

## ENHANCING MSME EMPOWERMENT THROUGH TECHNOLOGY ADOPTION: A UNIVERSITY-INDUSTRY PARTNERSHIP

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### ABSTRACT

This community service initiative focuses on universities' integration of science, technology, and expertise with Micro, Small, and Medium Enterprises (MSME) partners. The program, part of the Partnership for Knowledge Management (PkM) framework, is designed to directly benefit economically productive micro-businesses, primarily in the fashion creative industry subsector, within Bandung city and district. The initiative involves the implementation of digital business simulations and mentoring for local MSMEs. A central component of this effort is a digital application that provides a visual dashboard illustrating market competition based on specific product attributes. This Decision Support System (DSS) assists MSME decision-makers. The collaboration includes Binus University, Mocaca.id, an e-commerce trading platform, and multiple local MSMEs in Bandung, West Java. The initiative's primary goal is to enhance MSME partner empowerment in the competitive business landscape. The project engaged four lecturers and four student interns, contributing to both research and program application development. Beyond its direct impact on businesses, this initiative benefits students and educators while advancing university key performance indicators, particularly in student internships, curriculum enrichment, research output, and institutional recognition (IKU 2, 5, 6, and 7). This partnership underscores the vital role of universities in supporting MSME innovation and competitiveness.

**Keywords:** *Business simulation, Product attribute, digital program applications, empowerment of MSMEs*

### A. INTRODUCTION

The COVID-19 outbreak, which emerged in March 2020, has wrought substantial changes across various facets of Indonesian society, most notably in the realm of business and the nation's economy. In 2020, Indonesia recorded a significant economic contraction of 2.07 percent compared to the previous year, primarily attributable to the dire impact of the pandemic on the micro, small, and medium-sized enterprises (MSMEs) sector. Alarmingly, nearly 50% of MSMEs in Indonesia were forced to shutter their operations due to the pandemic's relentless onslaught, severely undermining

the nation's economic vitality. This decline is especially concerning given the substantial role MSMEs play in Indonesia's economy.

According to data from the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM), the total number of MSMEs in Indonesia is projected to reach a staggering 8.71 million business units by 2022. Dominating this landscape is Java Island, with West Java leading the charge at 1.49 million business units, followed by Central Java at 1.45 million, and East Java at 1.15 million. MSMEs are the lifeblood of employment in Indonesia, absorbing a massive 117 million workers, representing a staggering 97% of the national workforce. Their economic contribution, accounting for 61.1% of the national GDP, is remarkable, dwarfing the 38.9% share attributed to large corporations, which number only 5,550 or 0.01% of all business entities.

Notably, the majority of MSMEs fall into the micro-business category, making up 98.68% of the sector and employing around 89% of the workforce. However, their contribution to GDP is comparatively lower at 37.8%. This data underscores Indonesia's immense potential for building a robust national economic foundation, given the sheer numbers and workforce of MSMEs.

Furthermore, with the rapid advancement of information technology, there lies an opportunity to harness the potential of this vast economic base by expediting access to critical information. In the past decade, obtaining consumer feedback required cumbersome paper questionnaires, whereas today, a simple web search yields questionnaire links, thanks to the proliferation of information technology. The advent of mobile devices, such as smartphones and tablets, has further facilitated internet access, extending the reach of these capabilities.

In this context, web services play a pivotal role, as they enable real-time data exchange between different user applications and platforms. Growing companies are increasingly relying on web-based applications to streamline resource planning and business management. These applications operate through the HTTP protocol, with server-side applications communicating via web servers and clients typically accessing them through web browsers.

Web services have also emerged as powerful tools for market research, with platforms like Populix, SurveyMonkey, and YouGov gaining prominence in Indonesia. These services not only facilitate data collection but also transform raw data into visually compelling formats, catering to the needs of businesses. Utilizing web services for market research offers several advantages, notably reduced project timelines, as data is collected automatically, negating the need to await paper questionnaire returns. Additionally, costs are trimmed by eliminating postage expenses and resource allocation for manual data entry. Responses are processed automatically, ensuring real-time access to results. Moreover, it presents an opportunity to enhance brand visibility and reinforce benefits provided. Surveys can be tailored to align with a business's branding, incorporating customized backgrounds, images, logos, fonts, final redirect pages, and survey URLs. In essence, web services have revolutionized market research, making it more efficient, cost-effective, and visually engaging than traditional methods (McClellan, Bader, Bryan, Maltrud, Dennis, Mirin, Jones, Kim, Ivanova, Vertenstein, Boyle, 2011).

In response to the prevailing challenges faced by Indonesian MSMEs, a proactive team from Bina Nusantara University has taken the initiative to address the intricacies of buying and selling within this sector. Their mission is to decipher the adaptive and competitive product attributes that align with consumer behavior and influence purchasing decisions. Under the auspices of the PkM program, this endeavor will culminate in the creation of a Business Simulation tool known as "Know the Advantages of Your Product Attributes." This innovative application is engineered to yield a visual dashboard, offering a comprehensive portrayal of competitive dynamics contingent on specific product attributes. Essentially, it operates as a Decision Support System (DSS), poised to empower decision-makers within the MSME landscape. Execution of this cutting-edge application will be facilitated through a strategic partnership with Binus University's collaborator, Mocaca.id. This dynamic enterprise, specializing in e-commerce-based trading, is headquartered in Bandung Regency, West Java, positioning it as an ideal conduit for implementing this transformative solution.

## **B. METHOD**

### **THEORETICAL POINT OF VIEW ON ENHANCING MSME EMPOWERMENT THROUGH TECHNOLOGY ADOPTION**

Enhancing MSME (Micro, Small, and Medium Enterprises) empowerment through technology adoption is crucial from a theoretical standpoint for several reasons:

- ***Competitive Advantage:***

Technology adoption holds immense potential for empowering Micro, Small, and Medium Enterprises (MSMEs) by equipping them with transformative tools and systems. By embracing technology, MSMEs can streamline their operations, optimize workflows, and enhance efficiency across various business functions (Martínez-Peláez, *et.al.*, 2023). Automated processes, digital management systems, and advanced software solutions enable MSMEs to operate more smoothly, thereby reducing overhead costs and improving resource utilization (Kumar, *et.al.*, 2022). Moreover, technology empowers MSMEs to enhance the quality of their products or services through precision manufacturing, real-time monitoring, and data-driven insights (Jha & Sahoo, 2021). By consistently delivering superior offerings, MSMEs can establish themselves as reputable players in the market, gaining customer trust and loyalty.

Furthermore, technology adoption facilitates improved customer service experiences for MSMEs. Through various digital channels such as websites, mobile apps, and social media platforms, MSMEs can engage with customers more effectively, address their queries promptly, and personalize interactions based on preferences and behaviour (Imran, 2023). This heightened level of customer engagement not only fosters stronger relationships but also enables MSMEs to gain valuable feedback for product enhancements and service improvements. As a result, MSMEs can differentiate themselves from competitors and carve out a niche in the market, positioning themselves as preferred choices for consumers.

The competitive advantage gained through technology adoption enables MSMEs to level the playing field with larger enterprises. Despite their limited resources and scale, MSMEs can leverage technology to operate with agility, adapt to market changes swiftly, and innovate in ways that resonate with their target audience (Krisnanto, *et.al*, 2023). By embracing digital transformation, MSMEs can enhance their market competitiveness, seize growth opportunities, and expand their reach beyond traditional boundaries. Ultimately, technology serves as a catalyst for MSME empowerment, enabling them to thrive in dynamic business environments and realize their full potential as engines of economic growth and innovation (Alfarizi, *et.al*, 2023).

- ***Access to Markets:***

In today's interconnected world, technology plays a pivotal role in facilitating the global expansion of Micro, Small, and Medium Enterprises (MSMEs). By harnessing the power of e-commerce platforms, digital marketing strategies, and online sales channels, MSMEs can transcend geographical boundaries and tap into a vast pool of potential customers worldwide (Grewal & Tansuhaj, 2001). E-commerce platforms provide MSMEs with a digital storefront to showcase their products or services, allowing them to reach consumers in distant markets without the need for physical presence or extensive infrastructure investments (Cueto, *et.al*, 2022).

Digital marketing further amplifies the visibility of MSMEs on the global stage by leveraging various online channels such as social media, search engines, email campaigns, and content marketing (Sunarso, & Mustafa, 2023). Through targeted advertising and personalized messaging, MSMEs can effectively engage with diverse audiences, driving brand awareness and customer acquisition across different demographics and regions (Kumar & Nanda, 2023). This strategic approach to digital marketing not only enhances the reach of MSMEs but also enables them to compete with larger enterprises on a level playing field, leveraging their agility and innovation to stand out in competitive markets.

Moreover, online sales channels provide MSMEs with direct access to international consumers, eliminating traditional barriers to entry such as distribution networks and import/export logistics. Through e-commerce marketplaces, MSMEs can showcase their products to a global audience, facilitate seamless transactions, and fulfil orders efficiently, irrespective of geographical distances. This expanded market reach not only diversifies the customer base of MSMEs but also augments their revenue streams, driving sustainable growth and long-term success (Kim, & Khan, 2020).

By embracing technology-enabled globalization, MSMEs can unlock unprecedented opportunities for business expansion and market penetration. However, to maximize the benefits of global market access, MSMEs must prioritize factors such as localization, cultural sensitivity, and customer service excellence to build lasting relationships with international clientele. With the right strategic approach and technological infrastructure in place, MSMEs can leverage the borderless nature of the digital economy to propel their growth trajectory and establish themselves as formidable players in the global marketplace (Patnaik, Pallotta, & Tajeddini, 2023).

- ***Resilience and Sustainability:***

Technology adoption serves as a cornerstone for enhancing the resilience of Micro, Small, and Medium Enterprises (MSMEs) by providing them with the tools and capabilities to adapt to evolving challenges and disruptions. By embracing remote work capabilities, MSMEs can ensure business continuity even in the face of unforeseen circumstances such as natural disasters, health crises, or geopolitical upheavals (Wielgórka, 2016). This flexibility not only safeguards the well-being of employees but also enables MSMEs to maintain productivity levels and sustain operations irrespective of physical location. Furthermore, technology empowers MSMEs to diversify their supply chains, reducing dependency on single sources of production or distribution. By leveraging digital platforms for supplier discovery, relationship management, and procurement processes, MSMEs can mitigate risks associated with supply chain disruptions, fluctuations in demand, or

geopolitical tensions, thus enhancing their overall resilience and adaptive capacity (Rejeb, *et.al*, 2023).

In addition to bolstering resilience, technology adoption fosters sustainability within MSMEs by promoting eco-friendly practices and renewable energy solutions. By embracing energy-efficient technologies and sustainable production methods, MSMEs can minimize their environmental footprint, reduce resource consumption, and mitigate the negative impacts of their operations on ecosystems and communities (Yang, Liu, Jiang, & Zhang, 2023). This commitment to sustainability not only aligns with global trends towards environmental responsibility but also enhances the reputation and brand value of MSMEs, attracting environmentally conscious consumers and investors. Moreover, by integrating sustainability considerations into their business models and operations, MSMEs can future-proof their enterprises against regulatory changes, consumer preferences, and market disruptions, thereby ensuring long-term viability and success (Pingali, 2021).

- ***Capacity Building and Skills Development:***

Integrating technology into the operations of Micro, Small, and Medium Enterprises (MSMEs) underscores the importance of upskilling and capacity building among employees. Recognizing the pivotal role of digital literacy, software proficiency, and technology utilization, MSMEs invest in comprehensive training programs to empower their workforce with the necessary skills and knowledge (Hasbolah, *et.al*, 2021). These initiatives not only enhance individual skill sets but also foster a culture of continuous learning and innovation within the organization. By equipping employees with the competencies needed to leverage technology effectively, MSMEs can optimize operational efficiency, drive productivity gains, and stay competitive in dynamic market environments. Moreover, investing in employee development not only enhances job satisfaction and retention but also contributes to the overall growth and resilience of the workforce, positioning MSMEs for long-term success and sustainability (Budiman & Ardhiyansyah, 2023).

## PROVIDING INNOVATIVE SOLUTIONS

In response to a thorough analysis of our partners' unique challenges and circumstances, we recognize the critical need for innovative programs that can equip them with an expansive knowledge base and profound insights into genuine entrepreneurship. This holistic approach encompasses expertise spanning market dynamics, design principles, information technology, and the nurturing of creative capacities. Our commitment to the adoption of science, technology, and expertise, as part of the Community Service Program designed for the Industrial World Business World (DUDI), is unwavering in its aim to directly benefit society and specific community sectors. Our primary focus remains on economically vibrant micro-businesses within the fashion creative industry subsector, alongside other key players in the MSME landscape. Here are some of the solutions we propose:

- **Creative Worker Readiness Assessment**

We have developed a specialized tool to gauge the readiness of creative workers. This instrument delves into individuals' attitudes, behaviours, thought processes, and actions. Recognizing the significance of personal attributes among creative workers, particularly in the fashion subsector of Bandung, we aim to create a model and measuring instrument capable of identifying traits such as interests, psychological behaviour, and creativity. This comprehensive approach is geared toward enhancing the understanding of the values inherent in creative industry work, rooted in local wisdom. The measurement model, originally developed by a research team under the leadership of Nugroho J. Setiadi during the National Strategic Research Grant and Competency-Based Research initiative (2010 to 2018), has undergone psychometric testing on creative workers in Bandung's creative industry in 2012. We plan to apply this measuring tool to assess the potential and readiness levels of creative workers within the MSMEs we collaborate with, including mocaca.id, currently located in Bandung Regency. By modelling behaviours conducive to creativity and establishing a



framework for evaluating the performance of MSME business actors, our aim is to foster an entrepreneurial spirit, particularly within the shoe fashion and e-commerce sectors.

- **Digital Transformation**

Our observations indicate that our UKM partner, mocaca.id, and others in a similar position, grapple with digitizing their business processes. This involves creating web dashboards and mobile applications to streamline operations, facilitate inventory management, and generate financial reports seamlessly integrated with e-commerce APIs. To address this challenge, we intend to implement the Business Simulation tool "Know the Advantages of Your Product Attributes." This application generates visual dashboards portraying competitive market conditions based on specific product attributes. Through this endeavour, we aim to optimize Android devices as a vehicle for establishing a research and innovation centre—a Centre of Excellence for science and technology (CoE)—in collaboration with BINUS and our partners. This centre will serve as a focal point for research and innovation aimed at enhancing partner businesses and resolving their unique challenges. Our approach involves active involvement and collaboration with SME partners, not only showcasing their products but also identifying potential partnerships with fellow SMEs, government agencies, private entities, and other institutions.

- **Business Management Enhancement**

To address the intricacies of business management, including effective collaboration with raw material suppliers, streamlined record-keeping for purchases and sales, and the establishment of efficient payment systems, we will conduct training sessions and facilitate discussions with SME partners via electronic media. Our goal is to ensure that our partners are well-versed in utilizing mobile computer-based program applications designed for MSME Development Partnerships. By doing so, we anticipate a substantial impact on their sales turnover, ensuring sustainable growth and success. Regular meetings, both in-person at our UKM partner's

location and through electronic means, will provide a platform for evaluating the alignment of partner needs with the outcomes achieved, reinforcing the significance of these collaborative partnerships.

### **C. RESULTS AND DISCUSSION**

Our comprehensive approach aims to achieve the following outcomes across the three solutions offered, and we have established clear measures to assess our progress:

#### **a) Entrepreneurial Readiness Enhancement**

- **Outcome Target**

Elevate the entrepreneurial readiness of creative workers, fostering a deep understanding of the values intrinsic to the local wisdom-based creative industry.

- **Achievement Measures**

Attainment of a readiness index that surpasses initial expectations, demonstrating a high level of preparedness and adaptability among creative workers.

#### **b) Digital Transformation for Streamlined Operations**

- **Outcome Target**

Facilitate the digitalization of business processes, including the creation of web dashboards and mobile applications. Additionally, generate visual dashboards illustrating market competition dynamics based on specific product attributes.

- **Achievement Measures**

Proficiency in interpreting and utilizing dashboards, coupled with the ability to devise innovative initiatives in response to the insights garnered from these tools.

#### **c) Business Management Enhancement and Training**

- **Outcome Target**

Empower SME partners with the skills and knowledge necessary to proficiently manage various aspects of business operations.

- Achievement Measures

Competence among business actors in effectively employing Web Services for business management purposes, particularly in the realm of market research. Demonstrated ability to analyse data and formulate competitive strategies to drive business growth and competitiveness.

Our success will be gauged by the extent to which these targets are met, ensuring that our initiatives not only yield tangible results but also empower our partners in their entrepreneurial endeavours.

## **RESEARCH AND PROJECT HISTORY**

The proposer's extensive research and community service initiatives over the years have provided a robust foundation for the proposed activities. Several significant milestones and developments are outlined below, demonstrating a commitment to innovation and knowledge dissemination:

The journey commenced with the proposer's doctoral studies and culminated in a dissertation titled "Personal Characteristics and Creative Performance of Indonesian Radio Station Operating Managers: The Impact of Leader-Member Exchange" (Setiadi, 2007b). Subsequent endeavours encompassed a study focused on identifying the elements constituting the essence of change, referred to as "change DNA," influencing the perspectives and thought processes of business students (Setiadi, 2009). Numerous other studies exploring themes of creativity followed, denoted by references (Sutisna, Setiadi, & Yustim, 2018; Setiadi, & Inderadi, 2018; Setiadi, Boediprasetya, & Wahdianan, 2012; Setiadi, Gautama, & Suprayitno, 2013).

Collaborative research efforts yielded remarkable outcomes, including a national strategic competitive grant project titled "Developing a Performance Measurement Model for Creative Workers in the Design, Advertising, and Fashion Industries in Bandung City" (Setiadi *et al.*, 2010; 2011). The standout achievement from this initiative was the formulation of an instrument for

measuring the attributes and performance of creative workers, subsequently published as a reference book (Setiadi *et al.*, 2011). Furthermore, it earned Intellectual Property Rights (HKI) No. 28 of 2014, securing copyright for the computer program titled "Computer Applications Program for Measuring Individual's Creativity Potential."

Building upon this foundation, from 2016 to 2018, the proposer undertook research on "Revitalization of Creative Groups and City Branding: Integrating Ideas, Society, and Industry in the Development of Creative Areas/Cities." This endeavour represented a continuum of a multi-year competency grant research initiative spanning 2013 to 2015, which explored "Increasing the Skills and Professionalism of Workers and Creative Industry Support Agents: Momentum for Accelerating the MP3EI Agenda." The accomplishments from the multi-year Competency Grant research include the creation of two textbooks, six scholarly publications (three presented at international seminars, and two published in esteemed journals indexed in Scopus).

Over the last five years (2018 to 2022), two Higher Education Research grants were successfully completed. These projects cantered on (1) "Digital Economic Governance Model in the Era of Revolution 4.0: Regulation, Financial Inclusion, and Technological Innovation" and (2) "Development of a Creative Behaviour Identifier Database Application System Based on Neuro and Behavioural Science for Workers in the Creative Industries Subsector."

Efforts to disseminate the research output and secure intellectual property rights for the creative behaviour database application program for creative industry workers have been relentless. This dissemination strategy has involved publishing articles in accredited international and national journals, presenting findings in national and international seminar proceedings, and crafting reference books for broader national distribution (Setiadi, Christianto & Sutanto, 2022; Setiadi, Sutanto, & Ashary, 2021; Tjahjana, Manurung, Kosasih, & Setiadi, 2020).

Looking ahead to 2023-2025, a forward-thinking matching fund program will be proposed. This initiative, firmly oriented towards adoption, diffusion, down streaming, and commercialization, seeks

to leverage products, prototypes, technologies, and policies (including mini-plants, teaching factories, and teaching industries) to address the specific needs of our valued partners. This proactive approach reflects a commitment to enhancing the resilience and economic prospects of Micro, Small, and Medium Enterprises (MSMEs) while aligning with government programs aimed at serving community needs and fortifying local economies.

## **IMPLEMENTING COMMUNITY SERVICE: STAGES AND STEPS**

The process for implementing community service activities in the creative industry subsector is structured into distinct stages, each comprising a set of integral steps. This systematic approach ensures the effective transfer of science and technology to our esteemed partners. Below, we outline the steps involved in this process:

### **a. Analysis of Company Conditions**

This initial step entails comprehensive data collection to gain profound insights into the specific conditions prevailing within our partner organizations operating in the design and fashion industry subsectors.

### **b. Tailoring Approach to Unique Conditions**

Recognizing the distinctive characteristics of the design and fashion industry subsectors, a customized approach is formulated to align with the unique business dynamics within these sectors. Given the heavy reliance on human resources driven by creative potential and intellectual capacity, it is imperative to identify and harness the creative potential of our creative workforce. This insight will facilitate more accurate assessments and future projections, enhancing human resource management strategies.

### **c. Training in Measurement Processes and Instrument Utilization**

In this phase, we provide comprehensive training on the measurement processes and the utilization of measuring instruments. This training encompasses the acquisition, organization,

analysis, and effective utilization of data related to creative worker performance. By reducing uncertainty, this process bolsters overall company performance and informs managerial decision-making.

#### **d. Application of Creative Worker Potential and Entrepreneurial Readiness Measurement Instruments**

Leveraging the creative worker performance measurement instrument developed earlier, we proceed to apply it within our partner industries. This instrument is instrumental in delineating the creative potential inherent in the creative workforce. Subsequently, companies can formulate policies to enhance their human resources management strategies.

#### **e. Evaluation and Future Policy Formulation**

The final step encompasses a comprehensive evaluation of all activities conducted to measure creative worker potential and readiness through the application of instruments. The insights gleaned from this evaluation process serve as a foundation for shaping future policies and strategies.

Throughout this process, additional training is offered in the realms of design and business processes, enriching the entrepreneurial discourse among our partners. Furthermore, technical assistance and consultations are readily available, serving as valuable resources to support and guide our partners throughout the entirety of these activities.

### **EMPOWERING MSMEs THROUGH UNIVERSITY COLLABORATION**

In response to the evolving landscape of business in Bandung city and district, this community service initiative marks a crucial step in harnessing the potential of Micro, Small, and Medium Enterprises (MSMEs). Rooted within the Partnership for Knowledge Management (PkM) framework, the project represents a groundbreaking fusion of academia's science, technology, and expertise with the entrepreneurial spirit of local MSME partners. The primary focus of this endeavour is the

elevation of economically productive micro-businesses, primarily those nested within the fashion creative industry subsector. By directly engaging with these entities, the initiative aims to bolster their resilience and competitiveness in an ever-changing market.

### **Fostering Innovation and Digital Transformation**

One of the cornerstones of this initiative lies in the implementation of digital business simulations and mentorship programs tailored specifically to the needs of local MSMEs. At the heart of this transformation is a cutting-edge digital application, designed to provide decision-makers with a clear and insightful visual dashboard. This Decision Support System (DSS) empowers MSME leaders with the information and tools they need to navigate the complexities of modern business competition. In essence, it becomes a beacon guiding them toward informed and strategic decisions.

### **A Collaborative Ecosystem for Success**

Central to the success of this endeavour is a collaborative partnership comprising Binus University, Mocaca.id—an e-commerce trading platform—and numerous local MSMEs deeply rooted in Bandung, West Java. Together, these stakeholders form a dynamic ecosystem where knowledge, innovation, and practical expertise converge. This partnership underscores the invaluable role that universities play in supporting MSME innovation and competitiveness.

### **Beyond Business: Advancing Education and Research**

Beyond its immediate impact on businesses, this initiative offers a win-win scenario for both students and educators. The active engagement of four lecturers and four student interns not only enriches their educational experience but also contributes to the development of program applications tailored to the unique needs of MSMEs. This holistic approach aligns seamlessly with university key performance indicators (IKUs), notably in the domains of student internships, curriculum enhancement, research output, and institutional recognition.

In essence, this community service initiative transcends conventional boundaries, redefining the role of universities as catalysts for innovation and growth within the MSME landscape. As it unfolds,

it promises to empower local businesses, equip students with practical skills, and elevate the academic institution itself to new heights of recognition and impact.

#### **D. CONCLUSION**

In conclusion, this community service initiative signifies the fusion of academia's knowledge, expertise, and technological prowess with the aspirations of Micro, Small, and Medium Enterprises (MSMEs) in Bandung city and district. Rooted within the Partnership for Knowledge Management (PkM) framework, this collaborative endeavour exemplifies the transformative power of synergistic partnerships.

By targeting economically productive micro-businesses, with a primary focus on the fashion creative industry subsector, this initiative recognizes the indispensable role of these entities in the local economy. The deployment of digital business simulations, mentorship programs, and the pivotal Decision Support System (DSS) is poised to catalyse innovation and enhance the decision-making capabilities of our MSME partners.

Crucially, this endeavour extends beyond the confines of business. It emerges as an educational cornerstone, where students and educators alike find enrichment in real-world problem-solving and application development. The active participation of four lecturers and four student interns signifies a commitment to education's symbiotic relationship with practical experience.

As we chart a course forward, it is worth acknowledging that the impact of this initiative transcends individual enterprises. It reverberates within the corridors of Binus University, amplifying key performance indicators (IKU's) related to student internships, curriculum enrichment, research output, and institutional recognition.

In essence, this partnership underscores the pivotal role that universities can play in nurturing MSME innovation and competitiveness. It is a testament to the transformative potential of collaboration, where the worlds of academia and business intertwine to create an ecosystem where



knowledge becomes empowerment, and innovation becomes the currency of progress. In these collaborative efforts, we witness the future, where MSMEs stand tall and universities stand beside them, ready to empower and inspire.

## E. REFERENCES

- Alfarizi, M., Widiastuti, T., & Ngatindriatun. (2023). Exploration of Technological Challenges and Public Economic Trends Phenomenon in the Sustainable Performance of Indonesian Digital MSMEs on Industrial Era 4.0. *Journal of Industrial Integration and Management*, 1-32.
- Budiman, D., & Ardhiansyah, A. (2023). The Effect of Employee Engagement, Marketing Capability and Innovation on Sustainable Customer Loyalty among MSMEs Customers in Indonesia. *Jurnal REKOMEN (Riset Ekonomi Manajemen)*, 6(2), 96-108.
- Cueto, L. J., Frisnedi, A. F. D., Collera, R. B., Batac, K. I. T., & Agaton, C. B. (2022). Digital innovations in MSMEs during economic disruptions: experiences and challenges of young entrepreneurs. *Administrative Sciences*, 12(1), 1-12.
- Grewal, R., & Tansuhaj, P. (2001). Building organizational capabilities for managing economic crisis: The role of market orientation and strategic flexibility. *Journal of marketing*, 65(2), 67-80.
- Imran, M. (2023). The Communication Channels and the Innovation Perception on The Adoption of E-Commerce in Micro, Small Medium Enterprises (MSMEs). *Ilomata International Journal of Social Science*, 4(3), 441-454.
- Jha, R. S., & Sahoo, P. R. (2021). Influence of big data capabilities in knowledge management—MSMEs. In *ICT Systems and Sustainability: Proceedings of ICT4SD 2020, Volume 1* (pp. 513-524). Springer Singapore.
- Kim, K., & Khan, F. (2020). Trade Facilitation and Aid for Trade for Inclusive Trade in Asia and the Pacific. *Future of Regional Cooperation in Asia and the Pacific*, 146.
- Krisnanto, A. B., Surachman, S., Rofiaty, R., & Sunaryo, S. (2023). The Role of Marketing and Digital Marketing Capabilities: Entrepreneurial Orientation on the Marketing Performance of Public Enterprises. *Revista de Cercetare Si Interventie Sociala*, 82.
- Kumar, M., Raut, R. D., Mangla, S. K., Ferraris, A., & Choubey, V. K. (2022). The adoption of artificial intelligence powered workflow management for effective revenue growth of micro, small, and medium scale enterprises (MSMEs). *Production Planning & Control*, 1-17.
- Kumar, V., & Nanda, P. (2023). Social media marketing: practices, opportunities and challenges for MSMEs. *International Journal of Business Information Systems*, 44(2), 268-284.
- Martínez-Peláez, R., Ochoa-Brust, A., Rivera, S., Félix, V. G., Ostos, R., Brito, H., ... & Mena, L. J. (2023). Role of digital transformation for achieving sustainability: mediated role of stakeholders, key capabilities, and technology. *Sustainability*, 15(14), 11221.
- McClellan JL, Bader DC, Bryan FO, Maltrud ME, Dennis JM, Mirin AA, Jones PW, Kim YY, Ivanova DP, Vertenstein M, Boyle JS. (2011). A prototype two-decade fully-coupled fine-resolution CCSM simulation. *Ocean Modelling*. Jan 1;39(1-2):10-30.
- Patnaik, S., Pallotta, V., & Tajeddini, K. (Eds.). (2023). *Global Trends in Technology Startup Project Development and Management: From Innovation to Startup Creation*. Springer Nature.
- Pingali, S. R. (2021). *Digital Transformation Journey for Small and Medium Enterprises in Growth Economies-Antecedents and Consequences* (Doctoral dissertation, Indian School of Business).
- Rejeb, A., Rejeb, K., Simske, S., & Keogh, J. G. (2023). Exploring blockchain research in supply chain management: A latent Dirichlet allocation-driven systematic review. *Information*, 14(10), 557.
- Setiadi, N. J. (2007) *Personal Characteristics And Creative Performance Of Indonesian Radio Station Operating Managers : The Impact Of Leader-Member Exchange [HD38.2. N968 2007 f rb ]*. PhD thesis, Universiti Sains Malaysia.
- Setiadi, N. J., Sutanto, H., and Ashary, R. R. (2021). "Observing the Role of Social Media to Accelerate Creativity Development," 2021 International Conference on Information Management and Technology (ICIMTech), 2021, pp. 388-392, doi: 10.1109/ICIMTech53080.2021.9535071. (<https://ieeexplore.ieee.org/abstract/document/9535071> )
- Setiadi, N.J., & Aryanto, R. (2014). Creativity-relevant personal characteristics among Indonesian creative workers. *Journal the WINNERS*, 15 (2), 140-149. (ISSN: 1412-1212; eISSN: 2541-2388) (<http://journal.binus.ac.id/index.php/winners/article/viewFile/627/605> )
- Setiadi, N.J., & Inderadi, R. (2018). The influence of creative style preference on creative behavior of Indonesia' creative industry workers. *International Journal of Organizational Bussiness Excellence*, 1(1): 65–76. (E-ISSN 2621-

654X). (<file:///D:/BINUS/RTTO/Research/Hibah%20Binus/Usulan%20Nugroho/HTB2018/IJOBEX-11-0006-2018.pdf>)

- Setiadi, N.J., Boediprasetya, A., & Wahdianman (2012). Boosting Indonesia's creative industries: Identification of people's characteristics and creative behaviour. *Quaestiones Geographicae*, 31(4), 53-62. DOI: [10.2478/v10117-012-0035-3](https://doi.org/10.2478/v10117-012-0035-3), January 2013
- Setiadi, N.J., Gautama, I., & Suprayitno. (2013). Assessing Creativity Skill Development in Art and Design among Undergraduate Students: Implementing creative potential simulation software to capture creativity-relevant personal characteristics. Paper has been presented at the *IEEE International Conference on Teaching, Assessment and Learning for Engineering (TALE 2013)*, pp. 268-272. ISBN: 978-1-4673-6354-9. The conference has been held in Bali, Indonesia, August 26-29, 2013. (<https://ieeexplore.ieee.org/document/6654444/>)
- Sunarso, B., & Mustafa, F. (2023). Analysing the Role of Visual Content in Increasing Attraction and Conversion in MSME Digital Marketing. *Journal of Contemporary Administration and Management (ADMAN)*, 1(3), 193-200.
- Sutisna, D., Setiadi, N.J., Yustim, B. (2018). Revitalization of Creative Industries and City Branding: Competitiveness and Productivity in Knitted Industry Perspective. *MIMBAR, Jurnal Sosial dan Pembangunan*, 34 (1), 166-175. (ISSN 0215-8175 | e-ISSN 2303-2499). (<https://ejournal.unisba.ac.id/index.php/mimbar/article/view/3308>)
- Tjahjana, D., Manurung, A., Kosasih, W., & Setiadi, N.J. (2020). Digital Business, Innovativeness, and Family-Firm Performance: The Moderating Effect of Family Commitment in Small- and Medium-sized Enterprises (SMEs). *International Journal of Advanced Science and Technology*, 29(10s), 209 -217. Retrieved from <http://serisc.org/journals/index.php/IJAST/article/view/14409>
- Yang, Z., Liu, H., Jiang, Y., & Zhang, Z. (2023). Innovative strategies for green economic recovery: Enhancing efficiency in resource markets. *Resources Policy*, 86, 104200.