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# Evolving Legislative Models for IT Convergence: Balancing Regulation and Innovation in the Metaverse Era

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## Abstract

This paper examines the evolution of legislative frameworks governing IT convergence industries in response to the rapidly shifting technological landscape of the Web 3.0 era. It highlights the innovative regulatory approaches established in South Korea, specifically through the Virtual Convergence Industry Promotion Act (VCIPA), which incorporates self-regulation and provisional standards to address the limitations of traditional models. These mechanisms seek to balance governmental oversight with corporate autonomy, facilitating industry growth while ensuring public safety and trust. The study further discusses the relevance of the "Wait and See" principle and flexible regulation models, which accommodate the unpredictable pace of innovation. As the paradigm of Web 3.0, powered by decentralized technologies such as blockchain, reshapes the internet, a robust, adaptable regulatory framework becomes essential. The VCIPA's emphasis on provisional standards and self-regulation is portrayed as a pioneering response to these needs, enabling consistent legal applications and fostering a resilient, fair digital ecosystem. In the Web 3.0 context, the paper underscores the necessity of regulatory balance, independent self-regulation, and enhanced digital literacy for a sustainable digital ecosystem.

**Keywords** : IT convergence, Web 3.0, self-regulation, provisional standards, regulatory innovation

# Evolving Legislative Models for IT Convergence: Balancing Regulation and Innovation in the Metaverse Era

## 1. Introduction

The onset of the COVID-19 pandemic pushed society into a touchless world, where the metaverse emerged as a promising solution, allowing for connection and interaction without physical contact. Particularly popular with the younger, digitally-native MZ generation, the initial enthusiasm surrounding the metaverse has since waned. The term "metaverse" has even become a cautious topic within investment circles. Nonetheless, it is undeniable that the metaverse captivated global imagination swiftly, with companies like Meta advancing technologies such as the Smart Glass Orion, sparking renewed interest and potential for mainstream adoption.

The metaverse's appeal lies in its rapid advancements in virtual and augmented reality (VR and AR), driven by affordable devices accessible to millions. Large technology companies and innovative game engines are facilitating a network effect that continues to draw users into immersive experiences. Additionally, the emerging workforce, familiar with platforms like Roblox and Fortnite, is likely to sustain this momentum in the coming years.

The metaverse ecosystem is structured around three core components: creators, tokens, and Decentralized Autonomous Organizations (DAOs), supported by eight factors—hardware, networking, computing power, virtual platforms, standards and tools, payment systems, content and services, and user engagement. Enabling technologies such as AI, Big Data, and cloud computing further enhance these elements, supporting seamless interaction and user experience.

While the metaverse concept is still evolving, it holds significant potential across various industries. According to Gartner, by 2026, an estimated 30% of companies will offer metaverse-related products, with 25% of individuals spending at least an hour daily within metaverse environments. Additionally, forecasts suggest a substantial market expansion, with Precedence Research estimating the global metaverse market to reach $2.3 trillion by 2033.

Given these trends, the metaverse presents opportunities for industrial applications, particularly within sectors such as healthcare, education, and entertainment. The concept of an "industrial metaverse" integrating traditional industries could enhance efficiency and foster innovation. However, the metaverse's future success relies on establishing robust economic frameworks and creating content that engages users, while generative AI is anticipated to be a critical growth factor.

The advancement of virtual convergence technologies and the evolution of related services have posed new challenges for legislative innovation, leading us to establish the world's first Virtual Convergence Industry Promotion Act. This study examines the significance of this legislative evolution, analyzes the regulatory system's adaptation to technological advancements, and explores the characteristics and importance of the newly introduced provisional standards in this Act, as well as potential directions for future institutional development.

## 2. Theoretical Background

### 2.1 Regulatory Innovation Models

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.

### *2.1.1 Smart Regulation Model*

Coglianese (2018) asserts that smart regulation is achieved only when regulatory agencies adopt an optimal balance and apply sufficient and appropriate levels of regulation. Proper responses to most innovation-induced risks likely fall somewhere between non-response and over-regulation, requiring regulatory bodies to find a wise and suitable balance between these two extremes. The early-stage regulation in the smart regulation model often involves "regulatory sandboxes," defined as "safe spaces" where companies can test innovative products, services, business models, and delivery mechanisms without being subject to existing regulations. Regulatory sandboxes allow innovative firms to experiment with technological advancements in limited markets and with restricted customer bases, a principle considered relatively reasonable.

Although experimenting with innovation in a controlled environment like a regulatory sandbox can help preemptively assess the risks and market impacts of the innovation, there is also caution that such data may not provide sufficient information on the risks and impacts of

large-scale innovation deployment (Quan, 2024). Furthermore, there is criticism that operators have underestimated the high costs associated with creating and operating regulatory sandboxes. Nonetheless, the smart regulation model operates on the principle of "regulating appropriately and in the right way," supporting companies to safely experiment with innovation within restricted environments, while maintaining the necessary regulations for public safety, thus embodying a balanced approach.

### *2.1.2 Same Businesses, Same Risks, Same Rules Model*

According to this model, regulations should largely remain consistent unless the nature or associated risks of the regulated business undergo a fundamental change. A key question in applying this model is whether technological innovation brings about disruptive changes that necessitate a completely new form of regulation or whether these changes are incremental. Many scholars argue that even incremental changes in technology can require new regulatory forms (Zetzsche et al., 2017). For instance, blockchain-based smart contracts introduce new transactional risks compared to traditional language-based contracts. In decentralized finance (DeFi), anonymity can hinder resolution of unforeseen disputes between parties, thus threatening transaction enforceability and potentially causing instability. Furthermore, new risks associated with DeFi, such as reduced transparency, corporate control, and the ambiguous borders of digital assets due to their inherently global nature, complicate regulation.

Nevertheless, the Same Businesses, Same Risks, Same Rules Model operates on the assumption that if innovation remains sufficiently similar to existing forms, risks can be efficiently controlled using existing regulations, thus minimizing the need for new regulations (Schwarcz, 2024). Accordingly, this model assesses the adequacy and

applicability of existing regulations, only considering new regulatory measures when existing rules are insufficient for managing new risks.

### *2.1.3 Consequentialist Model*

Another regulatory approach is the consequentialist model. As Sinnott-Armstrong (2023) explains, consequentialism is typified by utilitarianism, a framework classically supported by figures like Jeremy Bentham, John Stuart Mill, and Henry Sidgwick. Act consequentialism claims that an act is morally right only if it produces the greatest possible good. Similarly, the goal of consequentialist regulation is to maximize social net benefits. In the context of technological innovation, this means striving to minimize social harm while avoiding excessive interference with innovation.

Ultimately, this model aims to reduce the social harms that innovation may cause while refraining from unnecessarily obstructing it. Within the consequentialist model, regulatory necessity and intensity are assessed by evaluating the social net benefits of innovation; regulatory interventions are minimized if the net benefits are substantial, following a utilitarian approach.

### *2.1.4 Adaptive Regulation Model*

The adaptive regulation model is designed to incrementally adjust regulations in response to technological advancement and market conditions. This approach promotes innovation by applying lenient regulation in the early stages and gradually strengthening regulations to ensure public safety as technology stabilizes. By flexibly modifying the scope and content of regulations in line with new information and market shifts, this model is particularly suitable for rapidly evolving technological environments.

The United States' traditional "Wait and See" principle exemplifies this model. This principle seeks to avoid excessive regulation during the early stages of a technology or innovation, allowing time for thorough observation and analysis of its impact. In line with the adaptive regulation model, the goal is to encourage early innovation and lower entry barriers, maximizing the potential of new technologies. Reflecting concerns that stringent regulation at the outset might stifle innovation, the U.S. has historically maintained a cautious stance, refraining from imposing heavy regulations on emerging technologies until they are sufficiently examined. Kim and Park (2022) analyzed U.S. regulatory policies and legislation on AI and algorithms, concluding that the U.S. maintains a relatively reserved and tentative stance on AI regulation, adhering to the overarching "Wait and See" principle.

Moreover, the "Wait and See" principle emphasizes flexibility in rapidly changing technological environments. A core component of the adaptive regulation model, this flexibility allows for regulatory adjustments that reflect changes in the market and technological landscape. The U.S. aims to balance innovation and public safety by gradually adjusting regulatory approaches as technologies progress. This strategy of deferring regulation until risks are clearly identified, allowing subsequent adjustments based on data and research, is common to both sides of the approach. Finally, this model aligns with the traditional U.S. Consumer Welfare Standard, which posits that government intervention is unnecessary if consumer welfare is not compromised, even in monopolistic markets, trusting in self-correcting market mechanisms. This standard has been a foundational principle of U.S. competition law since the 1980s (Mo & Ko, 2021).

#### *2.1.5 Principle-Based Regulation Model*

The principle-based regulation model applies regulatory frameworks grounded in

overarching principles rather than specific regulatory provisions (Black, 2008). This approach suggests primary principles for regulation, encouraging companies to independently adhere to them, allowing flexible application of regulation amid the uncertainties of innovation. The model facilitates the evaluation and regulation of innovative technologies according to broad ethical standards and societal values rather than restrictive legal clauses.

This principle-based regulatory model forms the foundation of self-regulation in the Virtual Convergence Industry Promotion Act, which is explored in depth in this study. Ultimately, this model provides a balanced regulatory approach that enables regulation to operate flexibly and effectively amid the uncertainties of innovation, safeguarding public safety and interests while promoting technological development and innovation.

### 2.2 The Need for a New Regulatory Framework in the IT Convergence Environment

Emerging forms of convergence industries present challenges under current regulatory systems, as it is often difficult to clearly define regulatory targets, and costs related to regulation, such as oversight and enforcement, inevitably increase. These factors can hinder the early establishment of these industries. In response, the United States, a leader in regulatory advancement, and even latecomer China have adopted the "Wait and See" principle for new industries, as discussed previously.

In contrast, Korea has faced criticism for increasing regulatory complexity and intensity while simultaneously declining in regulatory quality (Lee, 2008). To address these structural issues, the adoption of a negative regulatory approach has been under consideration for an extended period. Traditional regulatory design operates on a “prohibition by default, exception by permission” principle, whereas negative regulation

follows a "permission by default, prohibition by exception" framework. In choosing positive or negative regulation for specific regulations, the intent and objectives of regulation determine the choice. If a list of prohibited actions is explicitly enumerated in laws or subordinate regulations, it is interpreted that actions not explicitly prohibited are permitted—this is the essence of the negative regulatory approach (Hyun, 2019).

The areas where negative regulation may be applied include: 1) situations where public interest goals are not absolutely necessary, 2) cases where the specific nature of the regulated target allows public interest goals to be achieved through negative regulation alone, 3) cases where public interest goals can be achieved through post-monitoring by administrative agencies, 4) fields where national promotion is a priority, and 5) cases where the negative approach contributes to protecting the regulated party's property rights and business freedom. In these cases, the predictability and legal stability for the regulated entities are enhanced, and regulatory costs may be reduced. Thus, from a market economy perspective, transitioning to negative regulation increases the potential for safeguarding corporate autonomy and business freedom.

The bold regulatory innovation policies related to negative regulation principles began during the Park Geun-hye administration in 2015 with the promotion of the "Special Act on Designating and Operating Regulatory Free Zones" (tentative name). Following over three years of debate, related provisions were revised in the Information and Communication Convergence Act and the Industrial Convergence Promotion Act, effective as of January 2019. Subsequently, the amended Basic Act on Administrative Regulations, which enabled the negative regulation approach, came into effect in July 2019, establishing a foundational legal framework for the principles and direction of

regulation in emerging industries (Hyun, 2021).

Article 5-2 of the amended Basic Act on Administrative Regulations includes the following provisions. Known as the "Prior Permission, Post-Regulation Principle," this article mandates that when the state or local governments set regulations concerning new services or products utilizing new technologies (hereinafter referred to as "new technology services and products"), they should prioritize one of the following regulatory methods:

- Regulations should enumerate restricted rights or imposed obligations explicitly, with all other matters permitted by default.
- The recognition criteria or concepts for services and products should be defined to include future services and products resulting from technological advancements.
- Classification standards for services and products should be flexibly defined to accommodate future services and products driven by new technology.
- Any restrictions on rights or obligations related to new technology services and products should ideally be imposed post-launch rather than pre-launch, with exceptions made only as needed.

### 2.3 Legislation Related to IT Convergence

Since the enactment of the Software Development Promotion Act in 1988, several laws have been established to promote IT. Among these, the Industrial Convergence Promotion Act, Information and Communication Convergence Act, and Virtual Convergence Industry Promotion Act are notable as they align with the principles of IT convergence legislation and negative regulation.

The Industrial Convergence Promotion Act, launched in March 2010 by the

Ministry of Knowledge Economy (now the Ministry of Trade, Industry, and Energy), aims to "establish a framework for promoting industrial convergence, enhance industrial competitiveness, and ultimately contribute to the continuous development of the national economy and improvement of citizens' quality of life" (Article 1).

Another example of convergence legislation is the Information and Communication Convergence Act, established in February 2014. According to Article 1, its purpose is to "promote information and communication technology (ICT) and foster the convergence of ICT through policy frameworks, regulatory rationalization, talent development, venture incubation, and research and development support, thereby enhancing the international competitiveness of information and communication technology, fostering sustainable development of the national economy, and contributing to the improvement of citizens' quality of life."

The most recent legislation, the Virtual Convergence Industry Promotion Act, also introduces institutional mechanisms for inter-ministerial collaboration on technological convergence. In particular, this Act specifies that its purpose is "to promote and support the virtual convergence industry and improve relevant regulations, thereby contributing to the development of the national economy and improvement of citizens' quality of life" (Article 1). This balanced approach emphasizes both industrial promotion and regulatory improvement equally.

These laws notably incorporate elements related to negative regulation, such as temporary permits and provisional standards. For instance, the ICCA and TCP were amended in the early 2010s, introducing regulatory innovations like regulatory exceptions and temporary permits in October 2018.

According to Article 10-3 of the Industrial Convergence Promotion Act, regulatory exceptions (or "regulatory sandboxes") may be requested for testing industrial convergence products or services under the following conditions:

- If the relevant laws lack specific standards, specifications, or requirements applicable to the industrial convergence products or services in question,
- If the standards, specifications, or requirements stipulated by the relevant laws are inappropriate for application to such products or services,
- If it is impossible to apply for permits under other laws, in which case limited tests are necessary within a specific area, time frame, or scale.

The purpose of regulatory sandboxes is to facilitate testing and verification of new products and services. They serve as a tool for verifying the safety of innovations in real-world conditions, beyond the scope of traditional R&D and pilot testing, especially when these innovations are banned or untested within the country.

In contrast, temporary permits are intended to accelerate market entry. When regulatory ambiguities make it unclear whether existing laws apply to new products or services, temporary permits allow rapid market entry, provided safety tests have been successfully completed (Industrial Convergence Promotion Act Article 10-6; Information and Communication Convergence Act Article 37).

Finally, the Virtual Convergence Industry Promotion Act introduces provisional standards for the first time. Defined in Article 2-5 of the Act, provisional standards apply when the clarity or scope of existing laws is inadequate for determining the application or limits of regulations related to the release, sale, or use of virtual convergence services or products. This measure is aimed at ensuring consistent enforcement when regulatory ambiguity exists.

## 3. Research Questions and Methodology

### 3.1 Research Questions

This study investigates the following research questions:

First, how have IT convergence laws in Korea evolved and developed over time? What are the primary factors and characteristics behind these changes?

Second, can the world's first Virtual Convergence Industry Promotion Act be regarded as an evolution of the regulatory system? What significance does this Act hold as an advanced regulatory model within the dynamic interplay of various regulatory models?

### 3.2 Methodology

First, this study will conduct a comparative analysis of domestic IT convergence legislation to identify the major factors driving change within Korea's IT legal framework. To achieve this, a content analysis will compare the Technology Convergence Promotion Act (TCPA), Information and Communication Convergence Act (ICCA), and Virtual Convergence Industry Promotion Act (VCIPA).

The criteria for this comparison were constructed by referencing standards from studies such as Park's (1994) "Comparative Analysis of International Trends in Technology Development" and Sohn's (2010) "Systematic Review of Science and Technology Promotion Legislation." These criteria include Institutional Support, R&D Support, Talent Development, Funding Plan for Promotion, Financial Assistance, Startup Support, User Protection, and Regulatory Innovation.

Second, focusing on the regulatory models that form the theoretical foundation for the self-regulation and provisional standards systems within the Virtual Convergence

Industry Promotion Act, this study will analyze the evolutionary trajectory of these models. By examining the dynamic interrelationships between various regulatory models, the analysis will assess self-regulation and provisional standards in the context of regulatory evolution.

Additionally, to ensure the effective implementation of these newly introduced institutional mechanisms, the study will identify specific conditions necessary for their success and propose sustainable institutional improvements. Advisory meetings with experts from government, legal circles, academia, and industry, as well as focus group interviews to gather insights and opinions from industry professionals, will support this effort.

## 4. Results

### 4.1 Comparative Analysis of Key Components in IT Promotion Laws

Comparative Analysis of the Information and Communication Convergence Act (ICCA), Technology Convergence Promotion Act (TCPA), and Virtual Convergence Industry Promotion Act (VCIPA) reveals shared goals among these laws, including institutional support, research and development (R&D), and talent cultivation. However, there are notable differences in aspects such as funding mechanisms, consumer protection, and regulatory innovation. Recent regulatory advances, such as sandbox initiatives, temporary permits, and self-regulation, further distinguish these frameworks.

The ICCA and TCPA were enacted in the early 2010s, with major amendments in October 2018 to introduce regulatory innovations like regulatory sandboxes and temporary permits. As previously discussed, regulatory sandboxes aim to test and verify new products and services, providing an environment to assess safety and feasibility for activities that may otherwise be restricted under existing laws or are first-in-the-nation innovations.

**Table 1.** *Comparative Analysis of Key Components in IT Promotion Legislation*

| | | ICCA (2013. 8. 13) | TCP (2011. 4. 5) | VICPA (2024. 2. 24) |
|---|---|---|---|---|
| Institutional Support* | | O | O | O |
| R&D support | | O | O | O |
| Talent development | | O | O | O |
| Funding Plan for Promotion | | O | X | O |
| Financial Assistance | | O | O | O |
| Startup Support | | O | O | O |
| User Protection | | X | X | O |
| Regulatory Innovation | sandbox initiatives | O | O | X |
| | temporary permits | O | O | X |
| | provisional standards | X | X | O |
| | self-regulation | X | X | O |
| National-level Regulatory Reform | | X | X | X |

*Note. 'Institutional support' refers to the establishment of organizations (such as committees or associations) for the purpose of promoting or regulating in accordance with the intent of the legislation.*

A significant limitation of sandbox privileges, however, is the expiration period. Businesses that have benefited from a two-year period of sandbox privileges may face severe consequences if related laws are not revised within that timeframe. To address this, amendments were made in June 2022 to allow companies with sandbox privileges to transition to temporary permits, effective as of December 11, 2022.

By contrast, the VCIPA introduces an innovative regulatory framework that overcomes the limitations of traditional regulatory mechanisms, responding to rapid changes in technology and industry while encouraging corporate autonomy and organic market growth.

This approach establishes a framework that surpasses the strict conditions and individualized designation processes of conventional sandbox models. Notably, temporary standards can now be universally applied to multiple companies facing similar regulatory uncertainties, providing a broad scope and uniform application across the industry.

Another distinction of the VCIPA lies in its mandate for government accountability in regulatory improvement. Article 28(1) of the Act states, "The Minister of Science and ICT may, on their own initiative or in response to proposals from virtual convergence enterprises or associations, request relevant administrative agencies to establish or amend provisional standards if deemed necessary." If designating a specific administrative agency proves challenging, the Minister of Science and ICT can directly establish the necessary standards. This shifts the regulatory burden from individual enterprises to the Ministry, which acts as a central agency or coordinator, thereby reducing the regulatory compliance burden on businesses.

The VCIPA's emphasis on self-regulation is also noteworthy. Article 18 allows virtual convergence businesses to establish associations, while Article 27 outlines how these associations may develop and enforce codes of conduct or operational guidelines to promote a safe, trustworthy environment for virtual convergence technologies and services. This includes actions such as: establishing, revising, and implementing self-regulation agreements; educating and promoting awareness among virtual convergence providers; conducting self-assessments and improvement activities related to consumer protection; and undertaking other efforts to enhance consumer protection standards within the industry.

These self-regulation guidelines are expected to be applicable across various areas of the metaverse. First, in content creation and ethical usage, self-regulation can

help address unethical content and behavior, while also providing guidelines for user protection. Second, concerning intellectual property (IP) use and protection, it can focus on preventing unauthorized use of creative content and address potential IP infringement risks from technologies like deepfake. Third, in terms of transactions within the metaverse, self-regulation can ensure fair and safe transactions. Lastly, for privacy protection, it will safeguard sensitive data, such as biometric and behavioral data, especially for vulnerable groups like minors, and offer appropriate guidelines.

The VCIPA's unique emphasis on user protection is another differentiator from previous convergence laws. Chapter 6 of the VCIPA explicitly addresses user protection, comprising Articles 30 ("User Protection") and 31 ("Establishing a Healthy Virtual Convergence Ecosystem"). The user protection provisions cover: providing information and education on virtual convergence services; educating and training virtual convergence businesses on user protection; protecting minors and adolescents from harmful behaviors or media in the virtual convergence space; and formulating and implementing policies for preventing and remedying user harm. Article 31 further specifies obligations, such as establishing procedures for dispute resolution, ensuring information security and data protection, and prohibiting unfair discrimination against users.

### 4.2 Evolution of the Regulatory Model in the VCIPA

The introduction of provisional standards in the Virtual Convergence Industry Promotion Act (VCIPA) is a progressive response to the regulatory challenges posed by rapidly advancing technologies. These standards provide a consistent legal framework in areas where regulatory clarity may be lacking, allowing the Ministry of Science and ICT to offer streamlined guidance that enhances compliance and adaptability for businesses.

### *4.2.1 Application of the Principle-Based Regulation Model (PBR)*

The application of the Principle-Based Regulation Model (PBR) in VCIPA represents a new regulatory paradigm that supports self-regulation, especially in fast-evolving sectors such as digital innovation and technology convergence industries. The PBR model emphasizes a flexible regulatory framework based on broad principles, which encourages businesses to uphold ethical and societal values within dynamic technological environments.

A key aspect of the PBR model is its focus on flexible regulatory application through broad principles. Unlike traditional regulation that relies on detailed provisions, the PBR model specifies core objectives and principles, enabling businesses to autonomously determine how to comply across a variety of situations and emerging technologies. This approach avoids restrictive provisions that could impede technological advancement and fosters an environment conducive to corporate creativity and innovation.

Another crucial element of the PBR model is its emphasis on strengthening corporate autonomy and accountability. The VCIPA encourages companies to independently devise compliance strategies, thus promoting autonomy and requiring firms to take responsibility for their actions. By following the ethical standards and societal values outlined in the law, companies contribute to building social trust through self-regulation.

The PBR model also improves responsiveness to technological changes. Innovations frequently bring unexpected shifts, and the PBR approach allows for adaptive regulatory measures to address these uncertainties. While drafting detailed regulatory provisions can be time-consuming, a principles-based approach enables faster regulatory responses, aligned with the speed of technological developments.

Additionally, the PBR model aims to enhance regulatory efficiency and effectiveness. By focusing on core principles rather than detailed rules, it simplifies the regulatory framework, improving comprehension for businesses and the public. Regulatory authorities, in turn, can make judgments that reflect specific circumstances, enhancing the overall effectiveness of regulation.

The VCIPA exemplifies this model. In an industry where new products and services constantly emerge, a traditional, detailed regulatory approach cannot keep up with the pace of innovation. Consequently, the VCIPA has introduced a PBR-driven self-regulation system, encouraging businesses to establish and implement their own frameworks. This shift promotes not only responsible management within the industry but also enhances corporate social responsibility.

#### *4.2.2 Integration of the Consequentialist Model and Adaptive Regulation Model*

The provisional standards system, viewed as an initial attempt to integrate the Consequentialist Model with the Adaptive Regulation Model, represents an innovative regulatory approach designed to address the limitations of traditional regulations and to flexibly respond to emerging industries. This integration carries several implications for the evolution of regulatory frameworks.

The first major contribution of this system is its ability to overcome the limitations of prior regulatory innovation systems. By addressing the challenges faced by sandbox regulations and comprehensive negative regulations, the provisional standards system offers a more adaptable approach. Traditional regulatory sandboxes are restrictive due to stringent requirements and case-by-case approvals, while negative regulations often lack consistency within existing legal frameworks, delaying their implementation. The

introduction of provisional standards allows for proactive legal adjustments and the swift development of technical guidelines, thereby accelerating growth in emerging industries.

Flexibility and rapid regulatory response also characterize this system. Provisional standards provide new interpretations and technical guidelines tailored specifically for emerging industries, enabling regulators to respond more effectively. Unlike earlier regulatory exemptions or temporary permits that required individual applications and reviews, provisional standards empower the Ministry of Science and ICT to formally request standardization efforts across relevant administrative bodies. This streamlined process allows central administrative agencies to introduce and publish provisional standards efficiently, offering simultaneous benefits to numerous companies.

This system also strengthens the relationship between businesses and government entities, creating a more efficient interaction model. Companies, which often struggle to request regulatory adjustments directly, now benefit from the Ministry of Science and ICT acting as an advocate on their behalf. By entrusting responsible ministries with the task of establishing new standards, the system not only reduces administrative burdens on individual companies but also ensures a more coordinated and effective regulatory environment. Furthermore, central administrative agencies are encouraged to address regulatory gaps proactively, providing consistent standards that foster the growth of emerging industries.

The impact of provisional standards extends beyond individual businesses to emphasize sector-wide benefits and the evolution of regulatory frameworks. Unlike traditional regulatory exemptions or sandboxes that primarily target specific companies, provisional standards introduce guidelines and technical benchmarks applicable to the

entire sector. This broader approach facilitates greater market entry opportunities for numerous businesses, ensuring that the regulatory environment evolves alongside technological and market innovations.

Finally, the system enhances both the scope of regulatory experimentation and the flexibility of implementation. Provisional standards offer broad legal interpretations and guidelines without the need for case-by-case exemptions, reducing entry barriers for multiple companies. This flexibility expands the possibilities for regulatory experimentation, enabling regulators to gather valuable practical insights and data from emerging markets. These insights, in turn, guide the future refinement of regulatory frameworks and ensure they remain aligned with innovation goals.

In conclusion, the provisional standards system transcends traditional regulatory exemptions and temporary permits by offering a more comprehensive and flexible model. It represents a significant evolution in regulatory approaches, supporting the rapid development of the virtual convergence industry while providing a stable legal foundation for innovation. This forward-looking paradigm not only fosters technological growth but also establishes a balanced regulatory framework that adapts to the dynamic demands of emerging industries.

#### *4.2.3 A Flexible and Scalable Approach to Technological Innovation*

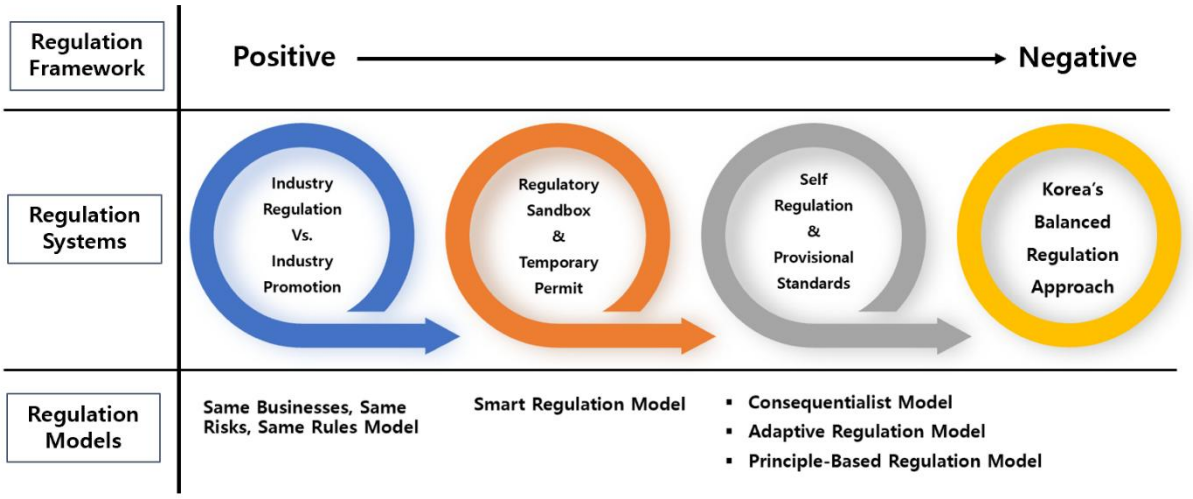
The evolution of Korea's IT promotion laws, as illustrated in Figure 1, reflects a broader shift toward a negative regulatory framework. Beginning with the introduction of regulatory sandboxes based on the Smart Regulation Model in the late 2010s, the progression has culminated in the most recent enactment of the Virtual Convergence Industry Promotion Act, which incorporates self-regulation and provisional standards.

This development represents a continuous process of regulatory evolution. Notably, the systems of self-regulation and provisional standards can be evaluated as significant advancements in the regulatory framework from several perspectives.

To begin with, they offer a flexible regulatory approach capable of adapting to technological innovation. Unlike traditional regulatory sandboxes, which are often limited to specific entities or technologies, provisional standards provide broad guidelines and criteria applicable across entire markets. Central administrative agencies can swiftly develop and distribute guidelines, public instructions, and development manuals, clarifying ambiguous legal provisions and minimizing market disruptions. Self-regulation further complements this flexibility by empowering industries and individual companies to establish and manage their own rules and standards. This industry-led approach allows for a nimble response to emerging technologies and services that may not yet be accounted for by government regulations, thereby reducing the need for frequent government intervention and fostering an environment conducive to rapid technological adaptation.

In addition to their flexibility, these systems also enhance corporate autonomy while ensuring accountability. Self-regulation enables companies to develop and enforce standards

**Figure 1.** *Evolutionary Model of Korea's IT Promotion Laws*



tailored to their specific technological needs, creating a more specialized and effective oversight mechanism than traditional government regulation. This approach allows companies to react quickly to market shifts and evolving consumer demands, thereby building consumer trust through proactive regulatory compliance. Meanwhile, provisional standards serve to unify industry practices when necessary, allowing government departments to establish interim guidelines that facilitate rapid market entry for businesses. Together, these mechanisms provide companies with the autonomy to innovate while ensuring that accountability and consistent regulatory oversight are maintained.

These systems also contribute to regulatory consistency and reliability. Provisional standards ensure that companies across an industry adhere to unified guidelines, promoting consistent application of technology and reinforcing consumer protection. This consistency not only supports fair competition among businesses but also establishes a foundation of trust within the industry. Self-regulation, by encouraging voluntary compliance with industry standards, enhances the credibility of the regulatory framework. It incentivizes transparent and fair management by market stakeholders, thereby solidifying industry norms and contributing to broader societal trust.

Moreover, these frameworks demonstrate scalability and sustainability in their regulatory approach. Unlike sandboxes or temporary permits, which often benefit only a limited number of companies or technologies, provisional standards extend their impact across industries by providing shared interpretations and guidelines. This fosters a broader scope for regulatory experimentation, enabling multiple companies to innovate within a stable and predictable environment until formal legislative revisions are implemented. Since self-regulation is led by the industry rather than the government, it

can be quickly adjusted in response to technological or market changes, ensuring that the regulatory framework remains sustainable over time. Government intervention is limited to instances where consistency or alignment is required, supporting a regulatory paradigm that balances scalability with long-term sustainability.

Finally, these systems embody a regulatory evolution that actively promotes innovation. By shifting the role of regulation from mere restriction to facilitation, self-regulation and provisional standards create an ecosystem where technological and service innovations can flourish. This forward-thinking framework allows new industries, such as the virtual convergence industry, to develop without the constraints of overly restrictive government controls. By empowering corporate autonomy and leveraging provisional standards to provide stability, these systems lay the groundwork for diverse innovations to thrive in emerging industrial landscapes.

## 5. Conclusion

The evolution of domestic IT promotion legislation represents a comprehensive and adaptable regulatory framework aimed at responding to the rapidly advancing technological landscape and the demands of the Web 3.0 era. Central to this transformation is the Virtual Convergence Industry Promotion Act (VCIPA), with its introduction of self-regulation and provisional standards, designed to address the limitations of traditional regulatory models. The Act advances regulatory evolution by enhancing corporate autonomy and accountability while minimizing government intervention. Notably, the provisional standards overcome the limitations of the regulatory sandbox model's scope and individual approval processes, ensuring rapid legal application and equitable regulatory enforcement to stimulate innovation across

new industries.

The Web 3.0 era is ushering in a paradigm shift, as decentralized technologies like blockchain reshape the internet to prioritize creator sovereignty over data and content. Moreover, direct interaction and autonomous data control between creators and consumers form core values of Web 3.0, necessitating a legal framework and effective self-regulation to support them. In this regard, VCIPA's provisional standards and self-regulatory mechanisms play a vital role in maintaining legal consistency, reducing market uncertainty, and enhancing predictability, thereby fostering a stable digital environment. As demonstrated in the U.K., the establishment of an independent and transparent self-regulatory system is essential to reinforce the trustworthiness and efficacy of self-regulation.

Moreover, the successful establishment of a regulatory model for the Web 3.0 era requires a combination of legal regulations and ethical guidelines, as well as an essential improvement in digital literacy among citizens. The government's Digital Bill of Rights and VCIPA both legally recognize the importance of digital literacy education, emphasizing comprehensive digital competency training that goes beyond basic skills to include citizen responsibility and ethics. Through such education, a society with comprehensive capabilities—spanning digital citizenship, copyright and privacy protection, AI application, and creative content production—can be established.

In conclusion, the introduction of self-regulation and provisional standards through VCIPA reflects an evolution toward a future-oriented regulatory framework that safeguards social safety without inhibiting innovation. This approach represents a proactive effort by both government and industry to foster sustainable digital innovation through collaborative governance. Continued development of related systems and the

establishment of an independent regulatory framework are essential for creating a fair and predictable regulatory environment. Throughout this process, the government must adapt flexibly to the rapidly evolving technological environment, maintaining consistency in the legal framework while bolstering private sector autonomy to sustainably support the growth of the digital ecosystem.

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