NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Research Week Programme

A Decade of Eminence

Strengthening and Repositioning Research for Industry Partnerships and Engagement

Wednesday, 01 - Friday, 03 October 2025

07:30

NUST Lower Campus, Auditorium 1

Time	Activity	Presenter
	DAY 1: WEDNESDAY, 01 OCTOBER 2025 **Master of Ceremonies: Ms Yatva Hinda**	
07:30	Registration	
08:30	Opening Remarks	**Prof Andrew Niikondo** *Deputy Vice-Chancellor: Teaching, Learning and Technology, NUST*
08:40	Guest Speaker	**Ms Melissa Shanjengange** *Human Resources Executive: Oyu Tolgoi LLC, Mongolia*
08:50	NUST 10-Year Research Journey	**Dr Anna Matros-Goreses** *Executive Director: Directorate for Research, Innovation and Partnerships, NUST*
09:00	Guest Speaker	**Mr Shiwana Ndeunyema** *Executive: Corporate Strategy, NAMCOR*
09:15	**Entertainment**	
09:30	Break	
	TECHNICAL PRESENTATIONS (AUDITORIUM 1): **WORKSHOP SESSION 1:** ETHICAL ARTIFICIAL INTELLIGENCE (AI) AT HTTPS FACILITATOR: **Prof George Dimitoglou,** *Fulbright Specialist*	
10:00	**Deep Learning with Optical Flow Attention for Coastal Wave Prediction**	Abubakar Hamisu Kamagata, and Dharm Singh Jat
10:30	**Advancing Innovative Research Output Commercialisation: A Successful Model of Academia-Industry Collaboration**	Adewole Simon Oladele
11:00	**Analysing the Impact of SIM Swapping Fraud on Users and Mobile Telecommunication Networks in Namibia**	João Baptista Bastos, Fungai Bhunu Shava, and Simon Muchinenyika
11:30	**Stress, Errors, and Systemic Inefficiency in Namibia's Pre-trial Detention System**	Stefan Schulz
12:10	**Collaborative Approaches to Knowledge Co-Production: Localising the SDGs in Urban Namibia**	Jennilee Kohima, Gaby Hansen, Astrid Ley, Ute Vees, Mohamed Salheen, Madelein Stoffberg, Merham Mohamed Hosny Anwar Kele, Gert van der Merwe, and Tapiwa Maruza
12:30	Lunch	
	PARALLEL SESSIONS	
14:00 ↓ 16:00	**Public Disclosure and Its Impact on intellectual Property Protection for Academic Research** AUDITORIUM 1	**Mr Onesmus Joseph** *Manager: Intellectual Property Enforcement and Framework Business and Intellectual Property Authority (BIPA)*
	Ethical Artificial Intelligence (AI) WORKSHOP SESSION 2 HTTPS	**Prof George Dimitoglou** *Fulbright Specialist*
	Accelerating Innovation and Research Excellence MINING AUDITORIUM	**Dr Gagandeep Singh** *Senior Publisher (STEM), CRC Press*

Time	Activity	Presenter
DAY 2: THURSDAY, 02 OCTOBER **Master of Ceremonies: Prof Davy Du Plessis**		
07:30	Registration	
08:30	Welcome	**Prof Colin Stanley** *Deputy Vice-Chancellor: Research, Innovation and Partnerships*
08:45	Panel Discussion **Strengthening Industry Partnerships and Engagement** **Moderator:** Dr Taime Sylvester	
10:00	Tea Break	
10:30	Guest Speaker	**Prof Henk de Jager** *CEO: Technological Higher Education Network South Africa (THENSA)*
10:45	Panel Discussion **Impactful Research: The Role of Universities in National Development** **Moderator:** Mr Nigel M'kwaira	
12:00	**Poster Showcase and Appraising**	
12:30	Lunch	
14:00	**Community and Institutional Readiness for Car Sharing in Namibia's Central Northern Regions**	Lydia Hafyenanye and Sioni Iikela
14:30	**Upgrading Low-Grade Iron Ore from a Namibian Deposit Using Gravity Separation**	Shadrac Nyembo Kazadi and Godfrey Dzinomwa
15:00	**Namibia Environmental Monitoring and Response System (NEMRS): A Python-GIS Integrated Framework for Climate Resilience and Disaster Management**	Ryan Theodore Benade and Oluibukun Ajayi
15:25	**Integrating GIS and Web Technologies for Smart Real Estate Marketplace in Namibia**	Desmund Hofeni and Oluibukun Ajayi
15:50	**Design of a SMART Real-Time System for Carbon Monoxide Emission Monitoring**	Francis Smita, Rut Shiwambi, Victoria Shafombabi, Shilongo Amupolo, Almirall Dino Jose, Nzangu Wassursun, P Sanchan, Gideonna Awases and Uasuta Kasaona
16:10	**Python-Based Renewable Energy Resource Analyser (RERA)**	Jeffrey Shigwedha and Oluibukun Ajayi

Time	Activity	Presenter
DAY 3: FRIDAY, 03 OCTOBER 2025 Master of Ceremonies: Prof Colin Stanley		
07:30	Registration	
08:15	Academic Procession with Gaudeamus Igitur Song	
08:15	Welcome Address	**Prof Erold Naomab** *Vice-Chancellor: NUST*
08:25	Guest Speaker	**Mr Irvinne Simataa** *Executive Vice-President: Swakop Uranium*
08:45	**Entertainment**	
09:00	Introduction of Candidate	**Prof Efigenia Semente** *Executive Dean: FCHSE*
09:05	**Prof Teresia Kaulihowa**	
09:45	Introduction of Candidate	**Prof Fungai Bhunu Shava** *Executive Dean: FCI*
09:50	**Prof Ambrose Azeta**	
10:30	Tea Break	
11:00	Introduction of Candidate	**Prof Harmony Musiyarira** *Executive Dean: FEBE*
11:05	**Prof Adewole Simon Oladele**	
11:45	Introduction of Candidate	**Prof Harmony Musiyarira**
11:50	**Prof Michael Mutingi**	
12:30	Introduction of Candidate	**Prof Harmony Musiyarira**
12:35	**Prof Fillemon Nangolo**	
13:15	Presentation of Certificates	**Prof Erold Naomab**
13:30	Vote of Thanks	**Ms Miriam Dikuua** *Deputy Vice-Chancellor: Finance and Operations, NUST*
13:35	Academic Procession with Gaudeamus Igitur Song	
13:40	Group Photo	
	Lunch	

IRW SPEAKER PROFILES

Melissa Shanjengage is a seasoned executive and board member with over 25 years of international experience in people strategy, governance, and transformation across the global mining sector. She recently completed her assignment as General Manager - People and Organisation at Oyu Tolgoi LLC (Rio Tinto), where she led the HR function for the joint venture copper mine between Rio Tinto and the Government of Mongolia.

She brings extensive expertise in stakeholder engagement, ESG integration, succession planning, and navigating complex regulatory environments. Her board experience spans public, private, and non-profit organisations, with notable contributions to remuneration and HR committees, national qualifications authorities, and development foundations.

Recognised for her leadership in advancing workforce and community outcomes, Melissa has received national awards and an honorary professorship from the Mongolia University of Science & Technology (MUST) in acknowledgement of her work in workforce development and capability building.

Shiwana Ndeunyema is the Executive responsible for Strategy at NAMCOR, where he leads the development and execution of corporate strategy in alignment with Namibia's evolving energy landscape. With significant experience in the oil and gas industry, he plays a key role in positioning NAMCOR as a catalyst for national development, energy security, and sustainable value creation.

Passionate about local content and capacity building, Shiwana actively promotes stronger linkages between industry and academia to help Namibia cultivate the skills and innovation needed for long-term success in its emerging oil and gas sector — and to support the country's meaningful participation in the global energy value chain.

Shiwana holds qualifications in Economics, Human Resources, Knowledge Management, and Oil & Gas — a reflection of his commitment to lifelong learning and multidisciplinary leadership. He is equally committed to fostering collaborative growth between public institutions and the private sector.

An avid reader, Shiwana believes: "The only thing worse than not reading a book is not reading a book and believing it does not matter."

Professor Henk de Jager assumed the role of Chief Executive Officer (CEO) of the Technological Higher Education Network South Africa (THENSA) on 1 July 2024, marking a significant milestone in his distinguished career. He had previously served as Interim CEO from October 2023, bringing to the organisation a wealth of experience and a forward-looking vision. A former Vice-Chancellor of the Central University of Technology (CUT), Professor de Jager has consistently championed the integration of technology and innovation in higher education. His leadership at THENSA is characterised by a strategic focus on enhancing the relevance and societal impact of South Africa's technological universities.

Under his guidance, THENSA has initiated several collaborative projects aimed at bridging the gap between academia and industry. A notable example is the partnership with Universities South Africa (USAf), formalised in January 2025, which focuses on co-developing entrepreneurship curricula and expanding work-integrated learning opportunities. This collaboration is designed to better prepare graduates for the evolving job market by fostering stronger, practical connections between universities and industry.

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Onesmus Joseph is the Manager of Intellectual Property Enforcement and Framework at the Business and Intellectual Property Authority (BIPA). A commercially astute and forward-thinking strategist, he brings 18 years' experience across both the public and private sectors. He has proven expertise in strategy development, execution, and operationalisation, with a strong track record in driving innovation and shaping intellectual property (IP) frameworks.

Mr Joseph is highly skilled in strategic foresight, policy design, stakeholder engagement, and project delivery. He is recognised for building agile teams, delivering measurable growth, and aligning organisations with 21st-century business imperatives.

In addition to his role at BIPA, he serves as a Council Member of the National Indigenous Knowledge System under the National Commission on Research, Science and Technology (NCRST), contributing to the development and protection of indigenous knowledge in Namibia.

Dr George Dimitoglou is a professor of computer science in the Department of Computer Science and Information Technology at Hood College in Frederick, Maryland. He is the founding faculty member, graduate program director and lead of the college's Center for Computer Security and Information Assurance. Dr. Dimitoglou's academic and professional interests span information security, cryptography, and, more recently, the critical intersections of data privacy, transparency (non-repudiation), and AI ethics. He is a certified IBM Artificial Intelligence Practitioner Instructor and recently earned a Graduate Certificate in Public Policy from Harvard University's Kennedy School of Government, further aligning his technical expertise with policy and governance. Before entering academia, Dr Dimitoglou held positions in industry and government, working on projects in information systems, telecommunications, data archiving, and space science. He earned his doctorate in Computer Science from the School of Engineering and Applied Science at The George Washington University in Washington, D.C., and holds a B.S. from Temple University in Philadelphia. His contributions have been recognized with several honors, including a Graduate Teaching Excellence Award, a European Space Agency Mission Contribution Award, a NASA Goddard Space Flight Center National Resource Award, and as a member of the science team the 2003 International Academy of Astronautics Team Achievement Award. Dr. Dimitoglou is a member of the Association for Computing Machinery (ACM), the Institute of Electrical and Electronics Engineers (IEEE), and Upsilon Pi Epsilon, the international honor society for computing and information disciplines.

Irvinne Simataa a qualified mining engineer, has built a career distinguished by technical expertise, strategic leadership, and documented turnaround contributions across a broad range of mineral commodities.

His professional journey began as a Mining Engineer at Namdeb, before progressing to senior roles including Senior Mining Engineer at AngloGold Ashanti, Mining and Vessel Manager at De Beers Marine, and subsequently General Manager and Mine Manager at the Vedanta's Skorpion Zinc Mine and Refinery. Elsewhere in Africa, he has worked as operations manager for Kenmare Reaources in Mozambique.

PROFESSORIAL INAUGURATION CANDIDATES

1. Prof Ambrose Azeta

Professor: Software Engineering
Faculty of Computing and Informatics

Inaugural Lecture: *Applied Software Engineering and Causal Artificial Intelligence: A Paradigm Shift for Propelling Innovative Societal Value Changes*

Professor Ambrose Azeta is a distinguished software engineer and academic at NUST, serving as a Professor in the Faculty of Computing and Informatics. His inaugural lecture, titled *"APPLIED SOFTWARE ENGINEERING AND CAUSAL ARTIFICIAL INTELLIGENCE: A PARADIGM SHIFT FOR PROPELLING INNOVATIVE SOCIETAL VALUE CHANGES,"* underscores his focus on harnessing software solutions and AI to drive social innovation. With over a decade of industry experience prior to academia, Prof. Azeta has applied real-world insights to his teaching and research since joining NUST. His expertise lies in applied software engineering, artificial intelligence, and machine learning, which he leverages to develop e-learning systems, voice-enabled platforms, and mobile applications addressing needs in education, healthcare, and financial services. A prolific scholar with more than 130 publications, he has supervised numerous postgraduate students and earned accolades for his research and teaching, reflecting a significant impact on Namibia's technological advancement.

2. Prof Teresia Kaulihowa

Professor: Economics
Faculty of Commerce, Human Sciences and Education

Inaugural Lecture: *Foreign Direct Investment-Led Development in Africa: Myth, Evidence, and Policy Directions*

Professor Teresia Kaulihowa is a leading Namibian economist and the first woman in the country to attain the rank of Professor of Economics. Serving as a Professor of Economics and Associate Dean at NUST's Faculty of Commerce, Human Sciences & Education, she brings over 15 years of academic experience. Her inaugural lecture, titled *"Foreign Direct Investment-Led Development in Africa: Myth, Evidence, and Policy Directions,"* reflects her expertise in development economics and a critical analysis of the foreign direct investment–growth nexus. Prof. Kaulihowa's research spans macroeconomic policy, competition regulation, and development finance, yielding over 30 publications that inform policy debates in Namibia and beyond. She has guided more than 35 graduate students and played a key role in developing economics curricula. Beyond academia, she contributes to national and continental bodies such as competition commissions and economic research networks where her insights help shape policy and drive sustainable development strategies.

3. Prof Fillemon Nduvu Nangolo

Professor: Mechanical Engineering
Faculty of Engineering and the built Environment

Inaugural Lecture: *Engineering Innovation for Sustainable Development: Bridging Research, Industry, and Community Impact in Namibia*

Professor Fillemon Nduvu Nangolo is a distinguished mechanical engineer whose career exemplifies the fusion of academic research with practical innovation. As a Professor of Mechanical Engineering and Head of NUST's Lüderitz Campus, he advances engineering innovation through research and education. His inaugural lecture, *"Engineering Innovation for Sustainable Development: Bridging Research, Industry, and Community Impact in Namibia,"* highlights his commitment to leveraging engineering solutions for societal benefit. Prof Nangolo's expertise spans renewable energy systems, industrial and manufacturing engineering, and mechanical dynamics. He has published over 50 scholarly works and supervised numerous graduate theses, contributing to knowledge in areas like predictive maintenance, lean manufacturing, and water infrastructure. Notably, he has led projects that directly serve communities from 3D-printed medical devices during the COVID-19 pandemic to renewable-powered water desalination embodying a vision of engineering that drives sustainable development and community well-being. He also serves on national engineering and research boards, helping shape science and technology policy in Namibia.

4. Prof Adewole Simon Oladele

Professor: Transport Engineering
Faculty of Engineering and the Built Environment

Inaugural Lecture: *Advancing Sustainable Transportation And Smart Mobility Solutions - "Prevention Is Better Than Cure*

Professor Adewole Simon Oladele is a veteran civil engineer specializing in transportation and a driving force behind sustainable mobility initiatives. Now a Professor of Transport Engineering at NUST's Faculty of Engineering and the Built Environment, he brings over 23 years of experience in academia and industry. His inaugural lecture, titled *"Advancing Sustainable Transportation and Smart Mobility Solutions – 'Prevention is better than cure',"* reflects his focus on proactive approaches to transportation infrastructure and intelligent mobility. Prof. Oladele's expertise includes highway and pavement engineering, traffic operations, and the integration of artificial intelligence in transport planning. He has taught over 30 courses and supervised a generation of engineers, thereby building capacity in the field. With 47 peer-reviewed publications and presentations at more than 40 international conferences, he is a recognized voice in promoting smart, sustainable transport solutions. As a registered professional engineer active in multiple engineering societies, Prof. Oladele exemplifies a strong commitment to advancing his field.

5. Prof Michael Mutingi

Professor: Industrial Engineering
Faculty of Engineering and the Built Environment

Inaugural Lecture: *Nature-Inspired Optimisation Algorithms: Advances and Applications in Healthcare Systems*

Professor Michael Mutingi is an accomplished industrial engineer known for applying innovative, nature-inspired computational methods to real-world problems. A Professor of Industrial Engineering at NUST's Faculty of Engineering and the Built Environment, he has a rich academic background that includes a doctorate in Engineering Management and experience at institutions in Zimbabwe, Botswana, and Singapore. His inaugural lecture, titled "*Nature-Inspired Optimisation Algorithms: Advances and Applications in Healthcare Systems,*" reflects his expertise in bio-inspired algorithms and their use in improving healthcare operations. Prof. Mutingi's research spans lean manufacturing, supply chain optimization, simulation modeling, and energy policy, making him a versatile figure in industrial engineering. He has supervised over 100 postgraduate students, including multiple PhD candidates, fostering the next generation of engineers. With three books and more than 120 scholarly articles to his name along with several international best-paper awards he has established himself as a thought leader in optimization and healthcare systems engineering.

ORAL PRESENTATIONS

ADVANCING INNOVATIVE RESEARCH OUTPUT COMMERCIALISATION: A SUCCESSFUL MODEL OF ACADEMIA-INDUSTRY COLLABORATION

Adewole Simon Oladele

Department of Civil, Mining and Process Engineering, Faculty of Engineering & the Built Environment, Namibia University of Science and Technology, Windhoek, Namibia

(Email: aoladele@nust.na)

Keywords: *Research commercialisation, international collaboration, sustainable transportation, innovative technology transfer, capacity building*

Background: Innovative research output commercialisation and dissemination are integral to our societies, but there are persistent challenges to their sustainability.

Purpose: This initiative proposes strategies for cooperation among academia, industry, and the transport sector through international collaboration by the establishment of a transportation professional networking group to provide a platform for sharing experiences and exchange of ideas amongst transport professionals and researchers.

Design/methodology/approach: This group has successfully organised ten international conferences on sustainable transportation globally, which required the dissemination of innovative technology and approaches that brought about safe and sustainable mobility solutions. With proper coordination, transport experts are poised to help solve problems at this level of complexity and importance.

Findings: The initiative concludes by highlighting the availability of potential and critical mass in academia, industry, government, and the private sector to attain global stature and tackle research output commercialisation challenges in the transport sector, which depends on how the research output dissemination and publication ecosystem is nurtured

Implications: There are lessons learned as recommendations that would enhance collaboration to ensure that fundamental advances are made in the areas of focus for research, commercialisation, and academia-industry collaboration for socio-economic development. Namibia University of Science and Technology will be co-hosting the 11th International Conference on (Sustainable) Transportation in Africa (ICTA2026) on 7th – 9th July, 2026 in Windhoek, Namibia, as a continuation of the successful model of academia-industry collaboration to enhance research commercialisation.

COLLABORATIVE APPROACHES TO KNOWLEDGE CO-PRODUCTION: LOCALISING THE SDGS IN URBAN NAMIBIA

Jennilee Kohima[*1], Gaby Hansen[1], Astrid Ley[2], Ute Vees[2], Mohamed Salheen[3], Madelein Stoffberg[1], Merham Mohamed Hosny Anwar Keleg[3], Gert van der Merwe[1], and Tapiwa Maruza[4]

[1]Department of Architecture, Planning and Construction, Namibia University of Science and Technology, Namibia
[2]Institute of International Urbanism, University of Stuttgart, Germany
[3]Department of Urban Design and Planning, Ain Shams University, Egypt
[4]Namibia Housing Action Group/Shack Dwellers Federation of Namibia, Namibia

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Keywords: *Localisation, Partnerships, Co-production, Knowledge exchange, SDGs*

Background: Globally, efforts to localise the Sustainable Development Goals (SDGs) in urban development emphasise integrated and transdisciplinary approaches to foster inclusive and sustainable cities. In Namibia, the implementation of these approaches within both informal and formal urbans remains particularly challenging due to limited technical capacity, weak political support, fragmented communication, and low levels of community participation. The SDGs GoGlocal project, funded by DAAD, addresses this by enhancing education and research at the Namibia University of Science and Technology (NUST) through a South-South and South-North academic network linking Namibia, Egypt, and Germany.

Purpose: The project emphasises transnational and transdisciplinary learning, particularly focused on localising the SDGs in informal settlement upgrading processes.

Design/methodology/approach: This paper follows a qualitative approach to present insights gained from the partnership and subsequent collaboration with civil society and local governments. The project is based on three pillars: (1) Education, (2) Research and (3) Learning Hub. Building on the Integrated Urbanism and Sustainable Design master's programme (Stuttgart and Ain Shams), which combines intercultural and real-world learning.

Findings: The project has generated staff, student, and community mobilities, creating opportunities for co-teaching and learning across institutions and contexts. Research conducted by nine Master's graduates centred on SDG 11 to address urban challenges. Learning Hub has established a space for multiple voices to co-develop pathways for SDG localisation.

Implications: SDGs GoGlocal promotes shared learning across countries and sectors; academia, civil society, and government fostering collaboration and knowledge exchange on equal footing.

COMMUNITY AND INSTITUTIONAL READINESS FOR CAR SHARING IN NAMIBIA'S CENTRAL NORTHERN REGIONS

Lydia Hafyenanye[1] and Sioni Iikela[2]

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[2]Department of Sustainable Transport and Green Logistics, Faculty of Environmental, Management and Sustainability Science, The International University of Management

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Keywords: *Car sharing; Community perceptions; Institutional readiness; Namibia; Sustainable transport.*

Background: Car sharing is increasingly recognised worldwide as an innovative approach to reducing greenhouse gas emissions and improving sustainable urban mobility. However, little is known about community and institutional readiness for car sharing in developing countries such as Namibia, where private car ownership remains dominant. Understanding awareness, perceptions and willingness to adopt car sharing is crucial for informing sustainable transport policy.

Purpose:

This study examined car sharing as a sustainable transport strategy in Namibia's Central Northern regions by assessing awareness, perceptions and willingness of local authorities and communities to adopt car sharing as a mobility option.

Design/methodology/approach: A mixed-methods design was employed. Quantitative data were collected through questionnaires administered to car owners, while qualitative data were gathered from interviews with local authority officials. Descriptive statistics were used to analyse awareness and willingness to adopt car sharing, and thematic analysis was applied to interview data to capture perceptions of feasibility, benefits and barriers.

Findings: Findings revealed relatively low awareness of formal car sharing initiatives but strong willingness among younger and urban-based respondents to adopt shared mobility if affordability, safety and convenience are ensured. Local authority officials acknowledged the potential of car sharing to reduce congestion and emissions, but cited barriers such as weak regulatory frameworks, limited digital platforms and fixed preferences for private car ownership.

Implications: Developing clear regulatory frameworks, investing in digital platforms and piloting community-based car-sharing schemes could translate this readiness into action and support Namibia's transition towards more sustainable urban mobility.

DEEP LEARNING WITH OPTICAL FLOW ATTENTION FOR COASTAL WAVE PREDICTION

Abubakar Hamisu Kamagata*, and Dharm Singh Jat

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Keywords: *Physics-Informed Neural Network, Optical Flow Attention, CNN, Coastal Wave Dynamics*

Background: Coastal wave monitoring is important for maritime safety, shoreline protection, and disaster preparedness. Traditional buoy and radar systems are accurate but costly and spatially limited. Video-based monitoring with AI offers scalable alternatives, yet many approaches neglect physical laws and lack interpretability.

Purpose: This study develops a deep learning framework that integrates optical flow, attention mechanisms, and physics-informed design to predict coastal wave dynamics from monocular video.

Design/methodology/approach: Coastal videos (29 GB) recorded during storms in Ireland were used. Dense optical flow was extracted with the Farnebäck algorithm and combined with RGB channels into five-channel inputs. A ResNet-18 backbone with attention was trained in PyTorch using the Adam optimiser and a physics-informed loss enforcing incompressibility. Training ran 5–20 epochs with early stopping; performance was evaluated using RMSE and MAE.

Findings: The model showed stable convergence, with loss reducing from 0.010987 to 0.010007 by epoch 5. Attention maps emphasised wave crests and dynamic regions. Physics-informed loss minimised divergence, ensuring physical consistency. Evaluation achieved low errors (RMSE = 0.0625, MAE = 0.0467), confirming accurate, interpretable wave predictions.

Implications: The framework demonstrates scalable, real-time potential for coastal monitoring and hazard response. Future work should extend to multi-scale wave modelling, integration with live streams, and buoy-based validation for broader deployment.

STRESS, ERRORS, AND SYSTEMIC INEFFICIENCY IN NAMIBIA'S PRE-TRIAL DETENTION SYSTEM

Stefan Schulz

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Keywords: *Pre-trial detention, police stress, police oversight, systemic inefficiency, Namibia*

Background: Namibia's pre-trial detention (PTD) system faces persistent challenges of overcrowding, poor conditions, and systemic inefficiency. Police officers working in remand facilities operate under extreme organisational and operational stress, while prosecutorial data reveal avoidable custodial errors. Together, these dynamics contribute to rights violations and strain on the criminal justice system.

Purpose: This study investigates how under-resourcing drives police stress and custodial errors, and how these in turn exacerbate overcrowding in police holding facilities, thereby undermining Namibia's constitutional mandate to uphold human dignity and liberty.

Design/methodology/approach: The analysis draws on two sub-projects of the baseline study Rethinking Pre-Trial Detention in Namibia (2021–2024). In 2023, a police stress survey was conducted in Khomas Region using a total population sample and validated instruments (PSQ-Org and PSQ-Op; McCreary & Thompson, 2006). In 2024, prosecutorial records from the Office of the Prosecutor-General (Windhoek, Mungunda Street) were analysed for instances of unjustified or avoidable police arrests and detentions.

Findings: Survey results show near-universal exposure to high stressors, with mean scores exceeding critical thresholds: lack of resources (M = 6.21), staff shortages (M = 5.73), inadequate equipment (M = 5.56), and risk of injury on duty (M = 5.54). These levels are consistent with burnout and compromised decision-making. Prosecutorial data highlighted a measurable number of unlawful or avoidable police detentions, which, though numerically limited, directly contribute to overcrowding at Windhoek's Otjomuise and Wanaheda facilities.

Implications: The findings reveal a reinforcing cycle of under-resourcing ⇢ stress ⇢ custodial errors ⇢ overcrowding ⇢ intensified under-resourcing. Sustainable reform requires systemic intervention across resource allocation, officer wellbeing, and prosecutorial oversight. Without this, Namibia's criminal justice system cannot fulfil its constitutional obligations under Articles 5, 7, and 8 to guarantee the human rights of all citizens.

ANALYSING THE IMPACT OF SIM SWAPPING FRAUD ON USERS AND MOBILE TELECOMMUNICATION IN NAMIBIA

João Baptista Bastos*[1], Fungai Bhunu Shava[1], and Simon Muchinenyika[2]

[1]Cyber Security Department, Namibia University of Science and Technology, Namibia
[2]Software Engineering Department, Namibia University of Science and Technology, Namibia

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Keywords: *SIM swapping, Mobile security, Fraud detection, Namibia, Telecommunications*

Background: SIM swapping fraud occurs when attackers transfer a victim's number to an unauthorized SIM, enabling access to sensitive communications. With Namibia's growing reliance on mobile financial services, the risks are significant. However, local evidence on its impact remains limited.

Purpose: This study analyses the impact of SIM swapping fraud on users and networks in Namibia, focusing on financial losses, authentication vulnerabilities, and mitigation strategies.

Design/methodology/approach: A sequential mixed-methods approach was used. Quantitative data on user-reported losses (2023–2024) were combined with 15 stakeholder interviews involving operators, regulators, and law enforcement. Thematic analysis and international benchmarking informed the findings.

Findings: Reported user losses rose from N$1,300,000 (USD 72,800) in 2023 to about N$4,000,000 (USD 224,000) in late 2024, a 208% increase. Nearly 60% of victims faced secondary account breaches. Networks reported reputational damage and regulatory pressure. Weaknesses in knowledge-based authentication and limited multi-factor authentication adoption were evident.

Implications: Strengthening authentication protocols, regulatory reforms, and machine learning–based fraud detection could reduce SIM swapping risks. Improved stakeholder collaboration is vital to safeguarding Namibia's mobile financial ecosystem.

UPGRADING LOW-GRADE IRON ORE FROM A NAMIBIAN DEPOSIT USING GRAVITY SEPARATION

Shadrac Nyembo Kazadi[1], Godfrey Dzinomwa[2]

[1]Department of Civil, Mining and Process Engineering; Faculty of Engineering and The Built Environment; Namibia University of Science and Technology, Namibia
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Keywords: *Low-Grade Iron Ore, Gravity Separation, Wilfley table Direct Shipping Ore grade*

Background
The global demand for iron and steel has increased, creating a shortage of high-grade iron ore. Low-grade iron ore resources, which contain various impurities, require beneficiation techniques to improve their grade and usability. Gravity separation methods, such as shaking tables, are widely considered effective for upgrading such ores.

Purpose
This study aimed to investigate the beneficiation of a low-grade iron ore using gravity separation with a shaking (Wilfley) table, with particular emphasis on the effect of feed particle size on separation performance.

Methodology
A representative ore sample containing 42.37% Fe and 8.60% SiO2, as determined by X-ray fluorescence (XRF), was subjected to gravity separation using a shaking table. Mineralogical analysis by optical microscopy (OM) confirmed the presence of magnetite and hematite as the primary iron-bearing minerals, with quartz as the main gangue mineral. Experiments were conducted at feed particle sizes of d100 = 1.70 mm and d100 = 1.00 mm to assess separation efficiency.

Findings
At a feed size of d100 = 1.70 mm, the shaking table produced a concentrate with 64.03% Fe grade and 65.05% recovery. A second test on the middling fraction at d100 = 1.00 mm yielded a concentrate with 57.01% Fe grade and 26.62% recovery. When combined, the two concentrates resulted in a composite concentrate of 63.26% Fe grade at 72.20% recovery.

Implications
The study demonstrates that shaking tables can effectively upgrade low-grade iron ore through appropriate control of particle size and hence liberation. This finding suggests that gravity separation can contribute to the utilization of low-grade ore resources, reducing reliance on high-grade deposits.

DEMONSTRATIONS

DESIGN OF A SMART REAL-TIME SYSTEM FOR CARBON MONOXIDE EMISSION MONITORING

Francis Smita[1], Rut Shiwambi[1], Victoria Shafombabi[2], Shilongo Amupolo[1], Almirall Dino Jose[1], Nzangu Wassursun[1], P Sanchan[1], Gideonna Awases[1] and Uasuta Kasaona[1]

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[2]Department of Software Engineering, Namibia University of Science and Technology, Namibia

Keywords: *CO, IoT, Solar-powered*

Background: Urbanisation intensifies air pollution, particularly at congested intersections. Traditional carbon emission monitoring methods are costly, spatially limited, and lack timeliness, hindering effective urban air quality management.

Purpose: This study aims to design and implement a low-cost, IoT-based real-time system for monitoring carbon monoxide and particulate matter at a high-traffic university-CBD junction.

Design/methodology/approach: The proposed system is designed around the integration of low-cost carbon monoxide (CO) and (PM) sensors within a scalable Internet of Things (IoT) architecture. The sensors continuously monitor air quality parameters and are connected to a microcontroller unit that processes and transmits the collected data wirelessly. This data is uploaded to a cloud-based platform where it is stored, accessed in real time, and used to generate meaningful insights. The processed information is made available through two channels: a public dashboard that allows remote monitoring and trend visualisation.

Findings: Expected outcomes from prototype testing include high accuracy against reference instruments, low system latency, and reliable operation, providing improved situational awareness of emission hotspots.

Implications: This scalable framework supports evidence-based urban planning and promotes public engagement, contributing to smarter environmental management and healthier urban environments.

NAMIBIA ENVIRONMENTAL MONITORING AND RESPONSE SYSTEM (NEMRS): A PYTHON-GIS INTEGRATED FRAMEWORK FOR CLIMATE RESILIENCE AND DISASTER MANAGEMENT

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Keywords: *Climate Resilience, Disaster Management, Decision Support, Environmental Monitoring, GIS-Based Systems, Python*

Background: Namibia faces recurring environmental challenges such as droughts, floods and climate change impacts, worsened by delays and inefficiencies in manual monitoring and disaster response systems. Limited data integration, slow resource allocation and low public participation further hinder effective environmental management.

Purpose: This study develops the Namibia Environmental Monitoring and Response System (NEMRS), an integrated digital platform designed to enhance real-time monitoring, strengthen disaster detection and response capacities and support long-term climate resilience planning. The system replaces inefficient analog processes with a unified, intelligent framework benefiting government agencies, communities and the environment.

Design/methodology/approach: NEMRS was developed using a Rapid Application Development (RAD) methodology with incremental design. Its architecture combines data acquisition (satellites, sensors, weather stations), automated data processing and decision-support tools, delivered through user-friendly interfaces for multiple stakeholders.

Findings: The system integrates real-time monitoring, automated analysis, disaster early warning, resource optimisation and climate modelling into a single platform. Modules covering environmental monitoring, disaster management, resilience planning, resource management, and public engagement improve hazard response efficiency, stakeholder collaboration and evidence-based policymaking.

Implications: NEMRS enhances Namibia's capacity to mitigate environmental risks, supports sustainable resource use and empowers the public through alerts and participatory data collection. Broader benefits include economic savings through efficient resource allocation, improved societal safety via rapid disaster response and environmental sustainability through long-term planning. Challenges remain in sustaining political support, securing funding and maintaining data governance frameworks. Future research could integrate AI-driven prediction models, expand cross-border environmental data sharing and conduct long-term evaluations of system performance and societal impact

INTEGRATING GIS AND WEB TECHNOLOGIES FOR SMART REAL ESTATE MARKETPLACES IN NAMIBIA

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Keywords: *Real Estate, Geospatial Technology, Price Estimation, GIS, Namibia*

Background: The Namibian real estate sector faces challenges of fragmented listings, limited transparency in property pricing, and inefficiencies in connecting buyers, sellers, and agents. These challenges hinder accessibility, decision-making, and trust in the property market. Addressing them requires innovation and data-driven approaches that leverage modern digital and geospatial technologies.

Purpose: The purpose of this study is to design and demonstrate a geospatially enabled online system that integrates Geographic Information Systems (GIS), property databases, and interactive mapping to improve transparency, accessibility, and efficiency in Namibia's real estate sector.

Design/methodology/approach: The platform was built using HTML, JavaScript (Leaflet), CSS, Python (Flask), and a Postgres database, and features a price estimation tool powered by a regression model tailored to local market conditions.

Findings: The platform successfully demonstrates that integrating GIS and web technologies improves the property listing process, enhances transparency, and provides reliable price suggestions aligned with prevailing market trends. Users can search, filter, and visualize properties based on location, type, and amenities. The price estimation tool provides valuations that align with real world market benchmarks

Implications: The platform demonstrates that integrating GIS and web technologies can significantly improve market efficiency and transparency. By improving efficiency, transparency, and accessibility, the system can contribute to fairer pricing, wider market reach, and evidence-based decision-making.

PYTHON-BASED RENEWABLE ENERGY RESOURCE ANALYSER (RERA)

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Keywords: *Analytic Hierarchy Process, Energy Planning, Renewable Energy, Site Suitability, Spatial Analysis*

Background: Namibia, with a population of about 3 million, faces an energy challenge where only 56% of the population has access to electricity. National power generation, mainly from the Ruacana hydro plant and smaller coal, diesel, and solar stations, ranges between 1300–1700 GWh per year, falling short of the 3000 GWh demand. As a result, Namibia imports about 60% of its electricity at high cost. Addressing this gap requires practical tools for supporting renewable energy planning.

Purpose: This study aimed to develop the Renewable Energy Resource Analyser (RERA), a Python-based application designed to support policymakers and planners in conducting renewable energy site suitability analysis for Namibia.

Design/Methodology/Approach: RERA was developed using Python libraries such as Tkinter, Geopandas, and Rasterio, with TkinterMapView as the mapping engine and GeoServer for raster hosting. It integrates vector and raster datasets from Digital Namibia, the Global Wind Atlas, and the Global Solar Atlas. The Analytic Hierarchy Process (AHP) was implemented to assign weights to multiple criteria, including roads, powerlines, substations, and terrain, and to produce normalized raster outputs for site suitability.

Findings: The tool consists of a data viewer for exploring geospatial layers and a suitability analysis module for multi-criteria decision-making. RERA generates suitability heatmaps, such as solar farm site assessments, and allows users to export AHP weights and configurations for reproducibility. Its flexibility in handling multiple formats (GeoJSON, GeoTIFF) demonstrates the practical value of AHP for transparent renewable energy planning in Namibia.

Implications: RERA offers Namibian stakeholders a lightweight, offline, and modular decision-support tool for renewable energy site assessment. While it has potential for integration with databases and cloud platforms, future work should address current limitations in handling very large datasets and in providing advanced interactive features required for national-level energy planning.

POSTER PRESENTATIONS

LOAD FLOW MODELLING AND PERFORMANCE ANALYSIS OF NORED'S DISTRIBUTION NETWORK IN ONGWEDIVA, NAMIBIA

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Keywords: *Load Flow Analysis, Optimal Capacitor Placement, Grid Voltage Violation, Network Overload*

Background: Frequent power outages in Ongwediva, which NORED supplies, are primarily attributed to electrical network overloading. The study investigates the load-carrying capability and operational performance of the NORED's Ongwediva grid to address this critical issue.

Purpose: The primary objective of this study is to model, simulate and perform a comprehensive performance analysis of NORED's 11/0.4 kV network. The study aims to identify overloading conditions, voltage violations and power losses and to provide technical mitigation measures.

Design/Methodology/Approach: A mixed-method approach was employed. The quantitative approach involved modelling and simulation studies under existing and future load scenarios using DIgSILENT PowerFactory 15.1. The Newton-Raphson algorithm was employed for accurate load flow solutions. With the qualitative approach, insights from a survey of 14 field engineers were incorporated to ground the simulation results with practical operational experience.

Findings: The load flow analysis revealed critical overloading, with a significant number of distribution transformers operating beyond 80 % of their loading capacity, thereby violating NORED's operational standards. Furthermore, the system exhibited substantial active power losses and voltage violations, particularly under the projected load growth scenario. To mitigate these observations, the DIgSILENT Optimal Capacitor Placement module was employed, and it determined optimal locations and sizes for capacitor banks at buses 18 (0.25 MVAr), 26 (0.2 MVAr), 37 (0.28 MVAr), and 67 (0.23 MVAr). This resulted in improved voltage profiles and reduced power losses.

Implications: The findings offer NORED a validated roadmap for strategic planning, infrastructure investment, and network reinforcements for future load growth to ensure a reliable and continuous electricity supply to its customers.

SIMULATION OF STATIC VAR COMPENSATOR (SVC) AND PASSIVE FILTERS FOR POWER QUALITY MITIGATION USING DIGSILENT POWERFACTORY

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Keywords: *FACTS devices, power quality mitigation, SVC, DIgSILENT PowerFactory, passive harmonic filter*

Background: Poor power quality leads to fluctuations in voltage, current, or frequency deviation from their ideal sinusoidal waveforms. When these fluctuations are frequent or prolonged, they translate to power quality issues such as transient, output variations, voltage imbalance, waveform distortion, poor power factor and harmonics. These power quality issues originate from various sources such as natural disasters, overloading, under design, etc. FACTS devices and filters are some of the common mitigation techniques.

Purpose: This paper highlights some FACTS devices and the corresponding power quality issues that they mitigate.

Design/methodology/approach: One of the FACTS devices, an SVC was chosen to simulate case studies in DIgSILENT PowerFactory. Two scenarios were conducted: scenario 1 with a two-winding transformer and scenario 2 with a three-winding transformer. The load flow and harmonic load flows were run in a four-step way for each scenario.

Findings: Step 1 showed voltage dips and a poor power factor, which prompted SVC installation in Step 2, since it can eliminate both issues. The voltage rose to nominal; however, the harmonic level rose above the standard limit. This prompted a need for filter installation at PCC in Step 3. Since Step 3 did not eliminate harmonics in the entire system, a filter was installed at the busbar where harmonics were high. In all cases, the output power of all transformers kept rising in every step, with scenario 1 rising by 12.81% and scenario 2 by 8.45%. The study proves that the SVC can mitigate the issues highlighted in the paper; however, it is also a harmonic source.

UNLEASHING THE RIGHT AMOUNT STRATEGY (RAS) TO CLOSE THEORY-PRACTICE GAPS (TPG)

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Keywords: *Theory-practice gap, The Right Amount Strategy, Strategic implementation, Traditional balancing approaches, Strategy utilisation*

Background: The theory–practice gap (TPG) is the alignment between academic knowledge and real-world application. In Namibia, this gap affects business performance, academic success, and personal development, often creating barriers for students' Work Integrated Learning (WIL). At the Namibia University of Science and Technology (NUST), WIL forms a critical part of training, yet challenges arise when the balance between theory and practice is misaligned.

Purpose: The study introduces the Right Amount Strategy (RAS) as a novel approach to address the TPG, offering an optimal allocation of theory and practice in higher education and strategic implementation.

Design/methodology/approach: This work is based on descriptive analysis of literature, observations, and examples from NUST programs such as Journalism, Engineering, Health Sciences, and Business Management. It highlights varying proportions of theory and practice across disciplines and proposes RAS as a guiding framework rather than traditional balancing methods.

Findings: Preliminary observations suggest that traditional balancing approaches often assume equal weight between theory and practice, which limits the requirements of diverse disciplines. RAS emphasises adequacy, ensuring that practice and theory are purposefully aligned according to context. For example, extended clinical placements are essential in Health Sciences, whereas shorter internships may suffice in Business Management. This tailored approach reduces mismatches and promotes more effective outcomes across education, business, and personal practice.

Implications: Applying RAS can enhance strategic implementation by ensuring academic knowledge translates effectively into practice. For institutions like NUST, adopting this strategy may strengthen WIL programs, improve graduate readiness, and ultimately align education, industry, and societal needs.

ADVANCING ACADEMIA-INDUSTRY RESEARCH AND INNOVATION IN TVET: A PPP FRAMEWORK SUPPORTING NAMIBIA'S SECTOR SKILLS PLANS

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Keywords: *Technical Vocational Education and Training (TVET), Public-Private Partnerships, academia-industry collaboration, Namibia Sector Skills Plans, research and innovation*

Background: Namibia's 2021 TVET Policy aligns with national initiatives such as Vision 2030, the Harambee Prosperity Plan, and National Development Plan Six, renewing commitment to revitalise TVET after revising the 2005 policy. The Namibia Training Authority's Sector Skills Plans I and II emphasise aligning TVET curricula with emerging industry demands. However, limited collaboration between industry and academia remains a key barrier to achieving the policy's transformational goals. This study introduces a Public-Private Partnership (PPP) framework, based on research findings, to address these gaps and strengthen collaboration within Namibia's TVET sector.

Purpose: The study aims to develop a PPP framework that advances academia-industry research and innovation to support Namibia's Sector Skills Plans and tackle systemic challenges in TVET, such as resource constraints and weak partnerships.

Design/Methodology/Approach: Using a qualitative design, 19 purposively sampled participants from academia, industry, policy, and regulation contributed data through questionnaires, physical inspections, interviews, and document analysis. Data were thematically analysed using Atlas.ti.

Findings: Most stakeholders lack training aligned with Sector Skills Plans due to limited resources and weak PPPs. Inadequate stakeholder engagement and poor academia-industry collaboration hinder policy goals. Findings highlight the urgent need to advance research and innovation through strategic PPPs supporting Namibia's Sector Skills Plans.

Implications: Strengthening PPPs can improve resource mobilisation and collaboration, enabling TVET institutions to better align curricula with industry needs. Policymaker prioritisation of these partnerships is vital to accelerate the 2021 TVET Policy's transformation goals and advance national skills development.

SMALL-AREA POVERTY ESTIMATION IN THE ZAMBEZI REGION USING M-QUANTILE REGRESSION TECHNIQUES

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Keywords: *Small area estimation, poverty estimates, M-quantile regression, Household per capita expenditure*

Background: In recent years, there has been an increasing demand for poverty estimates and information on living conditions at the small area level in developing countries. Direct survey estimates are often unreliable due to limited sample sizes at fine geographic scales, necessitating the use of small area estimation (SAE) methods. Traditional SAE methods rely on strict assumptions and are sensitive to outliers, limiting their robustness.

Purpose: This study aims to apply the M-quantile regression model for small area estimation of poverty indicators in the Zambezi region of Namibia, focusing on household per capita expenditure as a measure of living conditions at the constituency level.

Design/methodology/approach: The study integrates auxiliary data from the 2011 Population Census and the 2015/16 Namibia Household Income and Expenditure Survey (NHIES). M-quantile regression was used to model per capita expenditure at the constituency level, leveraging its robustness to outliers and flexible handling of heterogeneity. Analysis was conducted using relevant statistical software to obtain reliable small area estimates.

Findings: The M-quantile regression model produced improved estimates of household per capita expenditure with greater precision compared to traditional models. Estimates revealed heterogeneity across constituencies, highlighting areas with higher poverty levels. The approach demonstrated enhanced robustness by avoiding strict distributional assumptions and effectively handling outliers.

Implications: The findings support targeted policy interventions by providing accurate poverty estimates at fine geographic scales. This work underscores the importance of robust statistical methods like M-quantile regression within small area estimation frameworks for informing welfare policies in Namibia and similar developing country contexts.

INTEGRATING SUSTAINABLE DEVELOPMENT AND TECHNOLOGICAL INNOVATION IN ENGINEERING AND BUILT ENVIRONMENT EDUCATION: LESSONS FROM THE HEPSSA PROJECT

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Keywords: *Higher Education, Sustainable Development, Collaboration, Technological Innovation, HEPSSA*

Background: Southern Africa faces pressing development challenges, including infrastructure deficits, inadequate access to clean water and sanitation, housing shortages, energy insecurity, and the world's highest unemployment rate. These crises are compounded by limited expertise in Sustainable Development (SD) and Technological Innovations (TIs), particularly in the Engineering and Built Environment (EBE) professions, which are central to advancing the region's sustainable future.

Purpose: The paper aims to highlight the lessons learnt from the HEPSSA project in seeking to embed SD knowledge and TI competencies within the curricula of Southern African EBE programmes.

Design/methodology/approach: Using mixed methods through semi-structured interviews, surveys, curriculum assessments, literature review, and focus group discussions. This project analysis Higher Education for Sustainable Development (HESD) as a pathway to bridge knowledge and skills gaps.

Findings: The project finds that most universities lack the technological infrastructure required to drive innovation and foster SD. Financial constraints further limit digital transformation, while curricula integrate SD and TI partially. Industry feedback highlights the urgent need for more practical, innovation-driven training beyond theory to transform EBE Education. The Quintuple Helix Model of Innovation integrates academia, industry, policymakers, civil society, and the environment as a collaborative framework to foster innovation, enhance skills, and align higher education with societal needs.

Implications: Institutions are encouraged to promote partnerships with technological companies and introduce emerging TIs and sustainability knowledge in EBE programmes, thereby equipping academic institutions and students with the capacity to contribute to sustainable societies and inclusive economies.

DESIGNING AN AUTOMATED PROGRAM REPAIR-BASED IDE PLUGIN FOR KOTLIN-WRITTEN ANDROID MOBILE APPLICATIONS

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Keywords: *Android, mobile applications (m-apps), application programming interfaces (APIs), API deprecation, API syntactic and semantic errors, Reliability, Kotlin, automated program repair (APR), continual learning (CL), Design.*

Background: High-quality (i.e., reliable) Android m-apps have become more business-critical uses today for industrial Android m-app developers. In recent years, CL-based APR tools have been academically and industrially designed to fix syntactic and semantic errors of the deprecated Android APIs in Android apps, e.g., GetaFix at Facebook, R-Hero, etc. However, all existing APR solutions only focus on Java-written Android apps, leaving Kotlin-written Android m-apps alone. **Purpose**: The purpose is to (i) design a CL-based APR IDE plugin to fix deprecated Android API usages in Kotlin-written Android m-apps during m-apps development. The aim is to improve the productivity and income of Kotlin Android m-app developers.

Design Research Methodology: A design research methodology for academic-industry research is employed. Deprecated Android APIs in Kotlin will be systematically mined from the android.support.* libraries and Android API differences report using Beautiful Soup in Python. Code fix examples or patches to deprecated Android APIs will be systematically mined from the open-source Android apps' repositories in GitHub using the Coming framework.

Expected Findings: (i) An increase in the number of fixed deprecated Android API usages in Kotlin-written Android m-apps, indicating effectiveness, (ii) A decrease in the fixing time of deprecated Android API usages, indicating improved productivity, and (iii) An increase in the usage number of Android m-app developers, indicating the socio-technical significance of CL and APR's academic-industry collaboration.

Implications: Advice for APR researchers to (i) consider Kotlin-written Android m-apps for improved developers' productivity and incomes, and (ii) focus on APR's academic-industry collaboration research for better adoption.

APPLICATION OF TENURE-RESPONSIVE LAND USE PLANNING IN OKAHANDJA: INSIGHTS FROM A COLLABORATIVE APPROACH

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Keywords: *Collaboration, Tenure-Responsive Land Use Planning, Tenure Security, Informal Settlement Upgrading, Okahandja, Namibia*

Background: The proliferating informal settlements in Namibia are evidence that despite planning and tenure security efforts in place, the challenge persists. Local authorities require external support to address these challenges; similarly, academic institutions are increasingly required to collaborate with industry stakeholders for the societal impact of their research. The Namibia University of Science and Technology (NUST) led the development of the Tenure-Responsive Land Use Planning (TRLUP) practical guide to improve tenure security practices.

Purpose: This paper seeks to highlight how stakeholder collaborations can enhance TRLUP processes in informal settlement upgrading in Okahandja, Namibia.

Design/methodology/approach: A qualitative methodological approach was employed involving participatory action research and expert interviews. The involvement of multiple stakeholders was explored to determine the role and impact of NUST, Namibia Housing Action Group/Shack Dwellers Federation of Namibia, Okahandja Municipality and its community, United Nations Human Settlements Programme, Global Land Tool Network and Trimble in the TRLUP implementation in Okahandja's informal settlements. Purposive sampling and thematic analysis were applied.

Findings: The stakeholder collaboration led to the production of a digital database of land information, a community-centred layout plan, certificates of occupancy, surveyed plots and promoted local knowledge, training and resource-sharing in TRLUP.

Implications: The collaborative efforts created a local policy shift, the use of advanced data collection tools, and demonstrated innovation in land administration. It is thus recommended for inclusive planning, community empowerment and tenure security to scale up informal settlement upgrading in Namibia.

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