EXPLORING THE HUMAN CAPITAL DYNAMICS OF BANDUNG'S DIGITAL CREATIVE INDUSTRY ECOSYSTEM

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Abstract

Digital creative industry holds immense potential to drive economic growth, particularly in Bandung, known for its dynamic creative environment. Realizing this potential requires a deep understanding of the human capital as the primary resource in developing this industry. This study examines its dynamics based on the theories of creative class, human capital, knowledge management, and effectuation. Through a qualitative approach, the research utilizes in-depth interviews with various stakeholders, including creative professionals, academics, and government representatives, to gain insights into the opportunities and challenges faced by human capital in this industry. Data analysis techniques include Latent Dirichlet Allocation topic modeling, word frequency analysis, and word co-occurrence network analysis. The findings suggest that Bandung has potential to develop a strong digital creative industry, demonstrated by the presence of talented workforce, high entrepreneurial spirit, and a supportive community. However, several challenges need to be addressed, such as skills gaps, limited access to funding, and the need for stronger policy support. Moreover, synergistic collaboration among stakeholders is crucial to create an ecosystem that supports human capital development and fosters the sustainable growth of Bandung's digital creative industry. These efforts include enhancing knowledge-sharing, promoting innovation, and implementing policies that can attract and retain creative talents.

Keywords: *Core Capital, Creative Economy, Digital Creative Industry, Human Resources*

Introduction

The creative economy has become one of the leading sectors in driving Indonesia's economic growth. The creative economy's contribution to national economic growth lies in its ability to produce value through continuous innovation (Rahmi, 2018). This is indicated by the addition value of the creative economy sector reaching 1.05 trillion rupiah in the third quarter of 2023, representing 82.1% of the 2023 target and contributing 4.94% to national economic growth in the same period.

The potential of this sector as a driver of sustainable national economy is supported by the renewable and unlimited nature of its resources, namely ideas, creativity, and innovation that continue to add value to the products produced (Rofaida et al., 2019). Data from the Ministry of Tourism and Creative Economy shows a significant increase in the workforce within the creative economy sector, reaching 23.98 million people in 2022 with a growth rate of 9.49%. Although the sector faced a downturn due to the Covid-19 pandemic, it demonstrated

strong resilience with relatively rapid recovery. The government has set a target of increasing the workforce to 24.7 million people by 2024, with an economic contribution projection of IDR 1.347 trillion and an export value of USD 27.53 billion.

As an integral part of the creative economy, creative industry relies on the creative power of human resources (HR) as core capital, involving individual talents, especially in terms of skills and creativity (Ministry of Trade, 2009). Creative capital in SMEs is vital for fostering innovation and addressing local challenges, particularly in digital industries." (Asfiah, 2015). According to (Aryanti, 2018), the creative economy not only depends on conventional economic activities, but also on ideas, creations, and innovations that can add value to the digital products produced.

This development is evident from the formation of a digital creative cluster covering various sub-sectors such as photography, videography, visual communication design, game development, television and radio, as well as advertising and publishing. (Aryanti, 2020) emphasizes the importance of knowledge management in managing creative ideas and transforming them into organized collective knowledge. And higher education takes role in the system capacity to create human capital core specialization for digital transformation Grigorescu, Lincaru and Pîrciog (2023).

This is supported by the active engagement of human resources in Bandung's digital creative industry in conducting knowledge-sharing activities, both online and offline (Aryanti, 2018) and reason why technological advancements demand a constant redefinition of skill sets, particularly in fast-evolving industries like digital creativity (Ulas, 2019).

Digital creative industry in Indonesia has significant potential to drive economic growth, especially in Bandung, a city known for its dynamic creative environment. Realizing this potential requires a deep understanding of human resources (HR) within the digital creative industry. Bandung, as one of the main centers of creativity and innovation in Indonesia, is a vital location for the development of the digital creative industry.

This study examines HR dynamics as key capital in developing the digital creative industry cluster in Bandung, drawing upon theories of the creative class, human capital, knowledge management, and effectuation. The objectives of this research are to describe the opportunities, challenges, and development directions of human resources as core capital in developing the digital creative industry cluster in Bandung as an effort to drive economic

growth and community welfare. This research addresses the gap in understanding the dynamics of human resources in the development of the digital creative industry cluster in Bandung, which is crucial for realizing the full potential of this sector as a driver of sustainable economic growth.

This research's novelty lies in its comprehensive analysis of the dynamics of human resources as the core capital in the development of the digital creative industry cluster in Bandung. The using of LDA topic modeling and network analysis lies in their ability to uncover latent patterns and relationships within unstructured textual data that traditional qualitative methods might overlook.

Previous studies have focused on the creative economy or the digital industry in general, such as Aryanti (2018) with the research about human resources performance in digital creative industry which address knowledge management issues. Then another research by Rofaida et al. (2019) about innovation strategy for digital creative industry. Also (Aryanti, 2020) written about the effort to develop a competitive digital creative industry which examined human resource performance metrics in Bandung's digital creative industry through descriptive analysis of Bandung Digital Valley members, this study differs by exploring the broader human capital ecosystem dynamics.

Unlike previous studies that primarily relied on descriptive analyses or case studies, the application of LDA in this research enables the identification of dominant themes and stakeholder priorities in a more systematic and reproducible manner. Additionally, NetworkX analysis highlights the interconnectedness of these themes, providing a visual representation of the collaborative ecosystem. These combined methods offer unique insights into the complexities of HR dynamics by revealing hidden patterns and interdependencies within Bandung's digital creative industry.

Human capital challenges and ecosystem synergies in Bandung can be uniquely examines through advanced qualitative analysis methods, including LDA topic modeling and network analysis. It analyzes the pivotal role of human resources in propelling the digital creative industry's growth in Bandung. The study offers a comprehensive perspective by synthesizing multiple theoretical frameworks, including creative class theory, human capital

theory, knowledge management theory, and effectuation theory, to reveal the complex dynamics of human resources within this industry.

Literature Review

The Creative Class Theory by (Florida, 2003) emphasizes the importance of talent, tolerance, and technology in driving the growth of the creative economy, which is highly relevant to the context of Bandung as a creative city with great potential in the digital creative industry. However, this potential needs to be supported by competent and adaptive HR, as emphasized in the Human Capital Theory.

Investment in individual knowledge, skills, and abilities, as well as the effective use of digital technology, as explained in Manuel Castells' theory of the network society, becomes crucial for digital creative-preneur to compete in the global market. As mentioned by Anttiroiko (2015), Castell's theoretical framework supports the understanding of how human resources in Bandung's digital creative industry operate within a networked society where technology and economic activities are increasingly interconnected.

Not only the human resources who need to be involved but also the creative industry thrives in ecosystems that facilitate knowledge exchange and collaboration among diverse stakeholders (Basri, 2014), human capital in creative industries also should be evaluated based on dynamic capabilities like adaptability and innovation, rather than static qualifications (Rukmana et al., 2023). Castells' institutional network analysis perspective helps frame how digital creative professionals navigate and leverage technological and social networks for industry development. Besides, human resources in the creative industry must possess adaptability to continuously respond to the rapid technological advancements (Syafarudin & Sudiarditha, 2018)

Furthermore, Knowledge Management Theory highlights the importance of managing knowledge effectively, through the creation, acquisition, storage, sharing, and utilization of knowledge, to achieve competitive advantage and drive innovation. Strategic knowledge management bridges the gap between theoretical insights and practical applications in digital industries (Ferreira et al., 2020) In this case, communities of practice can become a forum for digital creative industry players to learn and collaborate with each other. Besides, developing entrepreneurial competencies is vital for creative industry professionals to compete in both local

and global markets (Edward et al., 2023) and essential to achieve sustainable growth (Sartono, 2021).

Finally, Entrepreneurship Theory, including Effectuation Theory by (Sarasvathy et al., 2008), explains how digital creative-preneur can face uncertainty, identify opportunities, and create their own future by utilizing available resources, collaborating with other parties, and adapting to change. Overall, these theories complement each other and provide a holistic understanding of HR dynamics in the digital creative industry, which ultimately contributes to economic growth and community welfare.

Research Method

This research employs a qualitative approach to examine the dynamics of human resources (HR) in the development of the digital creative industry cluster in Bandung.). Data were collected through observation, focus group discussions (FGD), and in-depth interviews with various stakeholders, including the government, creators, students, and association members, then analyzed qualitatively using Maxwell (1996) descriptive model. Data validity was ensured through triangulation, member checks, and peer debriefing, aiming to provide credible findings that contribute to understanding the role of HR in developing the digital creative industry in Indonesia.

In the data analysis, a text mining and network analysis provide robust methods for uncovering patterns and relationships in qualitative data, enhancing research insights (Ulas, 2019). Latent Dirichlet Allocation (LDA) was used to process interview transcripts from various stakeholders in the digital creative industry. The initial text preprocessing stage was carried out using Python 3.8.19, which included text normalization, punctuation removal, stop word removal, and stemming adjusted for the Indonesian language.

After obtaining the cleaned text data, the LDA model was trained with the optimal number of topics using the Gensim library, resulting in a document-topic distribution and identifying the main themes. To visualize the patterns of keyword relationships, a word co-occurrence network analysis was performed using NetworkX. This visualization of co-occurrence patterns analysis in qualitative data reveals hidden stakeholder relationships critical to policy design (Anttiroiko, 2015) which helps identify and understand the interconnectedness of key keywords in supporting the development of the digital creative industry in Indonesia.

Result and Discussion

The digital creative industry in Bandung is developing rapidly in line with technological advances and digitalization that support innovation in various sectors. Bandung, known as a center of creativity and innovation in Indonesia, plays a key role in the development of a digital creative industry cluster involving a variety of players such as content creators, videographers, and animators. Human resources (HR) in this industry are seen as core capital or the central element in the development of this cluster. Based on the Creative Class Theory from Richard Florida, the existence of creative talent is an important component in advancing the modern economy, and the city of Bandung with its innovative cultural environment and community has great potential to attract and retain creative talent that can drive technology and art-based economic growth. This theory emphasizes that talent, tolerance, and technology are essential for fostering innovation and growth in creative economies.

In Bandung's digital creative industry, these components manifest in distinct ways: Talent is reflected in the availability of skilled professionals across various creative domains, such as animators to game developers, or video editor to content creator. Tolerance is evident in the city's inclusive culture, which attracts diverse talents and fosters collaboration among individuals with varied backgrounds. They closely collaborate with each other with no hesitation including share their project and market. Technology, as a key enabler, supports the development and dissemination of digital creative content through advanced infrastructure and tools. The ability of using technology could be the differentiation of each actor in this field. Together, these factors create a synergistic environment that promotes adaptability, knowledge-sharing, and innovation within HR dynamics.

Amid the rapid development of the digital creative industry in Bandung, there are numerous opportunities for local HR to enhance competitiveness and innovation. Bandung not only offers an inclusive creative environment but also supports a collaborative ecosystem that enables industry players to innovate together. The opportunities available to HR in Bandung's digital creative industry are diverse. The inclusive and collaborative creative environment allows various creative communities to connect, forming an ecosystem that fosters innovation. Local creative hubs and government initiatives play a central role in supporting innovation and collaboration within the creative ecosystem (Winarti et al., 2022). The Bandung Creative Hub, for example, provides facilities such as photography studios, video editing rooms, and co-working spaces designed to support collaboration and creative content production. Ahmad, a

videographer, shared, “Bandung Creative Hub makes it easier for us to connect with other professionals, build portfolios, and strengthen our branding.”

Another opportunity lies in education and training that support HR skill enhancement. Educational and training programs aligned with industry needs are critical in addressing skill gaps and fostering sustainable development (Sutrisno, 2021). The Bandung City BPSDM has launched the Digital Talent Scholarship program to develop local digital skills and bridge industry needs. This program is also connected with the Diploy Talent Pool platform, which links HR talent with various job opportunities in the digital creative industry. Ilham, a content creator, noted, “Through this program, we can continuously hone our skills in line with current technological developments.” Furthermore, various educational institutions in Bandung, such as universities and vocational schools, offer creative technology-based curricula. Adapting curricula to industry needs ensures that educational institutions contribute effectively to workforce readiness (Sutrisno, 2021). These educational programs, combined with informal training such as workshops and courses frequently held by local creative communities, help to strengthen technical skills and creativity among HR. Fidelius, a video editor, emphasized the importance of continuous training access: “Although it’s not easy, I’ve been able to survive in this industry because of my access to relevant technology and knowledge.”

Despite the digital creative industry in Bandung having great potential and supported by various development programs, significant challenges remain, especially in terms of human resources readiness and sustainability. The skills gap is a challenge that needs to be addressed, as the education curriculum has not fully aligned with the dynamic needs of the digital industry. Skill gaps present both a challenge and a constraint, as educational curricula do not fully align with the dynamic needs of the digital industry. “Not all Human Resources in Bandung have access to relevant training, especially concerning the latest technology,” said Afrina as Content Creator. Other challenges include limited digital infrastructure in some areas, which can hinder productivity and innovation that’s why Digital infrastructure and government support systems are critical for enhancing industry productivity and innovation (Salistia et al., 2022) this also supported by Sari (2018) that stated government programs that support digital infrastructure development directly enhance innovation and productivity in creative industries. Regulatory and bureaucratic complexities also present obstacles, particularly in business licensing. Danan, a production house manager, stated, “Rigid administrative processes restrict our flexibility.

Therefore, associations and networking with peers are very helpful in overcoming these limitations."

Limitations in digital infrastructure in certain areas can also hinder productivity and innovation. Regulatory complexity and bureaucracy are also obstacles, particularly in business licensing. This situation reflects the need for quick and continuous adaptation to evolving technologies and industry demands, which unfortunately has not been fully matched by adequate facilities and training availability.

To address these challenges and leverage the existing potential, the development of the digital creative industry cluster in Bandung is increasingly showing strong cross-sector collaboration. Ecosystem synergies among government, academia, and industry are key to addressing the skills gap in digital creative industries (Ginting, 2019). They synergize to create a conducive creative ecosystem, where the support of facilities, infrastructure, and innovation initiatives provide a significant boost to the global competitiveness of the creative industry in Bandung. For instance, the Jabar Digital Service facilitates digital creative industry players by providing development space and a digital ecosystem that supports technology-based business growth. Jabar Digital Service also assists industry players in creating new job opportunities and developing businesses in a more structured manner. Wahyu Aditya, an animator, highlighted the importance of local knowledge-based innovation to achieve global competitiveness: "We must create authentic products derived from innovations and a deep understanding of market needs."

Additionally, the Patrakomala platform functions as a one-stop platform supporting the marketing of local creative products to broader markets. Erdi, Founder of Startup Bandung, mentioned, "Patrakomala gives our animation products access to compete in the global market." Access to this digital platform provides creative players with the opportunity to expand their professional networks and markets, which can drive business growth. With continuous support and strong collaboration among various stakeholders, Bandung's digital creative industry has great potential to keep growing as a competitive creative economy driver at both national and international levels. Through programs like the BPSDM Digital Talent Scholarship, Jabar Digital Service, and the Patrakomala platform, Bandung has successfully built an ecosystem that is conducive to the development of creative HR. This ecosystem opens new opportunities for creative talent in Bandung to expand market access, innovate, and develop skills needed to

face global competition. By strengthening the creative community, HR empowerment programs, and infrastructure support, Bandung's digital creative industry is projected to become a model for sustainable and highly competitive creative economy development.

In the vibrant streets of Bandung, a quiet revolution is brewing—not with loud proclamations, but with the subtle, persistent growth of human potential. The digital creative industry here is more than just a sector; it's a living, breathing ecosystem where talents are nurtured, skills are transformed, and dreams are coded into reality.

Andre as part of a content creator team, standing at the crossroads of opportunity and challenge. His journey reflects the larger narrative of Bandung's creative workforce—talented, ambitious, yet navigating an increasingly complex professional landscape. The skills he needs today are dramatically different from those his predecessors required just a few years ago. The traditional model of education and training is no longer sufficient. In Bandung's dynamic digital creative industry, learning has become a continuous, adaptive journey. It's not just about acquiring technical skills, but about developing a holistic set of capabilities that can navigate the unpredictable terrain of technological innovation.

Take, for example, the transformation happening within local educational institutions. Universities are no longer ivory towers of theoretical knowledge, but collaborative laboratories where industry needs meet academic expertise. Fidelius, a video editor we met earlier, embodies this shift. His success isn't just about mastering software, but about understanding the deeper narrative of visual storytelling, technological adaptation, and creative problem-solving.

The skill development ecosystem emerging in Bandung resembles a complex, interconnected network. Government initiatives, like the Digital Talent Scholarship program, are no longer top-down directives but collaborative platforms. They connect aspiring creators like Irvan with real-world opportunities, bridging the gap between potential and professional readiness. But the most profound transformation lies in the mindset. Digitalpreneurship requires a blend of technical expertise and entrepreneurial mindset to address emerging challenges in the digital economy (Marlinah, 2019). It's about cultivating not just skills, but meta-competencies. Core competencies in the creative industry extend beyond technical skills, encompassing adaptability and innovative thinking (Fiandra et al., 2022). Critical thinking, emotional intelligence, and entrepreneurial creativity are becoming as crucial as technical

proficiency. The digital creative professional of today is part technologist, part storyteller, part strategic thinker.

Industry associations and creative hubs are playing a crucial role in this transformation. The Bandung Creative Hub is more than a physical space—it's an ecosystem of continuous learning and collaboration. Here, a photographer can learn from a game developer, an animator can collaborate with a content strategist, creating a rich, cross-pollinating environment of knowledge and innovation. Psychological resilience has become as important as technical skills. The ability to adapt, to learn continuously, to navigate the uncertainties of a rapidly changing technological landscape—these are the new currencies of professional success. Mental health support, stress management workshops, and adaptive career development programs are no longer optional but essential components of a modern skill development strategy just as mentioned by Perdana (2019) that mental resilience and continuous learning are becoming essential skills for professionals in creative and digital industries.

The measurement of human capital has also evolved. It's no longer about static qualifications but about dynamic capabilities. How quickly can a professional learn? How effectively can they integrate new technologies? How creatively can they solve complex problems? These are the questions that now define professional potential. Emerging technologies like artificial intelligence and machine learning are not threats but opportunities. They demand a new kind of professional—one who can collaborate with technology, understand its nuances, and leverage it for creative expression. Bandung's digital creative professionals are learning to dance with these technological partners, finding new rhythms of innovation.

As Wahyu Aditya, the animator we encountered earlier, eloquently put it, "We must create authentic products derived from innovations and a deep understanding of market needs." This statement encapsulates the essence of Bandung's human capital development strategy—it's about creating value, not just acquiring skills. The journey of human capital development in Bandung's digital creative industry is still unfolding. It's a narrative of continuous learning, of breaking boundaries, of transforming challenges into opportunities. Each professional, each training program, each collaborative initiative is a thread in this rich, complex tapestry of innovation. For any other countless professionals outside, the future is not something that

happens to them—it's something they actively create, one skill, one project, one innovation at a time.

Beyond the surface-level skills and technological adaptations, Bandung's digital creative ecosystem reveals a more complex narrative of human potential. The city's unique position as a creative hub is not just about individual talents, but about the intricate web of relationships, opportunities, and systemic support that transforms potential into tangible innovation. Consider the multilayered challenges facing young professionals like Irvan. The skills gap is not merely a technical challenge but a systemic complexity that intersects education, industry needs, and rapid technological evolution. Higher education institutions are increasingly challenged to create curricula that are simultaneously forward-looking and immediately applicable.

The role of universities has dramatically transformed. No longer are they simply knowledge repositories, but active innovation laboratories. Take, for instance, the collaborative efforts between academic institutions and industry players. These partnerships are creating dynamic learning environments where theoretical knowledge meets practical application. Students are no longer passive recipients of information but active co-creators of knowledge. Technological disruption has become the new constant. Artificial Intelligence, machine learning, and emerging digital platforms are not just tools but fundamental reshaping mechanisms of creative production. This requires a radical reimagining of skill development. Professionals must now cultivate an adaptive mindset that views learning as a continuous, lifelong journey rather than a destination.

The government's role has also evolved. Initiatives like the Jabar Digital Service are moving beyond traditional support mechanisms. They are now creating sophisticated ecosystems that provide not just infrastructure, but holistic support for creative professionals. This includes targeted funding mechanisms; networking platforms; access to global markets; and specialized training programs. Interestingly, the most successful professionals are those who can navigate the intersection of multiple domains. A game developer might need to understand user psychology, data analytics, storytelling, and cutting-edge technological platforms. This interdisciplinary approach demands a more nuanced understanding of skill development.

Psychological resilience has emerged as a critical component of professional success. The ability to manage uncertainty, adapt to rapid changes, and maintain creative energy becomes as important as technical proficiency. Digital creative professionals must integrate technical proficiency with creative and entrperpreneurial skills to remain competitive in the global market (Mellander & Florida, 2021) this is aligned with Triyan statement about what Animator have to face. Mental health support, stress management programs, and professional wellness initiatives are no longer peripheral but central to human capital development. The measurement of professional potential has become more sophisticated. Traditional metrics like academic qualifications are giving way to more dynamic assessments such as: adaptability quotient; cross-platform proficiency; innovation potential; collaborative capabilities; and emotional intelligence in digital work environments.

Local creative communities are playing a crucial role in this transformation. Platforms like the Bandung Creative Hub are more than physical spaces—they are living ecosystems of knowledge exchange. Here, a photographer can learn machine learning techniques from a software developer, or a content creator can understand advanced marketing strategies from a digital strategist. The global context adds another layer of complexity. Bandung's digital creative professionals are not just competing locally but are increasingly positioning themselves in the global marketplace. This requires a unique set of skills that blend local cultural understanding with global technological trends.

Indigenous innovation becomes a powerful differentiator. It's not about mimicking global trends, but about creating unique value propositions that emerge from local contexts. This requires professionals who can blend technological sophistication with deep cultural insights. The future of human capital in Bandung's digital creative industry is not about predicting a fixed trajectory, but about creating adaptive, resilient ecosystems that can continuously reinvent themselves. Each professional becomes a node in this complex network, contributing to and drawing from a collective pool of knowledge and creativity.

As technology continues to evolve at an unprecedented pace, the true measure of success will be the ability to learn, unlearn, and relearn. The digital creative professional of tomorrow is not defined by a fixed set of skills, but by an infinite capacity for adaptation, creativity, and human-centered innovation. By adopting this comprehensive approach, Bandung can transform

its human capital development from a reactive skill-filling strategy to a proactive, future-oriented ecosystem that continuously nurtures, adapts, and elevates its creative workforce.

LDA, Word Frequency, and Word Co-Occurrence Network Analysis

For Indonesian language-specific processing, a combination of the Factory Pattern implementation was utilized for stop word removal and stemming. Custom stop words were also defined and removed to enhance the quality of the analysis, particularly focusing on domain-specific terms that could potentially skew the results. Additionally, Part-of-Speech (POS) tagging was applied to extract only nouns, which are typically the most informative parts of speech for topic modeling.

Table 1. Result Cleaned Text by Preprocess Method

text	cleaned_text
Melalui pengembangan keterampilan yang relevan...	melalui pengembangan relevan kebutuhan pasar d...
BPSDM Kominfo menyadari bahwa industri ekonomi...	kominfo menyadari industri salah satu sektor b...
Sebagai Lembaga yang bertugas mengembangkan da...	lembaga bertugas mengembangkan mengelola infra...
Diskominfo Jawa Barat sedang berada di jalur y...	jawa barat jalur tepat mengumpulkan data menge...
Industri animasi global terus berkembang, deng...	animasi berkembang permintaan meningkat platfo...

Source : Output from Preprocess Phyton (2024)

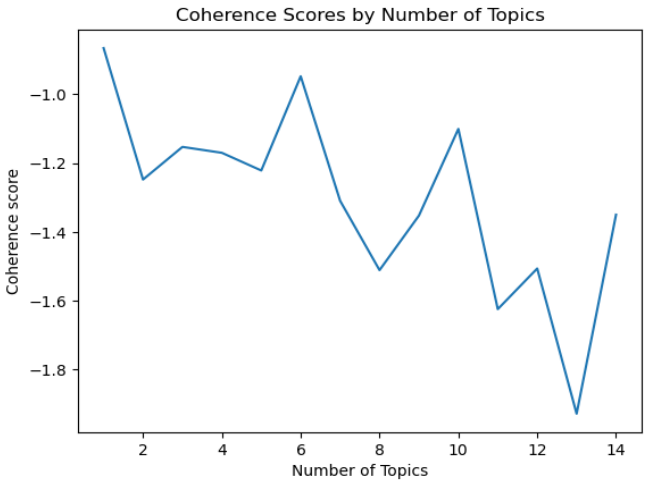
After preprocessing, the cleaned text data was transformed into a format suitable for topic modeling. This transformation involved creating a dictionary mapping of words to unique IDs and converting the documents into a bag-of-words format, resulting in a document-term matrix. The selection of the optimal number of topics was determined through a coherence score analysis. This analysis involved training multiple LDA models with different numbers of topics (ranging from 1 to 14) and calculating their respective U-Mass coherence scores. The coherence scores were plotted against the number of topics to identify the optimal configuration.

LDA topic modeling and NetworkX analysis provide a multidimensional understanding of HR dynamics by integrating qualitative insights with computational methods. LDA identifies key thematic areas, such as skills development, collaborative opportunities, and policy support, highlighting stakeholder priorities. NetworkX analysis complements this by mapping relationships between themes, revealing gaps in collaboration or policy alignment. For instance, the visualization of co-occurrence patterns allows policymakers and stakeholders to identify bottlenecks in skill-building initiatives, offering actionable insights for targeted interventions.

The interview analysis with stakeholders reveals a complex relationship between government initiatives, creators' needs, student aspirations, and the perspectives of associations

in Indonesia's digital creative industry. Through Latent Dirichlet Allocation (LDA) topic modeling analysis from 18 interview transcripts, a cohesive narrative emerges, validated by a single optimal topic model with the lowest coherence score.

Figure 1. Coherence Scores by Number Topics



Source : Output from LDA Phyton (2024)

Government stakeholder perspectives, identified through terms like "program" and "mendukung," emphasize structured support mechanisms and policy frameworks. These governmental initiatives demonstrate clear alignment with industry needs, as evidenced by the strong co-occurrence relationships between policy-related terms and practical implementation concepts. The findings indicate that government programs are actively engaging with industry requirements, particularly in areas of skill development and professional training.

Creator perspectives, characterized by terms such as "kreator" and "keterampilan," highlight the practical aspects of industry development. The analysis reveals significant overlap between creator-focused terms and training-related concepts, suggesting strong industry involvement in skill development initiatives. This relationship is further strengthened by the co-occurrence patterns between creative practice terms and educational components, indicating an integrated approach to professional development.

The analysis shows an overlap between terms related to creators and concepts associated with training, indicating strong industry involvement in skill development initiatives. This connection is further strengthened by the co-occurrence patterns between creative practice terms and educational components, reflecting an integrated approach to professional development.

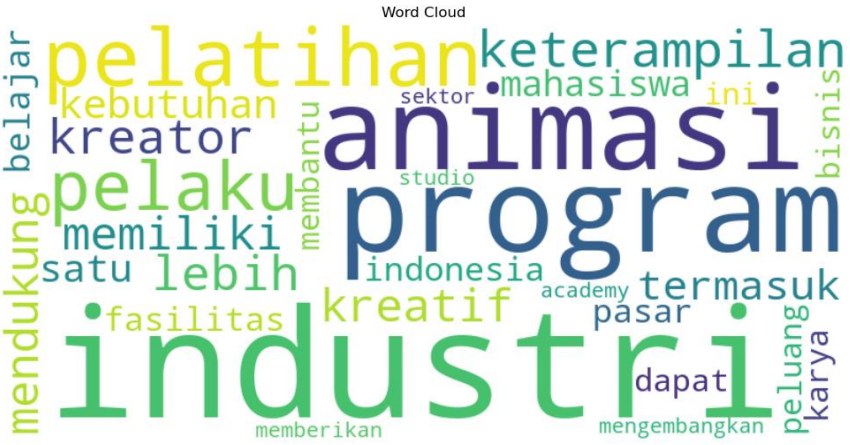
Student stakeholder viewpoints, represented through terms like "mahasiswa" and "belajar," demonstrate clear connections to both educational frameworks and industry requirements. The network analysis reveals strong links between student-related terms and professional development concepts, suggesting effective alignment between educational programs and industry needs. This integration is particularly evident in the co-occurrence patterns between learning-related terms and practical skill development concepts.

Association perspectives, identified through terms such as "industri" and "pelaku," show strong connections to both policy frameworks and practical implementation. The analysis reveals significant overlap between association-related terms and both government and creator perspectives, suggesting associations play a crucial intermediary role. This is particularly evident in the network centrality of industry-standard related terms and their connections to both policy and implementation concepts.

Network analysis reveals a strong association between student-related terms and professional development concepts, suggesting effective alignment between educational programs and industry requirements. This integration is particularly evident in the co-occurrence pattern between learning-related terms and practical skill development concepts. The association perspective, identified by terms like "industry" and "actors," shows a strong connection with policy frameworks and practical implementation. The analysis reveals significant overlap between terms associated with the association and those reflecting government and creator perspectives, suggesting that associations play a crucial intermediary role. This is particularly evident in the network centrality of terms related to industry standards and their relationships with policy and implementation concepts.

The word frequency analysis visualized through a word cloud further supports these relationships. Industry development and training-related terms stand out, and the frequency distribution aligns with network analysis findings, indicating a consistent focus on key development areas across stakeholder groups.

Figure 2. Word Cloud

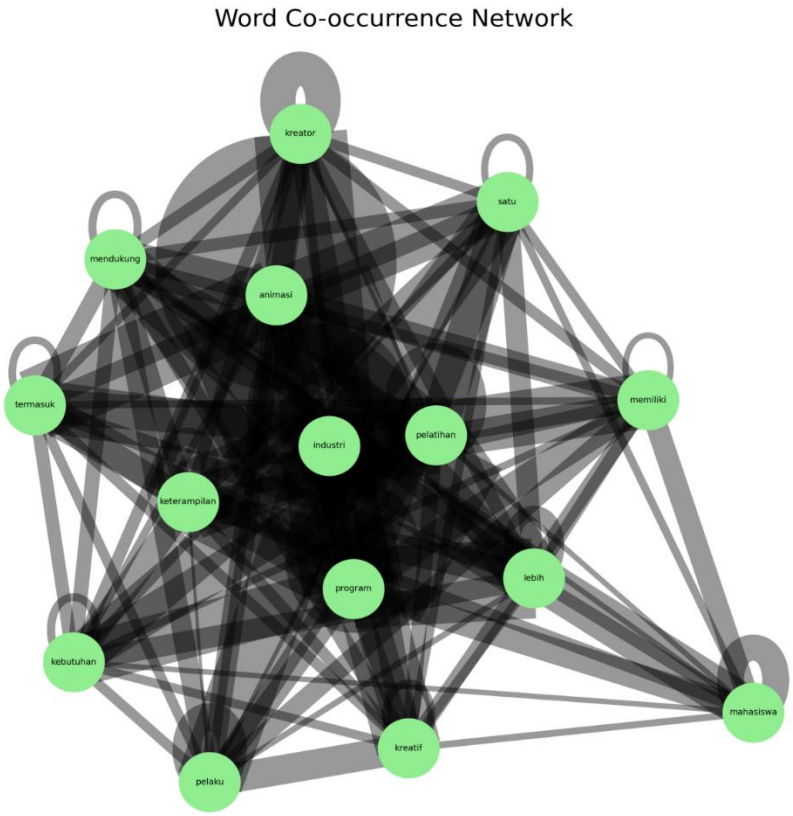


Source : Output from Wordcloud Phyton (2024)

The presence of skill development and industry support terms indicates a shared priority among stakeholders. These findings suggest a well-integrated ecosystem where stakeholder perspectives complement one another in supporting industry development. The strong coherence score of the single-topic model indicates significant alignment in stakeholder views, especially regarding industry development needs and training requirements. This alignment is further supported by the dense interconnections seen in the word co-occurrence network analysis, indicating effective communication and collaboration channels among different stakeholder groups.

This strong coherence indicates a significant alignment among stakeholder perspectives regarding industry development and training needs. The government stakeholder perspective, identified through terms such as "program" and "support," emphasizes structured support mechanisms and policy frameworks. These government initiatives show a clear alignment with industry needs, demonstrated by strong co-occurrence relationships between policy-related terms and practical implementation concepts. This finding suggests that government programs actively address industry needs, particularly in skill development and professional training.

Figure 3. Word Co-occurence Network



Source : Output from NetworkX Phyton (2024)

The word co-occurrence network analysis reveals dense interconnections among keywords, with "industry," "program," and "training" functioning as central nodes with high centrality. This centrality highlights the fundamental role of these concepts in stakeholder discussions. The network structure shows strong relationships between educational elements ("student," "training," "creative") and industry components ("creator," "animation"), indicating a unified perspective on industry development. This coherence is evident in the high coherence score of the single-topic model, signifying significant alignment in stakeholder viewpoints regarding industry development needs and training requirements.

The analysis reveals that while stakeholders maintain distinct priorities aligned with their roles, there is substantial overlap in their perspectives regarding industry development needs. This convergence of viewpoints suggests an effective collaborative environment for industry development, though opportunities exist for further strengthening these relationships, particularly in areas of practical skill development and industry standard implementation. These findings have important implications for policy development and program implementation in

the digital creative industry. The alignment of policy frameworks with stakeholder needs ensures long-term benefits for the digital creative sector (Sarasvathy et al., 2008). The strong alignment of stakeholder perspectives suggests a solid foundation for collaborative initiatives, while the identified relationship patterns provide guidance for future development efforts. Further research could explore the temporal evolution of these relationships and their impact on industry development outcomes.

Conclusion

This study highlights the significant potential of Bandung's digital creative industry as a key driver of economic growth, contingent on the optimization of human capital. The findings indicate that, while Bandung boasts a talented workforce, entrepreneurial enthusiasm, and a supportive community, the industry still faces several pressing challenges. It also reveals that human resources in the city of Bandung have great potential in developing a digital creative industry cluster, driven by an entrepreneurial spirit and a dynamic community. However, the skills gap is a challenge that needs to be addressed. Strong collaboration between stakeholders, including the government, private sector, academia, and the creative community, is necessary to create an ecosystem that supports innovation, skill development, and economic growth. This is the limitation of the research that hopefully can be fulfilled in the next research addressing skills gap and the role of the multi-sector collaboration.

Overcoming these barriers requires a strategic approach focused on fostering an environment that prioritizes skill development, encourages innovation, and facilitates knowledge-sharing among industry stakeholders. To address these issues, a collaborative effort is essential among government bodies, academic institutions, industry leaders, and the creative community. Governmental support should include simplifying regulatory processes, enhancing infrastructure, and providing financial support mechanisms to ensure accessibility for creative professionals. Further, structured training programs that align with the industry's evolving needs can help bridge the skill gap, making the local workforce more competitive. Academic institutions play a crucial role by offering curricula that integrate digital technology skills and creative industry requirements, thus preparing graduates to meet industry demands.

Addressing the skills gap requires a multi-faceted approach that integrates theoretical frameworks with practical programs tailored to industry-specific needs. In this context with Bandung as subject, BPSDMP Kominfo Bandung has Digital Talent Scholarship program

which exemplifies the application of Human Capital Theory by equipping individuals with skills aligned to the demands of the digital creative industry. This program offers specialized training in areas such as digital marketing, animation, and software development, directly addressing the technical deficiencies identified in Bandung's workforce. Moreover, its collaboration with industry partners ensures that participants are exposed to real-world applications and mentorship, fostering a seamless transition from training to employment. By emphasizing talent development, the Digital Talent Scholarship bridges the gap between the evolving technological landscape and workforce readiness. This alignment with Creative Class Theory further positions Bandung as a hub for innovation by nurturing an inclusive ecosystem that values continuous learning, diversity, and technological advancement.

Additionally, industry associations and creative hubs, such as the Bandung Creative Hub, serve as valuable platforms for networking, knowledge exchange, and resource sharing. Expanding these collaborative spaces can enhance industry synergies, creating a dynamic ecosystem that empowers creative talents. Innovation-driven initiatives, like the Jabar Digital Service and the Patrakomala platform, provide essential infrastructure and market access for local creatives, encouraging them to scale their businesses and reach wider audiences. Building a sustainable and competitive digital creative industry in Bandung requires ongoing, cross-sector partnerships and a clear, actionable strategy. By strengthening the foundations of human capital development, enhancing access to resources, and fostering a culture of collaboration, Bandung's digital creative industry can continue to grow as a major contributor to Indonesia's creative economy on both national and international stages.

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