



Faculty
OF Business &
Informatics

BUSINESS, TOURISM AND INFORMATICS SYMPOSIUM, 2024

**THEME: Promoting Integral Human
Development through Business,
Tourism, Mathematics & Technology
in Papua New Guinea**

Date: Friday 6th Dec 2024

Starting Time: 9:00 am

Venue: Sir Peter Barter Auditorium



Committed to Integral Human Development

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Welcome message from the Symposium Coordinator

Martin Daniel

On behalf of the Faculty of Business and Informatics, Divine Word University, I welcome you to the 5th Business, Tourism and Informatics Symposium. This year, we gather under the theme “Promoting Integral Human Development through Business, Tourism, Mathematics & Technology.

The symposium provides an avenue to promote a scholarly culture, which can positively impact our teaching, learning, research and other professional activities. It allows academics and non-academics to share and exchange knowledge with others, both within and outside the University. The symposium enables critical and constructive discussions about important issues and how to address identified problems.

This theme emphasises the importance of collaboration across disciplines in shaping a future where every individual can thrive. By integrating the principles of business, the potential of tourism, the precision of mathematics, and the transformative power of technology, guided by ethics, we can create solutions that address contemporary challenges and empower communities to reach their full potential.

Integral human development, at its core, is about fostering the holistic growth of individuals and communities. It calls for ethical practices, innovation, and partnerships that prioritize people, their well-being, and their aspirations. Our discussions today aim to highlight how these fields intersect and contribute to building a sustainable and inclusive Papua New Guinea.

Let us approach this event with curiosity, enthusiasm, and a shared commitment to leveraging our collective knowledge for the greater good. Together, we can reaffirm the importance of integral human development as a foundation for progress in our nation.

I commend our presenters, speakers, and participants for embracing this opportunity to share their knowledge, insights, and experiences and how we can work together to promote integral human development through business, tourism, mathematics and technology.

Thank you for your presence, your contributions, and your dedication to this important event. I wish you all a thought-provoking and inspiring day as we work toward building a brighter future through collaboration and innovation where no one is left behind.

Once again, welcome, and may this symposium be a success!

Dr Martin Daniel (PhD)
Coordinator | Business, Tourism & Informatics Symposium
Chief Editor | Book of Abstracts
Dean & Associate Professor | Faculty of Business & Informatics



A success story: The power of the informal business sector in shaping and strengthening PNG rural-urban Artisan women's financial, mental and emotional health

Marilyn Menz

Abstract

Integral Human Development (IHD) encompasses the personal, spiritual, cultural, social and economic aspects of a person. For one to thrive, these five components of a person must be seen to function relatively well. In this context, financial freedom plays a huge role in IHD as it is a critical factor in determining one's personal, social and economic well-being. The focus of this paper seeks to illustrate the impact financial freedom, through the informal business sector, has on the underrepresented group of local women utilizing their artisanal skills to generate revenue to support their well-being. As social entrepreneurs and agripreneurs, LNM SERVICES has established a platform, LNMS Agency, which has allowed us the privilege to work closely with rural-urban artisans since 2021, to create and establish both local and international business-to-consumer and business-to-business markets as a way to support our people in the community through the provision of an additional source of income. This paper shares success stories of this platform, our buyers and most importantly our rural-urban artisan women and the impact the additional source of income has had in shaping and strengthening their financial, mental and emotional health and resilience to contribute meaningfully to their families, communities and society as a whole whilst thriving in and amongst daily challenges faced. The paper also highlights factors affecting the artisan market and provides suggestions for addressing these issues to allow all who depend on this sector for their well-being to be able to conduct business effectively and contribute meaningfully back to their communities and the country as a whole.

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Biodata

Marilyn Menz is the co-owner of LNM SERVICES PNG - a social and agri-preneur platform. As social entrepreneurs, they established the platform LNMS Agency in 2021 to connect rural-urban artisans directly to local and international B2C and B2B markets as a means to provide an additional source of income to rural-urban artisans.



Impacts of graduate development programs on university graduates in Papua New Guinea: Skills development, career trajectories, compensation and professional integration

Kosley Wara

Abstract

Graduate Development Programs (GDPs) play a significant role in shaping the careers of university graduates by enhancing their skills, improving their career trajectories, and facilitating their integration into professional environments. In Papua New Guinea (PNG), where industries are evolving and there is a growing need for skilled professionals, these programs can be crucial in equipping graduates with the tools necessary to thrive in the workforce. This paper examines the impacts of GDPs on university graduates in PNG, focusing on skill development, career progression, compensation outcomes, and professional integration. The study explores how GDPs contribute to the development of both technical and soft skills, the acceleration of career advancement, and how they affect graduates' compensation in terms of salary and benefits. Furthermore, the research investigates how these programs help graduates transition smoothly into professional roles, build essential networks, and achieve job satisfaction. By addressing these factors, the paper provides valuable insights into the role of GDPs in supporting graduates' long-term career success and meeting the labour market needs in PNG.

Keywords: Graduate Development Programs, university graduates, skill development, career trajectories, compensation, professional integration, Papua New Guinea, workplace readiness, salary outcomes, job satisfaction.

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Biodata

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Health service delivery in the Middle Ramu District of Madang Province in Papua New Guinea

Joe Agavi

Abstract

Developing countries face many challenges to service delivery, despite efforts being made by governments and relevant organisations. Developing countries have many in common when faced with health service delivery. Commonalities exist in the challenges and solutions they bring to mitigate the impacts of the lack of service delivery. PNG like other countries faces similar challenges. The basic health needs of the vast rural-based population remain unsatisfied. The Middle Ramu, one of the districts in PNG, has been identified as one of the least developed in PNG, with poor health service delivery. This paper reports on a study undertaken to identify some challenges to health service delivery and provide recommendations to address these challenges. Mixed methods were employed including the use of questionnaires and interviews to collect data, which were then analysed using statistical and thematic analysis. The findings identified various challenges and recommendations for improvement. The Madang Provincial Government and Health Authority can use these findings and recommendations to make proper planning and decisions so that the status of service delivery is improved to the expected levels.

Keywords: Health service delivery, Madang, Middle Ramu District, Papua New Guinea

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Biodata

Joe Russell Agavi has a Bachelor of Management from the PNG University of Technology and a Master of Leadership in Business Administration from the Divine Word University. He worked mainly in the fuel and lubricant industry; having stints as Manager of Retail and Commercial for British Petroleum, Shell and InterOil Products Limited. He joined Water PNG Limited in 2011 as Customer Services Manager for its Lae business centre. Currently, he lives and works in Port Moresby as the General Manager – People and Culture for Water PNG Limited. Email: agavijr@gmail.com.



The potential of paranormal tourism in Papua New Guinea: Witch or witched

Fiona N'Drower

Abstract

Paranormal tourism can be discussed as the movement of people to other places with the motivation to experience supernatural phenomena. Paranormal tourism is a combination of heritage tourism and dark tourism. Heritage tourism entails delving into the local culture and history of a place. Dark tourism caters to people visiting sites associated with human tragedy, suffering and death. Destinations in Europe have been exhilarated by the notion of paranormal tourism, places like Spain, Scotland and England have embraced this form of special interest tourism. These places have taken advantage of their rich heritage and gothic history. PNG as a tourist destination can capitalize on its existing resources such as myths, legends, and relics from both the world wars and offer paranormal tourism as an alternative form of tourism to mainstream tourism products. This could be a competitive advantage for PNG over other Pacific Islands.

Keywords: dark tourism, heritage tourism, Papua New Guinea, paranormal tourism.

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Biodata

Fiona Pisong N'Drower (PhD) is the Head of the Department of Tourism & Hospitality Management in the Faculty of Business and Informatics at the Divine Word University. Email: fndrower@dwu.ac.pg.



A data-driven approach to predict social impacts of rural tourism: Insights from UNWTO video campaigns

Kamuna Kipa

Abstract

The social impacts of rural tourism are pivotal for sustainable development and community empowerment. This study employs a data-driven approach to assess the efficacy of promotional efforts by the United Nations World Tourism Organization (UNWTO) in enhancing tourism's societal benefits. Using Convolutional Neural Networks (CNNs) with the VGG16 model, the study classifies visual content from UNWTO campaigns and predicts key metrics such as YouTube video views and annual GDP growth. Regression analyses—linear, Lasso, and Ridge—were applied, revealing linear regression's superior predictive accuracy, with R^2 values of 0.60 and 0.83 for video views and GDP growth, respectively. The findings underscore the potential of advanced image analytics and deep learning to forecast tourism outcomes, offering actionable insights for strategic marketing and resource allocation. This research contributes to the growing intersection of AI, tourism studies, and rural development by demonstrating the significant role of visual media in shaping the socio-economic impacts of tourism.

Keywords: Convolutional Neural Network, data-driven prediction, rural tourism, socio-economic impact, tourism analytics, UNWTO, VGG16.

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Researchers: Kamuna Kipa (Presenter), Nigel Kari Totona (Presenter), Eunbi Cho, Jeongho Kim, Seon Tae Kim, Joo-Hee Oh

Biodata

Kipa Kamuna has a Master's Degree from the Handong Global University, South Korea, in the field of International Management and leadership. He is currently a researcher and a lecturer at the University of Papua New Guinea, focusing mainly in the field of Tourism and Business Management. Email: kipakamu@gmail.com; LinkedIn: - Kamuna Kipa : <https://shorturl.at/SlowK>



Union-closed families and a way of solving it with lattices

Lakoa Fitina

Abstract

In 1990 Renaud studied families of union closed sets and related sequences of numbers. He also defined the Renaud boundary function. In this paper, we discuss Renaud's work and the union closed sets conjecture which inspired much of Renaud's research in the 1990's. In particular, we look at boundary collections when the number of sets is a multiple of 3. Although we do not solve this special case we suggest a way of solving it.

Keywords: Union-closed set, boundary set.

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Biodata

Lakoa Fitina is a Professor at the Divine Word University. He is a mathematician and computer scientist who is interested in the applications of mathematics to computer science. Lyall Dale is a Mathematics and Computing Science graduate with nine years of lecturing experience in the Mathematics and Computing Science Department. He is passionate about applied mathematics in finance, discrete mathematics, and cryptography. Samuel Ndranou holds a Bachelor of Mathematics and Computing Science degree. He is interested in the application of mathematics and computer science in financial engineering. Lorraine Ipambonj holds a Bachelor's degree in Mathematics and Computing Science. Bernard Antwi-Gyimah is a software developer with a strong interest in researching remote sensing imagery, unmanned autonomous vehicles, and robotics, applying machine and deep learning algorithms.



Assessing regional disparities in human development and multidimensional poverty: A satellite imagery and machine learning approach using satellite image data to predict the HDMI index of Papua New Guinea

Nigel Totona

Abstract

Regional disparities in human development and poverty are critical challenges for sustainable growth. This study examines disparities across 213 subnational regions, with a specific focus on Papua New Guinea (PNG) as a case study of a low-ranking country on the Human Development Index (HDI). By combining the HDI and Multidimensional Poverty Index, the research captures nuanced dimensions of poverty and development. Leveraging satellite imagery and machine learning techniques, including convolutional neural networks, the study identifies spatial and temporal patterns in human development and poverty. PNG's unique socio-economic landscape, characterized by stark urban-rural divides and limited infrastructure, highlights the effectiveness of geospatial analysis in uncovering hidden disparities. Results reveal significant heterogeneity within PNG and across other regions, emphasizing the inadequacy of national averages in reflecting true developmental progress. This research underscores the potential of tailored, region-specific interventions and the integration of advanced geospatial technologies with socio-economic data for more effective development planning globally.

Keywords: digitalizing traditional processes, Divine Word University, efficiency gains, mobile application integration, overall effectiveness, traditional service delivery, user satisfaction.

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Researchers: Sukbeom, Chang, Youeel, Ivis Maria Jeongho Kim, Nigel Totona (Presenter)

Biodata

Nigel is a tutor with the Department of Business Studies at Divine Word University (DWU). He has a Bachelor of Business (Management) from DWU. He is currently doing his Masters of International Global Management and Leadership, at the Handong Global University, South Korea.

Program of the Symposium

Time	Activities
9:00-9:05am	Opening prayer Haroldlyn Larsh Department of Business Studies
9:05-9:10am	Welcome Remarks Dr Martin Daniel (PhD), Symposium Coordinator Dean, Faculty of Business & Informatics
9:10-9:25am	Opening Remarks Professor Iwona Kolodziejczyk (PhD) Vice President of Academic Affairs
9:25-9:35am	Impacts of graduate development programs on university graduates in Papua New Guinea: Skill development, career trajectories, compensation and professional integration Kosley Wara Head, Department of Business Studies
9:35-9:45am	A success story: The power of the informal business sector in shaping and strengthening PNG rural-urban artisan women's financial, mental and emotional health Marilyn Menz Co-owner of LNM SERVICES PNG
9:45-10:00am	Keynote Speaker Prof Maretta-Kula Semos (PhD) Professor of Humanities & Director of Higher Degrees
10:00-10:40am	Break
10:40-10:50am	Health service delivery in the Middle Ramu District of Madang Province in Papua New Guinea Joe Agavi General Manager, People and Culture for Water PNG Ltd
10:50-11:00am	The potential of paranormal tourism in Papua New Guinea: Witch or witched Dr Fiona Ndrower Head, Department of Tourism & Hospitality Management
11:00-11:10am	A data-driven approach to predict social impacts of rural tourism: Insights from UNWTO video campaigns Kamuna Kipa Lecturer, University of Papua New Guinea
11:10-11:20am	Union-closed families and a way of solving it with lattices Lakoa Fitina, Lyall Dale, Samuel Ndranou, Lorraine Ipambonj, Bernard Antwi-Gyimah Staff from the Department of Mathematics & Computing Science
11:20-11:30am	Assessing regional disparities in human development and multidimensional poverty: A satellite imagery and machine learning approach using satellite image data to predict the HDMI index of Papua New Guinea Nigel Totona Staff of the Department of Business Studies currently taking Masters of International Global Management and Leadership, at the Handong Global University, South Korea
11:30-11:40am	Closing Remarks Dr Martin Daniel (PhD)
11:40-11:45am	Closing Prayer Roy Baelua Department of Business Studies