identified in the scientific literature which although it has investigated country image and economic standards (Mikhnevych et al., 2020) it remains silent concerning the relation between country image – AI – poverty reduction and governmental agents' views. The research uses as basis a thematic analysis of the literature on AI, economic growth and country image, and proposes a qualitative research through the conduct of interviews with governmental agents of Greece, enhancing the scientific and practical value for countries to unify powers in favour of nations' welfare.

ID: 291 | Evaluating the Environmental Impact of Transporting Cross-Laminated Timber to the UAE

Sabika Nasrim Pilathottathil (United Arab Emirates University); Abdul Rauf (United Arab Emirates University)

Abstract:
Research and development in massive timber products have advanced markedly, demonstrating significant environmental, economic, and social benefits that often surpass those of conventional construction materials. Among these products, cross-laminated timber (CLT) has gained prominence as a low-energy material suitable for mid-rise buildings globally. Numerous successful implementations of CLT in Europe, North America, and Australia have highlighted its viability and advantages in construction. Despite its global success, mid-rise CLT buildings have yet to be constructed in the United Arab Emirates (UAE). One of the primary obstacles is the material's non-local origin, which raises concerns among stakeholders regarding its suitability and sustainability. This study investigates the transport-related embodied energy of CLT. By conducting a comprehensive literature review on the environmental impacts of CLT manufacturing and performing a quantitative assessment of the environmental effects associated with CLT transportation from Austria to Dubai, the research evaluates the feasibility of utilizing CLT in the UAE. Specifically, it examines environmental transportation costs and overall embodied energy. The findings indicate that, despite the environmental costs of transportation, the overall embodied energy and greenhouse gas emissions associated with transporting CLT from Wolfsburg, Austria, to Dubai are comparable to, or potentially lower than, those of other materials currently used in the UAE, making CLT a more sustainable option even when considering the impact of long-distance transportation.

ID: 15 | Will Artificial Intelligence (AI) Help with SEC Mandated Climate Disclosures?

Elena Jadach (William Penn Charter High School)

Abstract:
The U.S. Securities and Exchange Commission recently passed a new rule, The Enhancement and Standardization of Climate-Related Disclosures for Investors. This new rule will require publicly traded companies to disclose, among other items, Scope 1 and Scope 2 greenhouse gas emissions. These disclosures will be phased in, with the largest U.S. public companies being required to disclose greenhouse gas emissions starting in 2026. With any new required disclosures comes risk. In this research paper, I examine the potential use of Artificial Intelligence (AI) to assist with climate disclosures. Due to the large volume of data involved and the complexity of the transactions, AI may be able to offer many advantages. AI combined with advanced data analytics may be able to predict patterns and identify outliers in the data easily. Companies may find it beneficial to use AI to continuously audit new data as it happens in real time. Historical data can be compared to current data to look for unexpected results and anomalies, and can be benchmarked against peers. An advantage of AI is that it uses machine learning algorithms to quickly and effectively analyze large amounts of data and look for patterns that may indicate potential fraud. This research will examine how AI can assist both the companies themselves and the regulators as they adapt to the new rule.

ID: 591 | Generative Artificial Intelligence and Quality of Higher Education: A Systematic Review

Stephen O Aro-Gordon (Muscat College); Alyaa Al-Jabri (Muscat College); Raya Al-Sulaimani (Muscat College)

Abstract:
A plethora of generative artificial intelligence tools (GenAI) has evolved and gained traction across multiple human endeavors and business sectors. Yet, there needs to be more authoritative academic research on GenAI's utility or potential impact in enhancing the quality of higher education. GenAI is a type of AI technology that can produce various types of content, including text, imagery, audio, and synthetic data. Part of an ongoing larger project, this study aims to make some sense out of the large and rising bodies of refereed scientific journals on the relevance of AI tools to higher education, emphasizing the role of GenAI in achieving sustainable education aspirations under the Oman Vision 2040. Leading databases such as Emerald Publishing, Google Scholar, and Masader, among others, are surveyed for the latest research (2019-2024) related to four specific research questions bordering on (i) leading GenAI tools for higher education (HE), (ii) leading areas of opportunity for leveraging GenAI tools, (iii) challenges in adopting HE-GenAI tools, and (iv) possible role of social perception frameworks in addressing emerging issues around AI-usage in the HE sector. Our analysis suggests that the adoption and application of GenAI tools may be at the lowest level. Still, their application for learning, teaching and research in higher educational institutions (HEIs) is gradually gaining traction. The central challenge revolves around ensuring a responsible, ethical usage of these emergent, innovative tools. Therefore, the value of this contribution lies in the implications of the current findings for diverse stakeholders in the HE sectors, including educators, students, administrators, innovators, policymakers, and parents. Some limitations of the study are acknowledged, and suggestions for future research direction are documented at the end of the paper.

ID: 528 | Innovative Waste Management Solutions Using Geospatial Analytics

Ranjani M M (SRMIST); saisanthiya D (SRM Institute of Science and Technology); Sandhia G K (SRMIST); Vijay Bala Mahalingam (SRMIST)

Abstract:
A notable increase in solid waste coming from families, businesses, and agriculture, among other sources, has been caused by the world's population's rapid growth and the higher product consumption that has resulted from it. Solid waste disposal site selection is a difficult and time-consuming procedure that calls for consideration of numerous environmental, social, and economic factors. The analysis presented in this paper demonstrated that ArcGIS has potential to identify suitable dumping site alternatives scientifically. Uses the WLC algorithm to identify and locate the areas to be used for any specific task like a garbage disposal area or the development of any base. The data set is prepared using the QGIS 3.24.0 assisted by python language codes using GDal library. The output image thus produced displays a range of values that indicate the most suitable to the least suitable areas based on the requirement. Total Five sites were identified which are found to be suitable for solid waste disposal near the villages namely, Bajargaon, Ladai, Nawarmari, Salaimendha and Nandera. After route optimization by network analysis, the site near Nawarmari village having area equals to 113.92 ha is found to be most suitable for solid waste disposal.

ID: 545 | Exploring the Barriers Faced by Construction Industry in Adopting Building Information Modeling (BIM) in Sultanate of Oman

Nasra Al Sharji (Military Technological College); Ghazi Al Alawi (Military Technological College); Abdullah Umar (Military Technological College); Atef Badr (Military Technological College, Muscat); RANDIE LIBIRAN GARCIA (MILITARY TECHNOLOGICAL COLLEGE)

Abstract:
This research reviews the barriers to the adoption of BIM technology within Oman's construction sector. The study specifically investigates and analyzes the crucial challenges and barriers that prevent the effective utilization of BIM technology within the industry despite the benefits associated with adopting BIM. Being an exploratory study, a survey was conducted among various construction industry stakeholders and professionals. IBM SPSS v.29 was used to analyse the resultant responses. The analysis indicates that the adoption and effective utilization of BIM are hindered by several factors. The result of the factor analysis revealed that lack of national BIM standards/policy, resistance to change, high implementation costs, lack of adequate BIM experts, complexity of the BIM software, and data privacy/ownership were the major barriers to BIM adoption in Oman. The findings indicate that to overcome these challenges, the government, Professional Engineering institutions (PEIs), and industry professionals need to work collectively to develop a BIM policy, conduct BIM training sessions, and incentivize contractors to embrace BIM and its benefits.

ID: 525 | SIPAT Implementation and association with clinical outcome in a Tertiary Care Hospital in the United Arab Emirates

Fatima Alzaabi (Cleveland Clinic, Abu Dhabi)

Abstract:
While organ transplantation has significantly improved the prognosis for patients with end-stage organ failure, the physical and psychological outcomes post-transplant are heavily influenced by the recipient's psychosocial factors prior to surgery. Given the limited availability of transplant organs, it is crucial to carefully assess candidates. Although medical criteria for each end-organ system are well established, psychosocial criteria are not as clearly defined. The Stanford Integrated Psychosocial Assessment for Transplant (SIPAT) proves to be a valuable tool for transplant patients due to its systematic approach in addressing psychosocial needs. The SIPAT facilitates effective communication between healthcare providers, patients and families to in turn guarantee a comprehensive understanding of the emotional and practical challenges. Its emphasis on post-transplant care supports patients in navigating the complex post-surgery phase, enhancing well-being and contributing to favorable transplant outcomes.

ID: 606 | Legal Responses to Marine Plastic Pollution: Perspectives from the UK

Malgorzata A Hussain (Kingston University)

Abstract:
Plastic pollution is a significant issue in the United Kingdom and globally. Annually, 5-13 million tonnes of plastic enter the oceans, with the UK contributing around 5 million tonnes, nearly half of which is single-use packaging. Global plastic production is projected to double by 2050, at the same time the oceanic plastic debris will quadruple. Effective regulation is needed to reduce plastic contamination.
Following the UK's withdrawal from the EU, the environment became vulnerable due to the shift from EU law and its institutions, placing the obligation for environmental protection on the UK Government. Plastic pollution has become a significant focus, with the British Government aiming for zero avoidable waste by 2050 and eliminating avoidable plastics by 2042. The UK has a unique opportunity to lead in tackling plastic pollution, especially as it develops a parallel system of environmental controls post-Brexit.
In the EU, plastic pollution is a major concern within broader waste management laws. Since 1999, EU environmental law has followed four principles relevant to plastics: precautionary, prevention, rectification at source, and polluter pays, which influence policy but lack legal force. Internationally, marine plastic pollution is inadequately addressed due to fragmented regulatory framework resulting in weak protection. A global treaty to end plastic pollution is expected by the end of 2024, but its scope remains uncertain.
This paper aims to critically examine the UK environmental protection mechanisms in the context of global problem. It seeks to analyse the current regulatory frameworks, with a particular focus on their effectiveness in meeting international environmental objectives. Acknowledging the transboundary nature of marine plastic pollution, the study endeavours to identify solutions to address the existing disparities between the UK and international frameworks in controlling marine plastic litter.

ID: 542 | SUSTAINABLE CONSTRUCTION IN OMAN: LEVERAGING DIGITAL TWIN TECHNOLOGY FOR CLIMATE RESILIENCE

RANDIE LIBIRAN GARCIA (MILITARY TECHNOLOGICAL COLLEGE); MARK DANSO (UNIVERSITY OF PORTSMOUTH); Abdullah Umar (MILITARY TECHNOLOGICAL COLLEGE); Atef Badr (Military Technological College, Muscat); NASRA Alsharji (MILITARY TECHNOLOGICAL COLLEGE)

Abstract:
This research investigates the potential of Digital Twin (DT) technology to enhance sustainable construction practices and climate resilience in Oman. As the country's construction industry rapidly expands under Oman Vision 2040, adopting advanced technologies like DT becomes crucial to address environmental challenges, including extreme heat and unpredictable weather conditions. A mixed-methods approach was employed, combining quantitative surveys and qualitative interviews to assess the current awareness, adoption, and barriers to DT technology within the Omani construction sector. The findings reveal a significant gap between the recognition of DT's benefits and its practical implementation, primarily due to high costs, lack of expertise, and resistance to change. To overcome these barriers, the study proposes a comprehensive framework centered on stakeholder engagement, technological infrastructure development, and targeted training programs. The results suggest that leveraging DT technology can significantly improve sustainability and climate resilience in Oman's construction projects, aligning with both national and global sustainability goals. This research sets a foundation for further exploration and practical application of DT technology in the region, establishing a benchmark for innovation in construction.

ID: 397 | Developing Sustainable and Highly Scalable Cloud-Native Systems for Universal Health Coverage (UHC): A Pilot Study on Microservices Architecture for B

Tia Haddad (Kingston University London); Pushpa Kumarapeli (Kingston University London); Sarah Barman (Kingston University); Sarah Barman (Kingston University London)

Abstract:
Universal Health Coverage (UHC), a key target under United Nations Sustainable Development Goal 3 (SDG-3), aims to provide universal access to high-quality healthcare, which requires efficient disease surveillance, continuity of care, and reliable Healthcare Information Systems. However, SDG-12, which advocates for sustainable resource use with minimal environmental impact, can conflict with the demands of cloud-native systems designed to leverage big healthcare data for care delivery, planning, and research. These computationally advanced systems often have significant energy demands for data processing, require high levels of connectivity, and depend on a skilled workforce, posing sustainability challenges. These challenges are particularly pronounced in low-resource settings typical of developing countries and are also noticeable in remote areas within developed countries, complicating the achievement of UHC.
To address these challenges, we conducted a pilot study to develop a Microservices Architecture (MSA)-based framework for processing big healthcare data (BHD) using a Cloud-Native implementation. This approach enhanced scalability, cost-effectiveness, and sustainability in healthcare data processing. The study leveraged MSA for its agility and cost-efficiency and incorporated edge and fog computing for real-time resource scaling. The pilot, utilising Kubernetes for containerisation and deployment, processed a synthetic patient dataset focused on chronic disease management and risk assessment. The system demonstrated effective load balancing, robust service interactions, and efficient scalability, supported by Sidecar Proxies for communication and monitoring. The positive results suggest that this cloud-native, event-driven solution could guide the development of sustainable healthcare systems that support UHC and have broad applications across diverse healthcare settings.

ID: 405 | Determinants of Health Information System (HIS) Adoption and Performance in Resource-Limited Settings: A Scoping Review on Advancing Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs).

Pushpa Kumarapeli (Kingston University London); Tia Haddad (Kingston University London); Sarah Barman (Kingston University); Souheil Khaddaj (Kingston University London)

Abstract:
Electronic Medical Records (EMRs) and the broader Health Information Systems (HIS) within which they operate play a crucial role in healthcare delivery, strategic decision-making, research, and the implementation of effective interventions, particularly in challenging scenarios. The World Health Organisation (WHO) recognises HIS as one of the fundamental building blocks essential for achieving the Sustainable Development Goals (SDGs), especially when integrated with other health system components. While the positive impact of HIS on healthcare management is well-documented in many settings, their adoption and performance in resource-limited environments—where support is most critically needed—pose significant challenges to achieving the SDGs, particularly Universal Health Coverage (UHC).
We conducted a scoping review to identify the key determinants influencing HIS adoption and performance in resource-limited settings. This review examined reported studies and case studies to assess conditions before and after HIS implementation, focusing specifically on settings where healthcare resources are scarce relative to population needs, irrespective of a country's overall development status. Our analysis uncovered a wide range of readiness factors, barriers, and untapped opportunities, leading to the establishment of a classification with four broad categories: organisational, financial, technical, and social. Mapping the case study findings to these categories and their categories revealed how these factors interact, counteract, and potentially support one another. The insights gained from this study could inform the development of more sustainable, sociotechnical HIS solutions, thereby advancing progress towards achieving UHC.

ID: 22 | Interventions for Green Libraries: Transitioning Towards Sustainability

Dalal E Alawadhi (Kuwait University)

Abstract:
The study aims to investigate interventions for transitioning libraries towards sustainable practices, commonly referred to as “green libraries,” using a bibliometric approach. A sample of 50 relevant published articles from 2020 to 2023 was extracted for analysis from the 881 articles published in English from the Web of Science database. The main findings reveal a multifaceted approach to sustainability within library operations, highlighting managerial interventions, sustainable building designs, and renewable energy integration as key interventions. Managerial interventions, such as staff training programs and green procurement policies, emphasize organizational practices promoting sustainability. Sustainable building designs showcase innovative strategies to reduce environmental impact while enhancing library spaces, including passive design strategies and energy-efficient materials.
Additionally, the integration of renewable energy technologies, such as solar panels and green roofs, represents proactive steps towards reducing libraries’ carbon footprint. It also revealed fluctuations in the annual growth rate of green library literature. The implications of this research extend to both researchers and professional librarians, providing valuable insights into current developments and future directions in sustainable library management practices. This paper will help improve understanding of interventions for transitioning libraries towards sustainability, informing researchers, practitioners, and policymakers about effective strategies for promoting environmental responsibility within library settings.

Key Words: Green Libraries, Sustainable Practices, Interventions, Renewable Energy.

ID: 533 | IT Governance and ESG Rating: Worldwide Evidence

Sri Ningsih (Universitas Airlangga); Siti Nur Aini (Universitas Airlangga); Nadia Anridho (Universitas Airlangga); Khairul Anuar Kamarudin (University of Wollongong in Dubai)

Abstract:
This study aims to provide empirical evidence on the impact of IT governance on Environmental, Social, and Governance (ESG) ratings. By focusing on how effective IT governance can influence ESG performance, this research seeks to fill a gap in the existing literature and offer new insights into the factors that can enhance ESG ratings. The study utilizes a sample of 427 observations from companies worldwide that are listed on the MSCI index for the year 2022. The results of the study indicate that companies with strong IT governance frameworks tend to have higher ESG ratings. These findings remain consistent even when tested using CEM and 2SLS, suggesting that the relationship is both significant and robust. Further analysis reveals that this positive impact of IT governance on ESG ratings is particularly evident in companies that are profitable, have a dedicated CSR committee, engage in high levels of long-term investment, or are relatively new to the market. This research makes a unique contribution by providing empirical evidence on the role of IT governance in enhancing ESG ratings, a topic that has not been thoroughly investigated in previous studies. By highlighting the importance of good IT governance practices, this study adds a new dimension to the understanding of factors that contribute to better ESG performance and offers valuable insights for both academics and practitioners in the field of corporate governance and sustainability.

ID: 380 | Exploring Technology Adoption Readiness Among Postgraduate Students: Role of Attitude Towards Change in the Digital Era

Pranjal P Gawde (Nirma University); Hardik Shah (Institute of Management, Nirma University); Okechukwu Amah (Lagos Business School)

Abstract:
This research aims to understand the drivers of technology adoption readiness, with a particular concern for postgraduate students, who are the leaders of the future in a world that is going digital. The study also looks at how the Attitude toward change is an important factor that determines an employee's willingness to adopt new technologies. A structured questionnaire was administered to the respondents and 148 filled questionnaires were received, which gave a good perception regarding postgraduate students' attitude towards digital acceptance.
Based on the conceptual framework used and going by the formulated hypotheses, the study develops a model that can be used to measure the extent to which Perceived Usefulness, Perceived Ease of Use, Digital Literacy, and Availability of Technology influence Technology Adoption Readiness. Attitude Towards Change is analyzed as a mediator variable whereas, Perceived Organizational Support is discussed as a moderator variable to give insight about how organizational support affects the change process.
Among the factors the findings underscore the significance of Attitude Towards Change as a determinant of Technology Adoption Readiness, meaning that, the more a student is receptive to change the more likely to adopt the technology. The study has implications for educational institutions and organizations that wish to develop a culture of innovation in this area. In their focus on preparedness for technology uptake among the future leaders the study fits under the theme of Innovation and Digital Transformation for Sustainable Futures, where it underscores the centrality of strategy and leadership in the context of the digital landscape.
Keywords: Technology Adoption Readiness, Postgraduate Students, Attitude Towards Change, Digital Literacy, Perceived Organizational Support, Digital Transformation, Organizational Strategy.

ID: 97 | From Fields to Futures: Assessing the Impact of Sustainable Agriculture on the Social and Economic Sustainability of Smallholder Farming Communities in Region 1, Philippines

Wesley Colapo (Enderun Colleges); Alexia Y. Pendor (Enderun Colleges); Ronan S Santos (Enderun Colleges)

Abstract:
The agricultural sector in the Philippines, particularly the smallholder farming sector, has seen limited development over the past decade due to a slow and delayed technology and education rollout, and lack of government support. This study assessed the impact of sustainable agricultural methods on the social and economic sustainability of smallholder farming communities in Region 1, Philippines. Through a concurrent nested design, this study utilized a semi-structured interview that collected phenomenological survey and interview data from 17 farmers residing in Pangasinan, Ilocos Norte and La Union in Region 1, Philippines. The data collected was analyzed using thematic analysis and descriptive statistics. Results from the interviews have shown that sustainable farms exhibited increased operational efficiency, profitability, and quality, while maintaining a positive impact on the lives of farmers, though certain factors, such as tradition and relative ease, were highlighted as one of the reasons behind why some farms opt out of adopting sustainable practices. Despite these challenges, a number of farmers noted that growing positive government support and easier access to related education have made it feasible for farms to transition to a more sustainable stance. Sustainable agriculture in the Philippines still has much to overcome before bearing any significant impact on the country's agricultural sector, though already its positive impacts with regard to individual farm productivity, operational efficiency, profitability, and social sustainability factors in relation to conventional farming methods are clear.

Keywords: economic sustainability; Philippines; smallholder farming; social sustainability; sustainable agriculture

ID: 177 | A method to identify landscape design preferences

Maftei Catalin (Transilvania University of Brasov), Cristina Chitonu

Abstract:
In the current conditions of accelerated climate changes, Romania, in its sustainable development strategies, has adopted the recommendations of the New Leipzig Charter to identify solutions aimed at restoring, developing, and valorizing the urban habitat. Integrating the Charter objectives as “green and resilient, competitive and productive, just and inclusive, well-governed”, these can optimally exploit the resources specific to urban and metropolitan areas and create an existential framework conducive to sustainable urban development in the present and future. By following the objective “green and resilient,” aims to establish networks of green spaces and green corridors for roads and railways within urban areas. In this context, the primary goal of this study is to identify the preferences of the city’s inhabitants regarding urban landscape design specifically destined for university campus areas. The study case is about a Campus from Constanța (Romania), and the authors’ strategy is to develop a modern landscape design concept, using innovative GIS and BIM techniques, by conducting a survey based on a landscape questionnaire, addressed to local respondents.

ID: 290 | Advancements in Bio-Inspired Flight Systems and Bionic Aerodynamics Through Adaptive Morphology

Joaquin Rafael Pagaling (Abu Dhabi University); Dana Ibrahim Almansoori (Abu Dhabi University); Sharul Sham Dol (Abu Dhabi University); Mohammed Alavi (Abu Dhabi University)

Abstract:
The manuscript aims on the research, development and implementation of bio-inspired flight systems and bionic aerodynamics, which use natural design principles to enhance flight dynamics, energy efficiency, environmental adaptation and sustainability, for a UAV. The focus was on the following: to improve flight dynamics, energy efficiency, and environmental capacity; to develop and integrate a sustainable technology through natural processes; to increase engineering design flexibility through biomimicry; and to optimize cost-effectiveness. An innovative adaptive morphology is employed to integrate conceptual designs of this work, and this approach is believed to allow the emulation of animals’ flight dynamics. The Amphibious UAV was deemed the most feasible design, with utilization of tubercle propellers as modified propellers to replace conventional counterparts to increase coefficient lift, coefficient of drag, and thrust force generation. Additionally, Computational Fluid Dynamics (CFD) Simulation through ANSYS Fluent is executed at different rotor RPMs and Angles of Attack (AOA); aerodynamic comparison between conventional and tubercle propellers, and NACA 0012 airfoil are performed. Obtained results indicated that the AOA greater than 15 degrees degraded drone’s lift coefficient and increased drag coefficient. Tubercle propellers generated higher dynamic pressure and tip velocity at different RPMs. Future work will concentrate on experimental approaches to validate computational discoveries, miniaturizing components, and implementing A.I.

ID: 312 | Solar Panels Integration Into Flying Wing VTOL UAV Used For The Oil Palm Harvesting

Siew Fan Wong (Asia Pacific University of Technology and Innovation); Raja Zayed Al-Hamaideh (Abu Dhabi University); Numan Haqqani (Abu Dhabi University); Sharul Sham Dol (Abu Dhabi University)

Abstract:
The goal of this project is to integrate solar panels that can be used by a flying wing VTOL UAV as a source of energy to help in monitoring and harvesting the oil palm fruits. The paper focuses on the necessity of using drones employed with solar power to improve palm oil plantation activities. CFD simulation was done on the wing of the flying VTOL UAV integrated with solar panels, the winglets and the propellers to know the effect it has on the body of the flying wing. Another simulation was conducted on the structural to investigate the deformation of the solar panels when a certain amount of force is applied. Calculations were also performed to determine the power necessary for each position of the flying wing VTOL UAV, whether takeoff, hoovering or cruising, as well as the power provided by the solar panel, and so on. The proposed automation can improve accuracy, increase efficiency, reduce harvesting time, reduce waste, increase overall yield and reduce operation costs in the long run. The drones enable data collection and analysis of each individual tree allowing of unique care and precautions that are needed for optimal growth of the trees and harvest. As far as the feasibility is concerned, the simulation and calculations have proven that the proposed solution is truly possible.

ID: 313 | Design of Helix Heat Exchanger in Ocean Thermal Energy Conversion (OTEC) System

Bilal Al refaie (Abu Dhabi University); Mahmoud Abuhatab (Abu Dhabi University); Suhib Nafez Hammoudeh (Abu Dhabi University); Sharul Sham Dol (Abu Dhabi University)

Abstract:
This project investigates the design and performance of a spiral heat exchanger with ammonia (NH3) as cold fluid and seawater as hot fluid, using titanium as the primary material of construction. The study focuses on optimizing the heat exchanger for efficient thermal energy transfer and long service life in harsh marine environments. Using advanced design and simulation tools, we carefully matched the heat exchanger model to the actual dimensions, meshed it and defined the boundary conditions. The NH3 and seawater inlets were positioned to allow a counterflow configuration to maximize heat transfer efficiency. ANSYS Fluent was used to simulate and analyze the thermal and fluid dynamic behavior under the specified conditions. The results illustrate the effective heat transfer within the spiral heat exchanger, as shown by the temperature distribution contours, which reveal a progressive heating of the ammonia along the spiral path. The Nusselt number contours indicate robust convective heat transfer, particularly at the ammonia inlet, due to increased turbulence and fluid mixing. Pressure contour analysis shows a clear increase in pressure along the helix as ammonia transitions from liquid to vapor, highlighting the need for careful design to account for the dynamics of phase change. The choice of titanium as the material for the heat exchanger ensures excellent corrosion resistance and durability, which is essential for these applications. By using ammonia and seawater, sustainable and cost-effective thermal energy sources are utilized. This comprehensive study provides valuable insights into the design and operational optimization of spiral heat exchangers, contributing to the development of efficient and resilient thermal management systems for industrial applications.

ID: 455 | Soccer Ball Aerodynamics Enhancement by Simulation and Testing

Robert Riad Takla (Abu Dhabi University); Mohammed Alavi (Abu Dhabi University); Sharul Sham Dol (Abu Dhabi University); Ahmed Ashraf Mohamed Abouelenin (Abu Dhabi University); Ahmed Naser Abdelsattar Elsayed (Abu Dhabi University); Saeed Humaid Alshamsi (Abu Dhabi University)

Abstract:
This project aimed to design a soccer ball that favors attacking players. The project focused on decreasing drag coefficient, increasing lift coefficient, and increasing turbulent flow of the air surrounding the soccer ball. Moreover, CFD analysis and structural analysis was performed on ANSYS to determine optimal ball panel configurations surface texture, as well as velocity and pressure contour, and material durability. The results of the analysis showed that the total deformation induced on design B (4 nonagonal panels with unique angles and shapes) by the applied force of 1500 N in the x-direction was relatively small, and the maximum deformation observed was 2.3 mm. The analysis also showed that the maximum principal elastic strain in design B has a value of 0.32 m/m. The simulations confirmed that design B is optimal for the objectives and the ball will be turbulent in the air, and durable and resilient during football gameplay.