





# **INTERNATIONAL CONFERENCE** ON

Latest Advancements in Science, Management, Commerce and Educational Research

> 25<sup>th</sup> & 26<sup>th</sup> October 2023 Toronto, Canada

> > Organized by

University Canada West Vancouver, Canada and Institute For Engineering Research and Publication (IFERP)

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International conference on Latest Advancements in Science, Management, Commerce and Educational Research





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## 25<sup>th</sup> & 26<sup>th</sup> October 2023 Toronto, Canada

## Organized by

University Canada West, Vancouver, Canada & Institute For Engineering Research and Publication (IFERP)







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International Conference on Latest Advancements in Science, Management, Commerce and Educational Research

# LASMCER-2023

## 25th&26th October 2023 Toronto, Canada





# PREFACE

We are delighted to extend a warm welcome to all participants attending the International Conference on Latest Advancements in Science, Management, Commerce and Educational Research (LASMCER-2023), taking place in Toronto, Canada on October 25<sup>th</sup>-26<sup>th</sup>, 2023. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in the field of Science, Management, Commerce and Education. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for LASMCER 2023 contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of Science and Technology. All submitted papers were subject to rigorous peerreviewing by 2-4 expert referees, and the papers included in these proceedings have been selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results in Science, Management, Commerce and Education but also serve as a valuable summary and reference for further research in this field.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the many professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also extend our appreciation to the external reviewers for providing additional support in the review process and

 to the authors for contributing their research results to the conference.

Since June, the Organizing Committees have received more than 100+ manuscript papers, covering all aspects of LASMCER 2023. After review, approximately 50+ papers were selected for inclusion in the proceedings of LASMCER 2023. We would like to thank all participants at the conference for their significant contribution to its success. We express our gratitude to the keynote and individual speakers and all participating authors for their dedication and hard work. We also sincerely appreciate the efforts of the technical program committee and all reviewers, whose contributions made this conference possible. Finally, we extend our thanks to all the referees for their constructive comments on all papers, and we express our deepest gratitude to the organizing committee for their tireless work in making this conference a reality.



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# ABOUT LASMCER-2023

IFERP is honoured to extend an invitation to the world's most esteemed thinkers to attend its distinguished "International conference in Latest Advancements in Science, Management, Commerce and Educational Research (LASMCER-2023)" on October 25th and 26th 2023 in Toronto, Canada.

Cross-disciplinary topics like computer engineering and communication systems have an impact on everything from networking & communication, security & data privacy, artificial intelligence & machine learning, data science & analytics. Due to the interdisciplinary nature of computer engineering, we have developed an agenda that includes, among other things, communication systems and business development. A lot of people are expected to attend and listen to LASMCER-2023, a scientific conference. We are putting together an incredible scientific programme, led by eminent invited speakers, researchers, scientists, academicians, engineers, and industry spokespersons, that will not only highlight exciting new advancements in Computer Science & Engineering but also highlight its transformative significance in a variety of Communication Systems and Business Development.

We hope that the extensive scientific programme lives up to your expectations and that attending the conference will provide you the chance to network with coworkers, friends, and recognised specialists from across the world. We remain optimistic that the hybrid nature of International conference in Latest Advancements in Science, Management, Commerce and Educational Research (LASMCER-2023) will offer a free forum for debating all facets of matter at the nanoscale, exchanging ideas, igniting collaborations, and creating new networks despite the challenging times we are experiencing.

The Scientific Committee is putting together an engaging schedule that will cover all of these exciting aspects of Computer Engineering, Communication Systems, and Business Development and we'll have excellent keynote speakers, a fine Organizing Committee that will assist you before and during the event. The scientific conference includes keynote speakers, oral presentations, poster sessions, discussion forums, and workshops. This is a great chance to network in LASMCER-2023, share knowledge with a big audience, and present your research findings.

**CONFERENCE VENUE** 

## **CHELSEA HOTEL**

TORONTO 33 GERRARD STREET WEST, TORONTO, ONTARIO M5G 1Z4, CANADA



# **ABOUT IFERP**



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Institute For Engineering Research and Publication (IFERP) is a non-profitable professional association meant for research and development in the field of Engineering, Science & Technology. IFERP is on its way to digitize innovation processes through our professional networking services and thus Providing an Integrated Virtual Scientific Community, mutual engagement, exploring Potential of researchers, creating a cooperative and collaborative academic environment.

IFERP is a paramount body which has brought technical revolution and sustainable development in the field of Engineering, science and technology.IFERP fulfills the need of professionals even for their end to end research & development. IFERP supports the professional growth of its members by providing opportunities for professional networking, life-long learning and career development. Our members, associates, students & staff together made a few milestones achieved through our R&D activities in nook & corners of the world.

IFERP is a forum where innovations & research interest could be supported and developed prioritizing our mutual interest. Our forums & Associates consist of Professional leaders, Engineers, Academicians, Delegates, Scientists, students, Universities, Institutions, Industries, Organizations & Associations connecting each other with a mission to work as wizards of science for defending the earth. IFERP connects engineers, exchange global innovation and act as a bridge between Researchers & Academicians.





# MANAGING DIRECTOR'S MESSAGE



## Mr. A. Siddth Kumar Chhajer

MD & Founder, IFERP, Technoarete Group



On behalf of Institute For Engineering Research and Publications (IFERP) & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers.

The goal of the International Conference on Latest Advancements in Science, Management, Commerce and Educational Research (LASMCER-2023) is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in the field of Science, Management, Commerce and Education.

This conference creates solutions in different ways and to share innovative ideas in the field of Science, Management, Commerce and Education. LASMCER 2023 provides a world class stage to the Researchers, Professionals, Scientists, Academicians and Students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

LASMCER 2023 will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in Science and Engineering from all over the world. LASMCER 2023 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of Science, Management, Commerce and Education.

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# CHIEF EXECUTIVE'S MESSAGE



## Mr. Rudra Bhanu Satpathy

MD & Founder, IFERP, Technoarete Group



 IFERP is hosting the International Conference on Latest Advancements in Science, Management, Commerce and Educational Research (LASMCER-2023) this year in month of October. The main objective of LASMCER 2023 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts.

Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader. I express my hearty gratitude to all my Colleagues, Staffs, Professors, Reviewers and Members of Organizing Committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.





# WELCOME MESSAGE



## Ir. Dr. Mohammed Alias Yusof

Professor, Department of Civil Engineering, National Defense University of Malaysia, Sungai Besi Military Camp, Malaysia I am enormously delighted to participate in the International conference in Latest Advancements in Science, Management, Commerce and Educational Research (LASMCER-2023), which is organized By Institute For Engineering Research and Publication (IFERP).

I am certain that this conference will provide researchers and scholars with in-depth insight into theoretical and practical backgrounds related to sustainable technologies. I wholeheartedly appeal to all participants to move forward to conduct further advanced research in latest advancement in science and technogy.

My special thanks to the organizers for their great efforts in making this scientific event remarkable, stimulating, and successful. My thanks also go to all the participants. Wishing you all the best.



# WELCOME MESSAGE



## Dr. Hamed Taherdoost

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Associate Professor, Chair of Research and Scholarly Activities Committee, University Canada West, Vancouver, Canada I am honored to be a part of the International Conference on Latest Advancements in Science, Management, Commerce, and Educational Research (LASMCER-2023), a collaborative effort between the Institute for Engineering Research and Publication (IFERP) and University Canada West (UCW) as the Academic Partner.

In the modern landscape, where the Internet, advanced technologies, and sustainable innovations have become an integral part of our lives, this conference stands as a beacon of knowledge in an era where boundaries between disciplines continue to blur. This unique event provides a platform for a diverse audience eager to explore and understand the transformative potential of technological and scientifical advancements. Featuring distinguished speakers, prominent researchers, scientists, academicians, engineers, and industry experts, LASMCER-2023 not only unveils the latest strides in Engineering & Management but also emphasizes their vital role in shaping Education Systems and Business Development.

I extend my thanks to the organizers for their tireless efforts in shaping this scientific event into something remarkable, stimulating, and successful. Their commitment has laid the foundation for what promises to be an intellectually enriching experience.

My gratitude also goes out to all the participants who, with their collective knowledge and expertise, will undoubtedly elevate the discourse at LASMCER-2023. Your contributions are invaluable, and I look forward to engaging with you in our quest for deeper insights and innovative solutions.

Wishing you all the best as we embark on this journey of exploration and discovery.





# WELCOME MESSAGE



## Ms. Katharina Koerner

Founder, Al Education Network, United States "I'm excited to be a Session Speaker at the IFERP Conference, focusing on Network Security and Data Privacy. With expertise in privacy, AI, and a diverse career spanning management, Iaw, and technology, I bridge gaps between these areas.

Recently, I initiated the AI Education Network, providing K-12 students in Silicon Valley with a strong understanding of AI.

The IFERP Conference's mission to foster technologyknowledge societies for a sustainable future aligns perfectly with my passion for research and innovation. It's a fantastic platform to connect with like-minded professionals dedicated to shaping the world of business, science, and society.

In my session, I'll discuss current trends, share resources, and explore the evolving landscape of technology and data privacy.

I invite research students to join, gain knowledge, collaborate with experts, and stay updated on industry developments. Conferences like IFERP offer valuable networking opportunities and inspiration.



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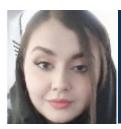
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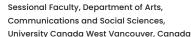
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# LASMCER-2023 ABSTRACTS

CANANDA



## Organizational Change to Enhance Business Continuity; Cybersecurity Perspective

## **Mitra Madanchian**

Department of Arts, Communications and Social Sciences, University Canada West, Canada

## **Hamed Taherdoost**

Department of Arts, Communications and Social Sciences, University Canada West, Canada

### Abstract

By ensuring the adaptation and implementation of effective security measures, policies, and practices in response to evolving cyber threats, organizational change plays a crucial role in enhancing business continuity from a cybersecurity perspective, minimizing vulnerabilities, and lessening the impact of potential breaches. As a result, organizations can manage the constantly shifting cybersecurity landscape and preserve the integrity, confidentiality, and accessibility of their vital systems and data. This study intends to look into how organizational change might improve business continuity from a cybersecurity standpoint. It looks at how to make change projects successful as well as the difficulties firms have in maintaining operational resilience in the face of cyberattacks. The study makes suggestions and advances knowledge of the crucial nexus between organizational change, business continuity, and cybersecurity.

### Keywords

Cybersecurity









## Addressing the Failure of GPT-Based Technology in Marketing: Solutions for Success

## Vaishali Sethi

Associate Professor, Department of Marketing, Strategy and Entrepreneurship, University Canada West, Vancouver, Canada

## **Chamandeep Kaur**

Sessional Faculty, Department of Marketing, Strategy and Entrepreneurship, University Canada West, Vancouver, Canada

### Abstract

Generative Pre-trained Transformer (GPT) is a type of deep learning architecture used in natural language processing (NLP) tasks. The use of GPT-based technology in marketing has become increasingly popular recently. However, their effectiveness has not always lived up to expectations, and failures have been reported. Furthermore, it is important to consider the ethical implications of using GPT-based technology in marketing. This includes being transparent with customers and ensuring that they are not deceived into thinking they are communicating with a human. This study highlights the features, challenges, and implications of using GPT-based technology in the context of marketing education have been discussed. To optimize the learning process, it is possible to improve certain features of GPT-based technology that can be utilized to analyze customer behavior and preferences more effectively in the field of marketing.

## Keywords

Generative Pre-trained Transformer (GPT), Natural Language Processing (NLP)





## The Impact of Brand Activism on Consumer Attitudes and loyalty: The Moderating effect of Authenticity Perception and Generational Cohorts

## Vahideh Baradaran

Assistant Professor of Marketing, Department of Marketing, Entrepreneurship, Strategy, University Canada West, Canada

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### **Ratnakar Mann**

MBA Student, University Canada West, Canada

## **Manpreet Singh**

MBA Student, University Canada West, Canada

### Abstract

Brand activism is on the rise as more and more companies are taking a stand on issues that are important to their customers. Brands are increasingly using their influence to speak out on issues such as climate change, gender inequality, and political divides. Brand activism has emerged as a powerful tool for developing customer loyalty as consumers increasingly seek out companies that align with their values and beliefs. In the realm of brand activism, there exists a perception among some customers that the involvement of brands may not always be genuine but rather opportunistic. This skepticism arises when customers suspect that brands are leveraging social and political issues solely for their own benefit, without truly embodying the values they claim to support. Despite the importance of brand activism, there is limited research focusing on the relative importance of brand activism among generational cohorts (Millennials, Generation X, and baby boomers) in Canada. This study has utilized a quantitative experimental approach to explore the significance of brand activism. Moreover, the current study provides insight into how businesses can leverage brand activism to develop successful branding initiatives in the modern marketplace. It also sheds light on the relationship between brand activism and customer loyalty interature.

### Keywords

Brand Loyalty, Brand Activism, Generational Cohorts, Brand Authenticity









## Exploring Aesthetic and Emotional Labor: International Business Students' Perspectives on Workplace Inclusivity

## Dr. Rafia Faiz

University Canada West, Canada

## **Rehan Ahmad Faiz**

Independent Scholar

## Abstract

This proposed research paper (study-in-progress) will examine the entanglement of aesthetic and emotional labor in multicultural workplaces inclusivity, drawing upon international business students' perspectives in a private university in Canada. Esthetic labor refers to the societal and organizational expectations placed on individuals to manage their appearance and adhere to certain visual standards in professional contexts, which can contribute to the exacerbation of stereotypes and marginalization. Emotional labor, on the other hand, entails managing and regulating one's emotions to meet the expectations of a given work role, which can lead to emotional strain and challenges in personal authenticity.

The proposed study aims to generate insights into how international business students perceive and navigate esthetic and emotional labor demands in multicultural workplaces, as well as the implications for cultivating inclusive workplace environments.

After obtaining Research Ethics Approval, reflective phenomenological research methodology will be undertaken in this study to conduct qualitative interview survey with business students at a private university. The data collected in this study will be subject to confidentiality and anonymity, and participants will have the right to withdraw from the study at any stage of the research process. The interview questionnaire will have four primary questions, with an additional question at the end for additional comments. Approximately twenty interviews will be transcribed, coded, and subjected to thematic analysis to identify salient patterns and themes.

This proposed study expands the existing literature on aesthetic and emotional labor by aiming at examining the impact of these labor demands on marginalized populations, specifically international students. By offering a unique perspective on the challenges faced by a diverse cohort preparing to enter the global workforce, the research holds implications for educational institutes, academics, and policymakers striving to create more inclusive and intercultural workplace environments.

## Keywords

Management, Diversity And Inclusion, Aesthetic Labor, Emotional Labor, International Students





## An Integrated Method Involving Ecodesign-Optimisation-Manufacturing

## H. Fihri-Fassi

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## Abstract

This work aims to study the environmental impact of producing plastic automotive parts by traditional manufacturing (TM) methods like injection molding, machining process, etc. compared to the additive manufacturing (AM) methods like 3D printing, stereolithography technology. We attempt to minimize the adverse environmental impact in two ways. The first applies topology optimization method to the model. The second optimizes the process in order to reduce the time involved in production. These operations are monitored and improved separately during each stage, i.e. computer aided design, computer aided engineering, computer aided manufacturing and also during the use of traditional or additive manufacturing. However, in order to make a program which validates the optimum model through rethinking conception methodology for plastic automotive parts all the stages need to be linked and analysed in relation to each other. Our team is working to implement an integrated approach focused on design, production, and environment friendly.

## Keywords

Traditional Manufacturing (TM), Additive Manufacturing (AM), 3D Printing, Stereolithography











## Adhesive Crack Modeling Using Discrete Least Squares Non-Grid Method

## Mohammad Tahmasebi

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## Abstract

Numerical modeling of crack is of high significance for researchers in engineering. Although finite elements have good capabilities for crack modeling, the use of shape functions and specific elements leads to some limitations in solving the discrete problem. One of the goals of applying numerical non-grid methods, including the least squares method, is to tackle with the mentioned problem. In this study, the discrete least squares non-grid method has been developed to predict crack tip opening, based on which, the adhesive crack theory was used to examine the crack behavior and the visibility criterion method was applied for its physical modeling. Indeed, adhesive crack theory is the most subtle technique to create discontinuities in non-grid approximations and is proportionally compatible with the discretization method of the physical domain. The numerical and crack models were both programmed in the Visual Fortran context, and finally, the high efficiency and accuracy of the discrete least squares method were demonstrated by solving standard problems as well as comparing the results of numerical solution with experimental results and the of the finite element method.

### Keywords

Discrete Least Squares Non-Grid Method, Adhesive Crack Theory, Visibility Method





## Monitoring and Evaluation and Efficient Production of Official Statistics within the National Statistical System: A Conceptual Framework of the Role of Strategies, Coordination and Digitization

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## Abstract

Monitoring and evaluation play a pivotal role in efficiently utilising public resources and effectively delivering government policies, programmes, and projects. Achieving the maximum outcome and impact on government services requires relying on M&E to assess what works, what does not, and the reasons for non-performance to provide impetus for policy intervention (Mackay, 2007, p. 9). As an important tool for government machinery, the National Statistical System requires the right leadership and coordination skills to map out effective and coherent strategies that can guide the coordination of statistical programmes pursuant to contemporary and emerging technology (Boateng; et al. 2021; GSS Act, 2019).

Producing official statistics is becoming demand-driven, with emphasis placed on statistical outcomes expected to meet the needs of key stakeholders. Attempts to meet the data needs of key stakeholders require a commitment to rally different actors into the M&E processes in the data production and utilization landscape. The actors include policymakers, planners, civil society groups, academia, businesses, and development partners stakeholders (Paris 21, 2008, p. 8). To ensure a properly coordinated and robust M&E system within the National Statistical System, adopting coherent M&E strategies, effective M&E coordination skills, and efficient technological skills driven by digitization in addressing the contemporary data needs of policymakers and other key stakeholders is critical.

The importance of monitoring and evaluation in rendering efficient services, transparency, and accountability in the public sector has received significant attention in academic research Aidlink, 2014, p. 2) In addition, the coordination of statistical programmes guided by coherent and consistent documentation of statistical production roadmaps, sector statistics production strategies, and policy guidelines has also assumed an unbridled dimension in recent times (\PARIS 21.docx). However, studies providing insight into the role of statistical strategies, M&E coordination of statistical programmes, and digitization remain unexplored. This paper, therefore, focuses on developing a conceptual framework to guide the effective implementation of M&E activities within the National Statistical Service within the parameters of statistical strategies, M&E coordination of statistical programmes, and digitization strategies, M&E coordination of statistical programmes, and statistical strategies, M&E coordination of statistical programmes, and digitization remain unexplored. This paper, therefore, focuses on developing a conceptual framework to guide the effective implementation of M&E activities within the parameters of statistical strategies, M&E coordination of statistical programmes, and digitization.

### Keywords

Digitization; Monitoring And Evaluation Coordination; National Statistical System; Official Statistics











## A Study On The Relationship Between CSR Initiatives and Sustainability of the Supply Chain and Logistic Industry in Myanmar: A Case Study using Thilawa Port (Yangon)

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## Abstract

Corporate Social Responsibility (CSR) has become a strong concern and there need to be guidelines for companies, particularly large international companies, many of which are considering CSR initiatives. This paper examines three CSR dimensions (social, ethical and environmental) and business sustainability through the concept of the triple bottom line: peopleplanet-profit concepts. It proposes a conceptual framework to classify various factors along the triple bottom line pillars of sustainability in the context of supply chains. The purpose is to find useful CSR activities for developing and implementing sustainable business strategy and policy decisions that affect logistics development in port-related industries.

## Keywords

Corporate social responsibility, CSR, Supply chain and logistics, Management, Sustainability, CSR Strategies





## Mental Health Status of Divorcees from Different Cultural Backgrounds in Kathmandu

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### Abstract

Divorcees have different psychological impacts because of their other caste/ethnicity, gender, and socio-cultural backgrounds. This study is about the cultural and psychological factors of divorce and its psychological impacts on different cultural groups. This research is designed in the mixed method research to understand the "Mental Health Status of Divorcees from Different Cultural Backgrounds in Kathmandu." The total number of participants was 48, selected by purposive sampling led by snowball methods. The qualitative data is analyzed through narrative techniques. Among the total population, it is found that psychological issues are significantly higher among females than males. The prevalence of stress, anxiety, and depression is higher in less educated females than in educated females. Similarly, it has been found that differences in cultural practices, including language, food, festivals, and family roles, lead to divorce. Data show that one-third of the informants have a severe level of anxiety and depression after they had divorced, but nearly fifty percent have mild to moderate levels of psychological issues, including anxiety, stress, and depression. Regarding their cultural issues, even normal behaviors act like cumulative frequency and gradually hamper their relationship. The research also shows that the higher the education of females, the higher the rate of divorce cases and the lower the psychosocial impact.

### Keywords

Divorce; Psychology; Stress; Anxiety; Depression; Cul-ture; Tradition and Society



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## Research Title: Crop Production, Pesticide Application and Its Impact on the Environment

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## Abstract

Pesticides are essential in crop production. They are used to control insects, pest and unwanted weeds in agriculture farm. Increase of the agriculture production is very important to provide balance food to this rapidly growth population in the world. Around one-third of the crop production are depending on the application of different kinds of pesticides. Cultivation without use of pesticides, the production would be decrease by 32%. Therefore, pesticides are play a vital role to control different kinds of plant diseases, insects, pest and weeds, and increasing the production. So that, it seems important to further discussion about the crop production process, the historical perspective, different kinds of pesticides use in cultivation farm, pesticides behavior and contamination, and their adverse impact on the environment. Mixed methodology is used for this study and SPSS for statistical analysis. This study indicates that the crop production and use of pesticides has a long history in many places in Nepal. The pesticides are categorized in to different parts such as; chemical classes, functional groups, mode of action, and toxicity. The pesticides contains chemical ingredients; hence, they can be also toxic to some other organism i.e., birds, fish and beneficial insects as well as water, air and soil. Furthermore, the contamination of the toxic pesticides may moves away from the target crop plants, which in turn lead to environmental pollution. In addition, such kinds of chemical residues directly affect to the human health through food and environmental contamination. Therefore, this study will provide some scientific information required for the use of pesticides in the agriculture farm and manage in the future.

### Keywords

Crop production, Environment, Pesticide, Nepal





## Investigation of Sustainable Design Strategies Implemented in Youth Centres in Nigeria

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## Abstract

This study identified and investigated the sustainable design strategies applied in youth centres in Nigeria to ascertain how environmental sustainability has been enhanced. The study adopted a systematic review of published existing bodies of literature for the collection of data. Data was collected using the qualitative and quantitative research method. The search was conducted with the use of various search engines to obtain information from research gate, google scholar, and other websites containing information on sustainable design strategies and their application in youth centres. The search was restricted to a timeline of ten years. The youth centres were randomly selected, and the findings revealed that the case studies moderately adopted the required sustainable design strategies in respect to energy efficiency and sustainable site. This study will aid in creating awareness of the importance of sustainable design strategies guarantees a reduction in energy consumption of buildings, as well as other benefits to the environment. This will have a positive impact on the overall health of citizens and the finances of the stakeholders. This research will contribute towards the development of a framework that permits the building stakeholders to incorporate sustainable design strategies at every stage of the building project.

## Keywords

Energy Efficiency, Environmental Sustainability, Sustainable Design Strategies, Sustainable Site, Youth Centres









## Factors Influencing Physicians in the Adaption of E-Detailing in the in-Vitro Diagnostic Industry

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## Abstract

The COVID-19 pandemic has prompted pharmaceutical and in-vitro diagnostic companies to integrate digital and traditional sales strategies, posing challenges for developing nations like the Philippines. This study investigated factors influencing physicians' adoption of e-detailing in the IVD industry. Doctors' perceptions of e-detailing, their intention to use it for information acquisition, and their influence on sociodemographic characteristics such as age, gender, years in practice, medical hierarchy level, the volume of laboratory requests, and frequency of interaction with pharmaceutical sales representatives were determined. The study identified the source of information used by physicians in acquiring new trends. The study excluded physicians outside the National Capital Region and those not involved in patient consultations. With 408 participants, descriptive statistics and Structural Equation Modeling were utilized to identify sociodemographic characteristics influencing physicians' perceptions, behavioral intentions, and intention to use e-detailing. A thematic analysis was used to identify common themes doctors use to obtain information about IVD tests. The study revealed three factors influencing physicians' decisions to adopt e-detailing in the IVD industry: perceived advantages, compatibility, and complexity of e-detailing. Most doctors believe e-detailing improves patient management quality and is compatible with the pandemic. However, there is a mixed reaction to switching from face-toface interactions to e-detailing. Some doctors preferred direct communication, while others were more open to digital platforms. The years of medical practice and hierarchy level significantly impact physicians' perception of e-detailing. Physicians who perceive e-detailing as advantageous, compatible with their professional needs, and less complex are likelier to adopt this digital tool. Age, years of practice, medical hierarchy, number of lab requests, and frequency of interactions with PSRs did not significantly influence physicians' intention to adopt e-detailing. Physicians use various communication tools to acquire knowledge about in-vitro diagnostic tests, including medical congresses, face-to-face visits and e-detailing, IVD company webinars, and social media. The most preferred method of communication is the combination of face-to-face visits and e-detailing. This study recommends creating accessible, personalized, multimedia-rich e-detailing materials, promoting twoway communication, regular updates, expert interaction, and gathering physician feedback.

## Keywords

Energy Efficiency, Environmental Sustainability, Sustainable Design Strategies, Sustainable Site, Youth Centres





## Leveraging Big Data to Strengthen Enterprise Security: Financial Technology

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## Abstract

As financial technology continues to grow and expand, the importance of strong enterprise security becomes increasingly critical. The broad amounts of data produced by these systems constitute significant challenges for traditional security measures. Leveraging big data analytics can provide a solution to strengthen enterprise security. Various organizations constantly generate much information due to globalization and technology, including machines like CCTV and mobile phones. This information generated can be helpful for privacy preservation, but Big Data analysis can also lead to privacy violations, such as targeted advertising. This paper examines privacy risks and proposes a framework for privacy preservation in unstructured data. A survey was conducted with 130 developers and designers from different institutions, and a theoretical model was tested using multiple regression analysis and Pearson correlation analysis. The study found that perceived threats, privacy preservation techniques, and long-term implications of privacy preservation accounted for a significant amount of variance. The research concludes with recommendations for future studies.

## Keywords

Big Data Analytics, Data Protection Regulation (GDPR), Privacy Preservation, Pilot Study, Perceived Susceptibility, Perceived Severity, Perceived Threat, Cronbach's Alpha









# Empowering Human Development: Bridging the Skills Gap for IR 4.0 through Digital Transformation addressing ICT, IoT and Artificial Intelligence Empowerment

## **Mohammad Monirul Islam**

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#### Abstract

Globally, ICT and artificial intelligence are powerful tools that enhance millions of people's quality of life. Besides providing access to healthcare, education, and financial services, they can also reduce poverty and inequality. In addition, these tools enhance productivity, efficiency, and safety at work. As Bangladesh faces development challenges, particularly concerning its workforce, this report focuses on how AI (artificial intelligence) and ICT knowledge development can reduce the skills gap between graduates and industrial workers based on current market demand. To explore the topic of employability and the skills gap between recent graduates and industry demand, the author conducted a thorough review of previous studies and collected data from 2014 to 2022. This resulted in over 100 publications, refined through manual filtering to a final selection of 42 for the study. Throughout the research report, we learn about the labor force's potential, the need for education and training, and the impact of the Fourth Industrial Revolution. This research analysis included a project to improve basic ICT skills and industries' automated machine operational knowledge by installing additional AI (artificial intelligence) and ICT (information and communication technology) equipment. The project is expected to provide the labor force with the skills required to transition from manual labor to high-tech jobs. It also seeks to increase job opportunities for the labor force and provide them with the training they need to take advantage of them. Finally, the project is expected to reduce poverty and inequality in Bangladesh. Moreover, the project contributes to UN Sustainable Development Goals 4, 8, and 9 by aligning with Bangladesh's Perspective Plan 2021–2041.

#### Keywords

Artificial intelligence, Decent work, Industrial labor, Industrial revolution 4.0, Market demand, Project management, Quality Education, Skill development, Sustainable Development Goal





# A Lithium-Ion Battery Remaining Useful Life Prediction Method with a New Algorithm based on Incremental Capacity Analysis

## **Alice Cervellieri**

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#### Abstract

Safe use of lithium-ion batteries requires accurately assessing state of charge (SoC), state of health (SOH) and capacity estimation techniques. Due to numerous charge and discharge cycles, lithium ion batteries undergo a degradation process during their use leading to failures, accidents, and fire. Traditional ICA/DVA methods have been used to overcome these issues, but they are subject to changes in battery resistance and polarization processes during battery aging. Evaluation of the SoC as a function of incremental capacity is proposed in this work to overcome this problem. This article used a new algorithm to perform, through simulations carried out with Matlab® software, incremental capacity analysis for a preventive estimate of remaining useful life (RUL). In addition, the comparison between IC curves and the SoC here used fully represents the relationship between the IC values and the internal parameters of the battery. The validity of the proposed algorithm against the phenomenon of battery aging was evaluated based on experimental data from NASA's PCoE research center.

#### Keywords

Electric Vehicles, ICA/DVA Methods, Lithium-ion Batteries, State of Charge







# A SOC and RUL Prediction of Lithium-Ion Batteries based on a New Algorithm for ICA/DVA Simulation

## **Alice Cervellieri**

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#### Abstract

The BMS Battery modeling system aims to calculate the State of Charge analysis. State of Charge analysis is critical to predicting the proper functioning of EV batteries. The relationship between incremental capacity and voltage makes it possible to predict the degradation process of batteries. Traditional methods based on IC/DV curves have been used with this goal in mind but are dependent on chemical polarization processes during aging. In this work, a new algorithm created with the Matlab® software, based on the ICA/DVA comparison, was used for a preventive estimate of the remaining useful life (RUL).

In this article, datasets from the Everlasting Research Center have been used to make appropriate performance considerations of the models that best calculate the life cycle of the battery, drawing relevant implications for the future development of sectoral innovation systems based on such technology. In addition, the comparison between IC curves and the SoC here used fully represents the validity of the proposed algorithm and precisely identifies the characteristics of interest in the incremental capacitance (IC) and differential voltage (DV) curves for future applications.

#### Keywords

Electric Vehicles, ICA/DVA Methods, Lithium-ion systems, State of charge





# A Lithium-Ion Battery Remaining Useful Life Prediction Method with the Incremental Capacity Analysis based on a New Algorithm

## **Alice Cervellieri**

Polytechnical University of Marche, Italy

#### Abstract

Accurate state of charge (SoC) estimation techniques are required for the safe use of lithium-ion batteries. This paper uses a new algorithm to study incremental capacity analysis (ICA) and differential voltage analysis (DVA) methods for state of charge (SoC) and incremental capacitance (IC) estimation.

In addition, the algorithm was created using Matlab<sup>®</sup> software, and proposes an ICA/DVA method to predict battery aging. This article used experimental data from the University of Aachen to calculate and compare state of charge (SoCs) and incremental capacitance in battery charge and discharge cycles. The validity of the algorithm was tested under the effects of cell degradation by comparing the ICA/DVA methods and, by simulating and comparing the incremental capacitance-voltage and incremental capacitance-SoC curves. Finally, the results show that the simulations carried out in this paper reflect well the state of degradation of the batteries and confirm the validity of the method proposed in the RUL forecast.

#### Keywords

Electric Vehicles, ICA/DVA Methods, Lithium-ion systems, State of charge







# Literature Review of SOH of Lithium-Ions Batteries and Their Transformative Role within Sectoral Innovation Systems

## **Alice Cervellieri**

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## Abstract

Lithium-ion batteries have recently seen an increasing diffusion due to their wide field of application, particularly in the electricity and aerospace sectors. Since the beginning of electric vehicle development, research on battery management systems (BMSs) has always been of primary importance for assessments of the State of Charge SOC of lithium ion batteries per. State of Charge estimation was used in particular to assess the life cycle of batteries. This article studies how SOC and State of Health (SOH) can be estimated and what methods can be used for their evaluation. In particular, this paper proposes models to track the State of Charge using sensitive BMS data to derive equivalent circuits starting from current, voltage and temperature values and describe several approaches for the evaluation of SOH. In this work, researcher presenting a general battery SoC estimation and review SoC calculation techniques. In particular, we demonstrated the high accuracy of the results in analogy with the current driving conditions of EVs.

#### Keywords

Electric Vehicles, SoH Methods, Lithium-ion Systems, Economic EV potential





# A Critical Review of Lithium-Ion Batteries from a Safety Testing Prospective

## **Alice Cervellieri**

Polytechnical University of Marche, Italy

#### Abstract

In recent years, lithium-ion batteries have increasingly developed on the market due to massive user demand. Lithium-ion batteries are distinguished from other batteries by their higher volumetric energy density, higher density and low maintenance characteristics. The lithium-ion battery pack is used as energy storage, and a high-fidelity battery model is required to estimate parameters such as battery charge status (SOC), battery health (SOH), and remaining capacity.

The BMS Battery modeling system aims to calculate the State of Charge analysis.

State of Charge analysis is critical to predicting the proper functioning of EV batteries.

Studying the relationships between the intrinsic parameters of batteries, such as incremental capacity and voltage, makes it possible to predict the State of Charge of lithium-ion batteries.

In this article, datasets from the world's leading lithium-ion battery universities have been used to make appropriate performance considerations of the models that best calculate the life cycle of the battery, drawing relevant implications for the future development of sectoral innovation systems based on such technology.

#### Keywords

Electric vehicles, SoH Methods, Lithium-ion Systems, Economical EV potential







# Employability of BEED (Bachelor of Elementary Education) Graduates from 2018-2020

## Jocelyn Sagun De Vera

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#### Abstract

In a fast and very competitive labor market, the academic preparation of graduates is provided by higher education institutions to them. With good skills, one will be more qualified, eligible, and competent to face new jobs and work assignments, especially when holding positions. This study was conducted to determine and trace the Bachelor of Elementary Education graduates major in Enhanced General Education of Pangasinan State University Alaminos City Campus from 2018 to 2020. The study used a descriptive survey method employing questionnaires to collect the needed data. With the use of Google Forms and social media such as Facebook and Messenger respondents' employment, factors securing their employment, and their security of tenure are determined. A total of 207 graduate respondents or 81.82% joined the said survey. Results showed that most of the graduates of 2018 are employed as private school teachers with a frequency of 27 or 38.03% while 12.68% are employed as permanent teachers in the public school. The same trend was observed in the graduates of 2019 where 16.21% of them are employed as public school teachers and 26.12% of them are still in a private school with probationary status. Meanwhile, 2020 graduates who were affected by the pandemic are employed in private schools and hired as tutors, sales executives, call center agents, administrative aides, and microfinance officers with contractual work status.

#### Keywords

Employability, Teaching, Tutor, Graduates, Academics





# Analyzing the Determinants of Consumer Buying Behavior on Facebook Marketplace in Myanmar: A Quantitative Approach

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#### Abstract

The advent of social media platforms like Facebook has revolutionized the landscape of marketing and consumer behavior. This study narrows its focus to assess how visual appeal, ease of use, trust, and electronic word of mouth influence consumer buying decisions on Facebook Marketplace in Myanmar. Utilizing a sample size of 384 participants sourced through simple random sampling, data were collected via questionnaires from Facebook users frequenting public and educational spaces in Myanmar. This study utilizes descriptive statistics, Pearson Correlation, and Multiple regression models to assess the relationship between these characteristics and consumer purchasing behaviors. Results indicate a significant and positive correlation between the identified factors and consumer buying behavior, with trust standing out as the most influential factor.

#### Keywords

Facebook Marketplace, Consumer Buying Behavior, Online Shopping In Myanmar, Social Media







# Food Traceability Application using Blockchain Technologies and the Internet of Things (IoT): Barriers & Success Factors

## Amit Kohli

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#### Hansinie Lorenzuhewa

University Canada West, Canada

#### Abstract

The food supply chain is a highly diverse and complicated collective involving many players from the origin to the end, passing through numerous phases. Therefore, issues and vulnerabilities are often expected in food supply chains. The recent disruptive advancements in technologies, such as the Internet of Things (IoT) and Blockchains, have significantly escalated the potential to make improvements in food supply chains performance and management. One such application is improving transparency in supply chains, which is particularly important in food-related industries, where it would support several issues related to food safety, waste minimization, customer service and source tracking (traceability). Specifically, in the department of food traceability, sophisticated technology was demanded by the recent outbreaks of food scandals worldwide to trace back and get to those responsible players in food supply chains for legal action. Further, the ability to trace the processes forward and backward could shed light on a series of events to reflect upon and learn the lessons from the past. To reap such benefits, companies would face the challenges of how to go about planning to embrace disruptive innovations, designing, and deploying the new systems, and propagating the technology along their supply chains, which often include global suppliers in developing countries. The study presents the barriers to adopting digital technologies into the food supply chain and the factors leading to mitigating such barriers.

#### Keywords

Blockchain, Food, IoT, Traceability





# Adoption of Cryptocurrency and Future Research Trends

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#### Abstract

Cryptocurrencies are quickly gaining traction as a new kind of virtual financial system with possibilities in many fields, because of its novel distributed and decentralized technique. Since research into cryptocurrencies is expanding rapidly, it's significant to assess its state and pinpoint promising new avenues of study. However, research into what influences people to adopt a cryptocurrency has lagged. This review aims to meet that need by looking at different research areas related to the adoption of cryptocurrencies. It will look at the factors that affect the decision to adopt cryptocurrencies (motivators and barriers), in addition to theories and models used in studies about the adoption of cryptocurrencies. This article also discusses the results by studying the gaps in cryptocurrency adoption. The last part of this article focuses on the various future routes that the use of cryptocurrencies may take.

#### Keywords

Acceptance Model, Adoption Model, Blockchain Adoption, Cryptocurrency, Cryptocurrency Acceptance

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# Application of Malmquist Data Envelopment Analysis in Maritime Supply Chains

## Dr Adeola Oluwatoyin Osundiran

University of South Africa, Graduate School of Business Leadership, Midrand, South Africa

#### Makgopa Tshehla

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#### Abstract

The Malmquist Productivity Index-Data Envelopment Analysis is pivotal in the determination of efficiency in the maritime supply chain. This paper uses DEA-MPI to determine the efficiency levels of Ports in South Africa over a selected time period and the underlying implication on the maritime supply chain. The role of the port in maritime supply chains have an underlying implication on the sustainability of the maritime entrepreneurial business. To what extent are efficient maritime businesses able to contribute to the eradication of poverty through the creation of employment opportunities. What are the prevailing challenges? The Malmquist Productivity Index is applied to determine the productivity levels of selected maritime supply chain stakeholders and its overall influence on the maritime value chain. As a result of Covid-19 and other pertinent factors, poverty has increased in South Africa. The implication of an efficient port is that it promotes the sustainability of all other businesses along the value chain. Sustainable businesses is crucial to combating poverty. This is where the criticality of SMEs and Entrepreneurs can not be undermined. The efficient SMEs and Entre-preneur is needed to create jobs and add value. This is the rationale for this study.

#### Keywords

Malmquist Productivity Index, Sustainable, Maritime Supply Chains





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# Comparative Study on Gender and Academic Performance in Different Subject Areas

## Dr. Kishor Kumar Dash

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#### Abstract

**Introduction:** The introductory part consists of the existence of gender disparity and its impact on the primary context of academic performance. The primary aim of the research along with research objectives and suggestible questions helps the research work to portray its function.

**Literature Review:** The research objectives regarding gender-based academic disparities stem from multifaceted interactions of various factors, underscoring the topic's relevance and complexity. The differences and ramifications along with educational policies present the effect of the gender nuances in academic development.

**Methodology:** This section accentuates the core qualitative data collection methodology. Information has been gathered from a pool of 55 respondents, utilizing questionnaires comprising 10 survey queries. The statistical outcomes play a pivotal role in facilitating hypothesis-testing endeavors.

**Findings:** The hypothesis result derived from SPSS analysis along with demographic and descriptive statistics is discussed here. The resultant outcome denotes the connection among the research variables.

**Discussion:** This part focuses on the insights of the relevant solution to the problem and portrays the results of the findings for relating and justifying the contents of the objectives.

**Conclusion:** This portion simplifies the study regarding gender discrepancy and its impact on academic performance.

#### Keywords

Educational Attributes Academic Performance, Gender Discrepancy, And Inequality, Decision-Making





# Eco-Design-Optimization-Manufacturing Involved in One to Perform an Optimum and Sustainable Product

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#### Abstract

This paper search to involve the eco-conscious design method with mechanical design and topology optimization to offer an optimum and sustainable product early at the CAD stage. We attempt to minimize the adverse environmental impact in two ways. The first applies topology optimization method to the model. The second optimizes the process in order to reduce the time involved in production. These operations are monitored and improved separately during each stage, i.e. computer aided design, computer aided engineering, computer aided manufacturing and also during the use of traditional or additive manufacturing. However, in order to make a program which validates the optimum model through rethinking design methodology for automotive parts all the stages need to be linked and analyzed in relation to each other. The proposed strategy will be applied to an industrial case study.

#### Keywords

Eco-design, Environment, Topology Optimization, Design, Sustainability, Brake Pedal, Additive Manufacturing





# A Critique on Creative Economy as a Potential Tool for the Promotion of Thailand's Sustainable Development Policy

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#### Abstract

The creative economy is the potential tool to drive the sustainable development where the state authority has to ensure its effectiveness. Thus, it is an interesting to critique its potential and outweigh the merit to drive the sustainable development. The main research question is How was the creative economy concept interpreted in Thailand? And How is the concept of Thailand's creative economy effective? The objective is to critique the potential and effectiveness of the creative economy by a case study of Thailand with the assessment tool as the 17 SDGs to see the effectiveness of creative economy to make a progress for sustainable development. The methodology which was being used in this research is content analysis and case study to gather the shared characteristic of creative economy from diverse usage in the world to conceptualize the overall concept before taking a look in a case study. For a case study of Thailand, I referred the shared concept of Thailand's creative economy and the global concept before analyzing how does the creative economy interpreted in Thailand to see the effectiveness and potential of it to achieve the sustainable development afterwards. There is the finding that the creative economy could accomplish three pillars of sustainable development by adding value to noneconomic capital and human capital to reach their full potential to create more revenue than traditional way. It becomes an evident through the presence of creative economy in the national development strategy and sustainability plan, including in Thailand where mentioned the concepts in line with the global creative economy which has potential to drive the sustainable development, by utilizing the SDGs to assess. On the contrary, there is the contradiction of Thailand's creative economy effectiveness and Thailand's progress to achieve sustainable development. From researching, it could imply that the successful policy or progress of sustainable development need to consider the assessment of policy with actual outcome as well as considering the potential of national administration to see whether a policy and country are able to implement the effective development to progress the sustainable development.

## Keywords

Sustainable Development, Creative Economy, Thailand





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