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Analysis of Copyright Issues in Generative AI and Metaverse: Focusing on Policy Comparison among APEC Countries

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Abstract

This study explores the balance between copyright protection and industrial promotion in the metaverse environment, focusing on NFTs and user-generated content (UGC). Through analysis of Korea's Virtual Convergence Industry Promotion Act (2024) and Korea Copyright Commission guidelines, alongside comparative examination of policies in the United States, European Union, Japan, and China, this research identifies critical gaps in current regulatory frameworks. While Korea enacted the world's first metaverse-specific promotion law, its copyright protection system remains incomplete. The study proposes a tiered platform liability system, fair remuneration rights for creators, and blockchain-based provenance systems as essential components for sustainable metaverse ecosystem development. The findings suggest that Korea's position as both a K-content powerhouse and ICT leader provides unique opportunities to establish global standards in metaverse copyright policy, contingent upon achieving refined balance between creator protection and industrial activation.

Keywords : Metaverse, NFT, User-Generated Content, Copyright, Platform Liability, Creator Economy, Digital Assets, Virtual Worlds

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1.Introduction

1.1 Research Background

The 33rd APEC Leaders' Meeting, held in Gyeongju from October 31 to November 1, 2025, saw 21 member economies adopt the 'APEC AI Initiative (2026-2030)' (APEC, 2025). This marked APEC's first joint initiative on artificial intelligence.

Notably, this was the first leaders-level AI document agreed upon by both the United States and China, carrying significant geopolitical implications. Given the clear divergence between the two nations at the 2023 Bletchley AI Safety Summit and the 2024 Seoul AI Summit, the Gyeongju consensus represented a remarkable achievement (Korea Policy Briefing, 2025).

The Gyeongju Declaration explicitly emphasized intellectual property protection for cultural and creative industries. The declaration stated that it "recognizes the contribution of cultural and creative industries to economic growth and confirms the importance of strong intellectual property protection" (APEC, 2025), elevating copyright protection for generative AI and metaverse creator economies to an international agenda. As of January 2026, three months after the Gyeongju Declaration, this study evaluates the initiative's early implementation and effectiveness.

1.2 Literature Review

In an era marked by rapid technological innovation, the importance of effective

regulatory frameworks has only increased. The advancement of digital technologies has challenged traditional regulatory paradigms, compelling regulators to seek new approaches that ensure public safety and social trust without stifling innovation. Accordingly, various regulatory frameworks such as Smart Regulation, the Same Businesses, Same Risks, Same Rules Model, Consequentialist Regulation, Adaptive Regulation, and Principle-Based Regulation have been proposed, each offering unique approaches based on the distinct nature and risks of emerging technologies. These models can be understood as efforts to strike a balance between fostering innovation and maintaining social stability and trust, addressing the contemporary need for balanced regulatory solutions.

1.3 Literature Review

AI-Generated Content Copyright Research. In U.S. courts, cases including Andersen v. Stability AI (N.D. Cal. Case No. 3:23-cv-00201) and Silverman v. OpenAI (N.D. Cal. Case No. 3:23-cv-03416) have been proceeding (Andersen, 2023; Silverman, 2023). In October 2025, the Andersen court dismissed some claims regarding fair use of AI training data collection while sending core issues to jury trial. The U.S. Copyright Office ruled in its 2023 Zarya of the Dawn review that "AI outputs are not copyrightable when human creative intervention is minimal," and issued additional guidance in August 2025 to clarify registration standards for AI-assisted works (U.S. Copyright Office, 2023). However, most prior research focuses only on 2D image generation AI, with insufficient research on copyright for metaverse 3D spatial content and interactive objects.

Metaverse Creator Economy Research. Public data from Roblox, ZEPETO, and The Sandbox reveal revenue concentration (Roblox Corporation, 2025). While Roblox

improved its revenue sharing rates from 2025, the platform still retains a significant portion of transaction value. Algorithmic recommendation systems favor top-tier content, and early entrants maintain structural advantages. The AI divide is also deepening. Productivity gaps widen between creators who can afford paid AI services like Claude Pro or GPT-5 Plus and those limited to free versions. Prompt engineering capabilities directly impact revenue.

International Copyright Policy Comparative Research. Existing research has focused on developed country legislation. EU Digital Single Market Copyright Directive Article 17 strengthens platform liability. Japan's Copyright Act Article 30-4 provides broad exemption for AI training purposes. Asia-Pacific multilateral cooperation research was virtually nonexistent before the 2025 Gyeongju APEC.

Contributions of This Study. This study differs in three ways. It is an early study analyzing the cultural content provisions of the October 2025 Gyeongju APEC AI Initiative. It addresses copyright in metaverse 3D platform creator economies such as Roblox. It categorizes policy differences among Korea, U.S., China, Japan, and Australia according to regulatory intensity and industrial strategy.

1.4 Research Objectives and Methods

This study analyzes copyright issues in generative AI and metaverse creator economies at the intersection of technology, law, and policy, against the backdrop of the 2025 Gyeongju APEC AI Initiative adoption. Specifically, it addresses three research questions:

1. **RQ1**: What implications does the APEC AI Initiative have for metaverse copyright

protection?

2. **RQ2**: How do AI and metaverse copyright policies differ among major APEC economies?
3. **RQ3**: What causes the technology-law-policy gap and how can it be resolved?

The research methods are as follows:

- Analysis of Gyeongju APEC declaration and AI Initiative documents
- Comparative legal analysis of AI and metaverse copyright policies across five major APEC economies (based on GDP ranking and metaverse industry scale: Korea, U.S., China, Japan, Australia)
- Utilization of public data including Roblox Economic Impact Report (2025) and Korea Copyright Protection Agency statistics

2. Analysis of the 2025 APEC AI Initiative

2.1 Three Objectives and Cultural Industry IP Protection

The APEC AI Initiative presents three objectives (APEC, 2025):

1. Promote economic growth through AI innovation and build a safe AI ecosystem
2. Increase member economy participation in AI transition through cooperation and capacity building
3. Promote energy-efficient technology and AI infrastructure investment

Notably relevant to this study, the Gyeongju Declaration explicitly emphasizes intellectual property protection for cultural and creative industries. The declaration states that AI enables innovation across the entire process of creation, production, distribution,

and consumption, specifying the need for copyright protection at each stage (APEC, 2025).

In the metaverse context, this specifically means:

- Creation: Copyright protection during UGC (User-Generated Content) production
- Production: Rights attribution for AI tool-assisted content
- Distribution: Management of infringing content within platforms
- Consumption: Rights protection in NFT (Non-Fungible Token) transactions

2.2 Geopolitical Significance of U.S.-China Cooperation

The Korean Presidential Office evaluated the Gyeongju AI Initiative as "the first leaders-level agreement on AI in which both the United States and China participated" (Korea Policy Briefing, 2025). This carries significant geopolitical meaning. Considering the clear divergence between the U.S. and China at the 2023 Bletchley AI Safety Summit and the 2024 Seoul AI Summit, achieving APEC-level consensus is a notable achievement.

The background for each country's agreement is as follows.

U.S. Strategy. The U.S. prefers lowest-common-denominator agreements in multilateral cooperation to counter China. Copyright protection is a feasible area for agreement as it serves core U.S. content industry interests.

China's Policy. China implemented the 'Interim Measures for the Management of Generative AI Services' in August 2023 (Cyberspace Administration of China, 2023), strengthening platform copyright liability. The APEC agreement aligns with these domestic policies.

Korea's Mediation. Korea enacted the world's first Virtual Convergence Industry

Promotion Act in 2024 and served as a bridge between the two powers as APEC host (The Korea Herald, 2025).

The key to the agreement is that copyright protection represents a lowest common denominator beneficial to both countries. However, this simultaneously means that consensus on specific enforcement mechanisms remains difficult.

2.3 Three Months After the Gyeongju Declaration: Early Implementation Assessment

This section evaluates major developments during the three months following APEC AI Initiative adoption (November 2025-January 2026).

2.3.1 APEC Working Group Activities Commence.

In November 2025, the APEC Digital Economy Steering Group (DESG) established an AI Copyright Working Group. Korea chaired the first meeting as host, setting a goal to develop draft 'AI-Generated Content Copyright Best Practices' by the first half of 2026.

2.3.2 National Follow-up Measures.

Japan submitted copyright law amendments to the Diet in December 2025 to clarify AI training exemption scope. China announced 'Generative AI Content Labeling Regulations' in November 2025, mandating AI-generated content disclosure. The U.S. Copyright Office published an 'AI and Copyright' report in December 2025, urging congressional legislative action.

2.3.3 Limitations and Challenges.

The Gyeongju Declaration's cultural content IP protection provisions are largely declaratory, lacking binding enforcement mechanisms. Joint response systems for

crossborder infringement remain unestablished. The structural limitation of APEC's soft law nature, requiring voluntary implementation by each economy, is becoming apparent.

3. Generative AI and Metaverse Creator Economy

The Gyeongju APEC AI Initiative emphasized intellectual property protection for cultural and creative industries. What is actually happening in metaverse creator communities? This section analyzes the surge in generative AI utilization and copyright issues.

3.1 AI Utilization Surge and Polarization

3.1.1 Surge in AI Tool Usage.

Roblox creators are using AI. They create 3D models with Meshy AI and generate textures with Stable Diffusion. Background music comes from Suno AI, and game scripts from GitHub Copilot.

Efficiency has improved, but problems have emerged. Who owns copyright to AI-generated content?

Gaps are widening between creators who can afford paid AI versions and those who cannot.

3.1.2 Extreme Revenue Polarization.

The metaverse platform economy exhibits severe revenue inequality. Roblox paid creators a total of $1.12 billion in 2025 (Roblox Corporation, 2025). However, revenue distribution polarization has intensified (Figure 1):

- Top 10: Average $39.2 million (+15.6% YoY)
- Top 100: Average $7.1 million (+18.3% YoY)
- Top 1,000: Average $940,000 (+14.6% YoY)
- Median: $1,680 annually (+6.7% YoY)

Top creator revenue growth rates significantly exceed median growth rates, indicating deepening polarization.

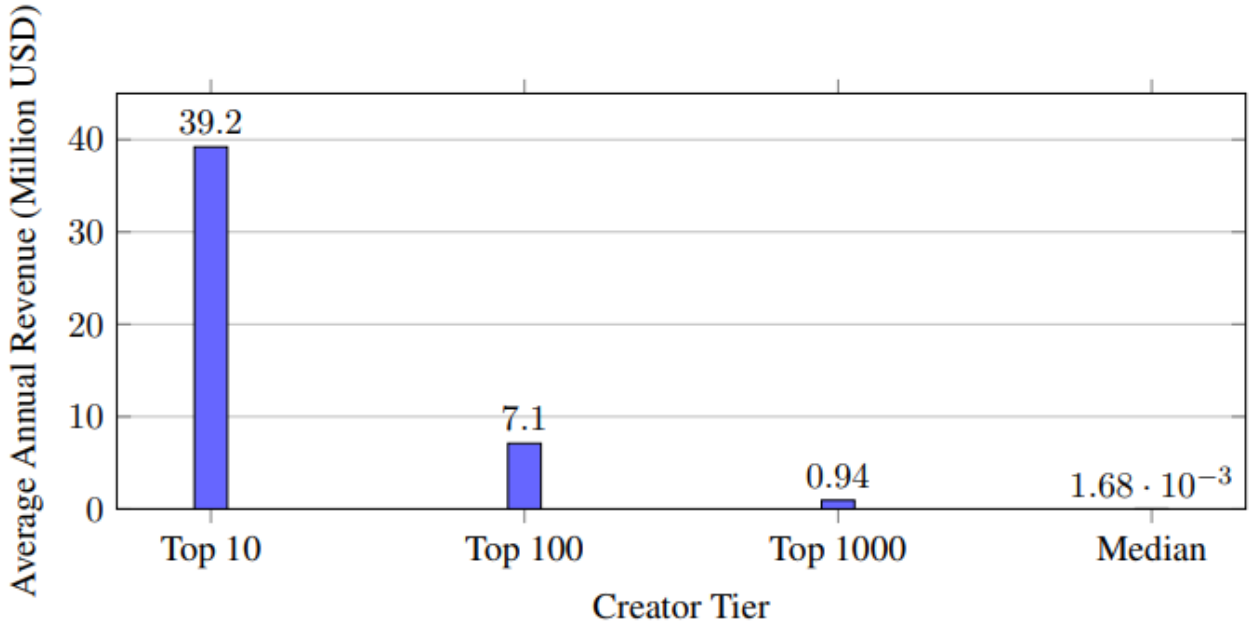

Figure 1. *Average Creator Revenue on Roblox (2025)*

3.2 Copyright Infringement Surge and AI-Generated Content Issues

3.2.1 Cross-Border Infringement and Enforcement Limitations.

According to Korea Copyright Protection Agency's 2025 statistics, metaverse copyright infringement reports increased 34% year-over-year (Korea Copyright Protection Agency, 2025). However, due to cross-border platform characteristics, the takedown rate remains at only 41%.

Major infringement types include:

- Unauthorized avatar clothing replication
- Unauthorized music use
- Character misappropriation

Enforcement significantly weakens when platforms host servers overseas. These infringement issues are further complicated by the emergence of generative AI.

3.2.2 Legal Uncertainty of AI-Generated Content.

New copyright issues have emerged as metaverse creators utilize AI tools. In the U.S., cases including Andersen v. Stability AI and Silverman v. OpenAI are proceeding, addressing whether AI training data use constitutes copyright infringement (Andersen, 2023; Silverman, 2023). Additionally, the U.S. Copyright Office ruled that AI outputs lacking human creativity are not protectable (Zarya of the Dawn case) (U.S. Copyright Office, 2023).

This legal uncertainty directly affects metaverse creators. There are no clear standards on whether AI-produced 3D models, textures, and music can receive copyright protection, or who should receive revenue and how. This is discussed in depth at the technology-law-policy intersection in Section 5.

4. Comparison of Major APEC Economy Policies

How are major APEC economies responding to the copyright issues examined in Section 3 AI-generated content attribution, AI training data use, and cross-border infringement enforcement? This study compares policies across five economies (Korea, U.S., China, Japan, Australia). Table 1 shows each economy's position across three

dimensions. These correspond to Section 3 issues: (1) copyrightability of AI outputs, (2) exemption for AI training data use, (3) platform liability standards.

Table 1. *Comparison of AI and Metaverse Copyright Policies among APEC Economies*

Economy	**AI Output Copyright**	**AI Training Exemption**	**Platform Liability**
Korea	No clear standards	No clear standards	General copyright law
U.S.	Human creativity only	Fair use case-by-case	Safe Harbor (DMCA)
China	Recognized (case law)	Legal data only	Direct platform liability
Japan	No clear standards	Broad exemption (§30-4)	Indirect liability
Australia	No clear standards	No clear standards	Fair trading law

Policy Characteristics by Economy. Each economy takes an approach reflecting its industrial strategy and geopolitical position.

- Korea: Enacted the world's first Virtual Convergence Industry Promotion Act in 2024. Article 31 mentions copyright law, but this provisions exceptions to platform monitoring obligations, with limitations in not addressing unique virtual convergence industry copyright issues (AI-generated content, UGC rights distribution, etc.) (Virtual Convergence Industry Promotion Act, 2024). Consequently, Korean metaverse creators must rely on general copyright law.
- U.S.: Takes a conservative approach. Limits AI output copyright protection to human creativity standards (Zarya of the Dawn), minimizing platform liability through DMCA Safe Harbor. This favors U.S. platforms like Roblox but makes creator infringement remedies difficult.

- China: Pursues regulatory strengthening. The August 2023 Interim Measures for Generative AI Services impose direct platform liability and permit only legal data for AI training. This favors creator protection but raises barriers to AI tool utilization.
- Japan: Prioritizes industry promotion. Recognizes broad exemption for AI training (Copyright Act Article 30-4), creating a favorable environment for AI companies. This risks unauthorized training on creators' original works.
- Australia: Approaches from a fair trading perspective. Views platform-creator relationships as market transactions, emphasizing contractual autonomy over clear copyright standards.

Implications of Policy Gaps. Major APEC economy policies fall into three types: regulatory strengthening (China), industry promotion (Japan), and status quo (U.S., Korea, Australia). Different laws across economies create creator confusion. When a Korean creator makes content on Roblox's U.S. servers using Japanese AI tools, which country's law applies? This explains weak cross-border enforcement.

4.1 Developments After Korea's Virtual Convergence Industry Promotion Act (2024-2025)

Since the Virtual Convergence Industry Promotion Act took effect in August 2024, several notable cases have emerged in Korea.

4.1.1 ZEPETO Copyright Dispute (September 2024).

On Naver Z's ZEPETO platform, 47 independent fashion designers filed collective complaints alleging their designs were replicated as virtual items without permission. The Korea Copyright Commission mediated, achieving an agreement mandating pre-upload

design verification for items priced above 10,000 won. This case established a precedent for UGC platform pre-verification obligation scope.

4.1.2 K-Pop Virtual Concert Licensing Framework (October 2024).

Following ongoing virtual concert royalty disputes, the Korea Music Copyright Association (KOMCA) established "Metaverse Performance Licensing Guidelines." These specify 3.5% of gross revenue for synchronization rights in virtual environments. This marks the first metaverse-specific royalty standard.

4.1.3 NFT Art Fraud Cases (2024).

According to the Seoul Central District Prosecutors' Office, 127 NFTrelated fraud cases were filed in 2024, with damages totaling 8.7 billion won. Most involved unauthorized NFT minting of others' copyrighted works. This revealed enforcement gaps in current law.

4.1.4 Government Response Virtual Convergence Industry Master Plan (December 2024).

The Ministry of Science and ICT announced the first master plan under the Promotion Act. While investing 2.3 trillion won over five years, only 2.1% was allocated to creator protection. Critics noted significantly insufficient copyright protection funding compared to industry promotion.

These cases demonstrate that while Korea leads in metaverse industry promotion, its copyright protection mechanisms lag considerably.

4.2 APEC Multilateral Framework and Korea's Position

Beyond bilateral comparison, this section analyzes the impact of APEC-level

multilateral cooperation frameworks on metaverse copyright policy.

Table 2. *Comparison of APEC Digital Principles and Korea Metaverse Copyright Policy*

APEC Principle	**APEC Approach**	**Korea Status**
Technology neutrality	Platform-agnostic regulation	Metaverse-specific law enacted
Cross-border enforcement	Mutual recognition system	Reliance on bilateral FTAs
SME creator protection	Capacity building programs	Limited support
Interoperability	Open standards recommended	Platform-specific closed ecosystems

Korea is the only APEC member economy to enact metaverse-specific legislation. However, this creates tension with APEC's 'technology neutrality' principle. Additionally, by relying solely on bilateral FTAs rather than APEC's mutual recognition system for cross-border infringement response, Korea fails to fully leverage multilateral cooperation benefits.

Korea's Strategic Opportunity. Korea led the Gyeongju AI Initiative as 2025 APEC host. This momentum could be leveraged to propose an 'APEC Metaverse Copyright Cooperation Initiative.' Specifically:

(1) mutual recognition of copyright registration, (2) coordinated enforcement against cross-border infringement, and (3) content identification technology standard sharing.

5. Discussion and Implications

AI-generated content rights attribution, training data use, cross-border

infringement enforcement—five APEC economies respond differently to these three issues. China takes ex-ante regulation, Japan promotes AI, and the U.S. maintains existing legal doctrine.

This section reframes the three issues at the technology-law-policy intersection and examines whether APEC multilateral cooperation can be effective.

5.1 Discussion of Key Issues

This section examines three issues in depth: AI content copyright attribution, cross-border infringement enforcement, and balancing platform liability with creator protection. Each involves technical impossibility, transnationality, and policy dilemmas, respectively.

5.1.1 Technical Challenges in AI-Generated Content Copyright Attribution

Who owns AI-generated content copyright? Major APEC economies give three different answers:

- U.S.: Recognizes only human creativity
- China: Recognizes human contribution (case law)
- Japan: Broad exemption for AI training

The core problem is the technical impossibility of measuring human contribution. Consider concrete examples: Midjourney image generation: How can the contributions of prompt writing (human) and pixel generation (AI) be quantified? Roblox 3D models: When a human modifies an AI-produced model, what constitutes human creation?

A fundamental contradiction exists where law requires technically unmeasurable standards.

5.1.2 Cross-Border Infringement and Enforcement Limitations

APEC economies experience low takedown rates amid surging metaverse copyright infringement. This stems from the transnationality of metaverse platforms.

The law application dilemma: When Roblox servers are in the U.S., the creator is in Korea, and the infringer is in Vietnam, which country's law applies?

Currently, each economy presents different platform liability standards:

- DMCA Safe Harbor (U.S.)
- DSM Directive (EU)
- Virtual Convergence Industry Promotion Act (Korea)

Unless 21 APEC economies establish a unified enforcement system, infringers can exploit regulatory arbitrage. However, unlike the EU, APEC is not a supranational organization, making binding enforcement systems realistically difficult.

5.1.3 Balancing Platform Liability and Creator Protection

Roblox revenue distribution reveals structural inequality in the platform economy. The top 10 average $39.2 million while the median is only $1,680 annually.

However, a paradox exists: strengthening platform liability does not directly translate to creator protection.

China case: When strong liability is imposed on platforms, platforms may take risk-avoidance measures:

- Raising creator entry barriers (strengthened pre-screening)
- Reducing revenue sharing

The EU DSM Directive's 'creator fair remuneration right' offers one alternative.

However, adoption by 21 APEC economies is unlikely:

- U.S.: Prefers market autonomy
- China: Prefers platform control
- Southeast Asia: Prioritizes industry development

5.2 Technology-Law-Policy Gap Analysis

5.2.1 Technology Evolution Speed vs. Legal Response Speed

AI models evolve every 6 months. Copyright law amendments take 3-5 years. By the time law catches up to technology, technology has already moved to the next stage.

For example, the U.S. Copyright Office's 2023 Zarya of the Dawn standard that "AI outputs are not protectable when lacking human creativity" became outdated by 2024 with GPT-4 and Midjourney V6. The degree of human creative involvement continuously changes with technological advancement.

5.2.2 Implications of Policy Gaps Among APEC Economies

Policy gaps among major APEC economies are not simply 'legal differences' but reflect each economy's industrial strategy and geopolitical position. Japan's broad AI training exemption (Copyright Act Article 30-4) is a product of its 'AI industry promotion' strategy. China's direct platform liability imposition is consistent with its 'platform control' policy. The U.S.'s conservative approach seeks balance between 'copyright industry protection' and 'technological innovation.'

The Gyeongju APEC AI Initiative achieved U.S.-China consensus because copyright protection represents a lowest common denominator beneficial to both

countries. However, this simultaneously means consensus on specific enforcement mechanisms remains difficult. APEC's limitation agreement on principles but discretionary implementation is revealed.

5.3 Future Research Directions and Cooperation Possibilities

This study's analysis suggests three future research directions.

First, research on copyright models for human-AI collaborative creation. Responding to the technical impossibility of measuring human contribution discussed in Section 5.1.1, alternative approaches are needed. For example, introducing an 'AI-generated content disclosure system' to indicate AI utilization extent while granting copyright to the final output. This technology-neutral approach can respond to future technological developments. Second, 'soft law' research utilizing APEC frameworks. Given APEC economy policy gaps analyzed in Section 5.2.2, binding unified legislation is unrealistic. However, if the APEC Digital Economy Steering Group (DESG) and Intellectual Property Experts Group (IPEG) jointly develop 'AI-Generated Content Copyright Best Practices,' this could influence each economy's legislation. Follow-up research evaluating soft law approach effectiveness is needed. Third, empirical research from creator perspectives. To better understand polarization issues presented in Section 3.1 and platform liability dilemmas discussed in Section 5.1.3, primary data research through direct creator surveys and interviews is needed. This study relied on public data, but qualitative research capturing actual AI tool utilization in creative processes, copyright awareness, and revenue distribution experiences must complement it. Comparative research on Korea, China, and Southeast Asian creators could contribute to APEC

regional policy design.

5.4 Policy Implementation Roadmap

Based on this study's analysis, a concrete policy implementation roadmap is proposed, with January 2026 implementation status assessment.

5.4.1 Phase 1: Legal Foundation Building (2025-2026) Implementation Status

Table 3. *Phase 1 Implementation Tasks and Status (As of January 2026)*

Task	**Agency**	**Original Schedule**	**Budget**	**Status**
Copyright law amendment research	MCST	2025 Q2	500M KRW	Complete
Metaverse copyright guidelines	Copyright Commission	2025 Q4	200M KRW	In progress
NFT standard contracts	MCST/FTC	2026 Q1	300M KRW	Scheduled
Stakeholder council	MCST	Ongoing	300MKRW/yr	Operating
			Phase 1 Subtotal	**1.3B KRW**

MCST completed copyright law amendment research in June 2025, but National Assembly proceedings are delayed due to disagreements on AI output copyright provisions. The Copyright Commission's guideline revision is under public comment following December 2025 draft release.

- *Phase 2: Infrastructure Building (2026-2027)*
- *Phase 3: International Cooperation Expansion (2027-2028)*
- *Key Performance Indicators (KPIs)*

The following KPIs are proposed to measure policy implementation effectiveness:

Table 4. Phase 2 Implementation Tasks: Infrastructure Building

Task	**Agency**	**Schedule**	**Budget (100M KRW)**
Blockchain copyright registration system	Copyright Commission/KISA	2026 Q2	150
AI-based infringement detection system	Copyright Protection Agency	2026 Q4	200
Metaverse creator support fund	MCST/KOCCA	2026 Q1	500/yr
Platform copyright certification system	Copyright Comission	2027 Q2	20
		Phase 2 Subtotal	**870**

Table 5. Phase 3 Implementation Tasks: International Cooperation Expansion

Task	**Agency**	**Schedule**	**Budget (100MKRW)**
APEC metaverse copyright cooperation proposal	MOFA/MCST	2027 Q1	10
Korea-U.S.-Japan copyright cooperation MOU	MOFA	2027 Q3	5
Cross-border infringement join response pilot	Copyright Protection Agency	2027 Q4	30
APEC Content ID standardization participation	MSIT/KISA	2028 Q2	15
		Phase 3 Subtotal	**60**

1. Legal framework completion rate: 100% enactment of proposed laws/guidelines by end of 2026
2. Platform certification rate: 80% of major domestic metaverse platforms certified by end of 2027

3. Creator revenue improvement: 50% increase in median creator annual revenue by 2028
4. Infringement response speed: Average takedown processing time from 72 hours to within 24 hours
5. International cooperation: At least 3 copyright cooperation MOUs signed by 2028

Total Estimated Budget (2025-2028): 94.3 billion KRW. This represents approximately 4.1% of the Virtual Convergence Industry Master Plan budget (2.3 trillion KRW), roughly double the current creator protection allocation (2.1%).

The Gyeongju APEC AI Initiative is a starting point, not a completion. While the symbolism of U.S.-China AI cooperation agreement is significant, gaps between economies persist in specific copyright enforcement. For APEC to achieve meaningful multilateral cooperation on metaverse copyright issues, practical cooperation cases must accumulate beyond principle declarations. Technical and practical cooperation is needed—information sharing among member economy copyright protection agencies, joint AI-based infringement detection technology development, and coordinated cross-border case response—supported by continuous academic and industry research.

6. Conclusion

This study analyzed copyright issues in generative AI and metaverse at the intersection of technology, law, and policy, against the backdrop of the 2025 Gyeongju APEC AI Initiative adoption. As of January 2026, three months after the Gyeongju Declaration, answers to the three research questions are as follows.

RQ1 (APEC AI Initiative Implications): The first U.S.-China AI agreement was a historic achievement. Cultural content intellectual property protection was elevated to an official APEC agenda. However, as the three-month implementation process has revealed, APEC's lack of legal binding force serves as a limitation. While the DESG working group has launched, each economy's follow-up measures are developing differently according to national interests.

RQ2 (Major APEC Economy Policy Differentiation): Five-economy policies diverge into three paths. China takes proactive regulatory strengthening—direct platform liability, legal data only for training, November 2025 AI content labeling mandate. Japan takes technology promotion—Copyright Act Article 30-4 broad AI training exemption, December 2025 amendment to clarify scope. The U.S., Korea, and Australia maintain the status quo—applying existing copyright principles. Looking at Roblox 2025 creator economy: $1.12 billion annual distribution, top 10 average $39.2 million, median $1,680. The 23,300:1 ratio shows deepening polarization.

RQ3 (Technology-Law-Policy Gap): AI models evolve every 6-12 months. Copyright law amendments take 3-5 years. The 2023 Zarya of the Dawn standard is already outdated in the GPT-5, Claude 4 era. Although the U.S. Copyright Office issued additional guidance in August 2025, it cannot keep pace with technological advancement. The fundamental problem of no method to quantify human-AI contribution remains. Cross-border infringement response sees only 41% takedown rate due to absence of unified 21-economy enforcement system.

Significance and Limitations. This is an early study evaluating initial implementation status three months after the Gyeongju APEC Declaration. However, three limitations exist. The short three-month observation period limits medium-to-long-term effect analysis.

The five-major-economy focus insufficiently reflects Southeast Asian and Latin American developing economy situations. Reliance on Roblox public data fails to capture direct creator experiences. Future research directions include: tracking APEC DESG-IPEG best practices development, comparative analysis of each economy's follow-up legislation, and empirical research on Korea, China, and Southeast Asian creators.

APEC must pursue practical cooperation beyond principle declarations. Member economy copyright protection agencies should share infringement information. Regardless of server location, reportverify-takedown processes must operate quickly. AI similarity verification technology should be jointly developed. Automated detection of unauthorized metaverse 3D asset replication is needed. Coordinated response to cross-border infringement is required. Infringers exploiting regulatory arbitrage must be stopped. Generative AI is transforming the creative process. If law cannot keep pace with technology, creators are left in rights uncertainty.

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