

# Automation and the Transformation of Creative Labour in AI-Generated Anime

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## Abstract

The discourse on automation has long been framed around efficiency, cost reduction, and quality control, often presenting technological advancement as a solution to labour shortages. In contemporary debates, artificial intelligence is increasingly depicted as a transformative force that will replace human labour, thereby liberating individuals from toil. Many of these ideas have already been adopted by factories and technology companies, and this trend is now extending into creative industries such as animation.

The release of the AI-generated anime *Twins Hinahima* in Japan in March 2025 highlights these developments. Audiences were surprised by the quality of the production, which exceeded expectations. However, the growing use of AI in animation has raised concerns among animators about job security and working conditions. Rather than resolving existing issues, AI may worsen them. The anime industry has long been characterised by long working hours, low wages, and persistent labour shortages, suggesting that the problem lies in the organisation of work rather than a simple lack of workers.

Over time, production companies have responded to these pressures by expanding outsourcing practices. A significant portion of Japanese animation is now produced through transnational collaboration, with animators in regions such as Taiwan contributing to major titles including *Attack on Titan*, *Spy × Family*, *My Hero Academia*, *Zom 100: Bucket List of the Dead*, and *Frieren: Beyond Journey's End*. This global production structure enables studios to manage costs and maintain output, but it also redistributes labour across different contexts with varying standards of pay, stability, and recognition.

At the same time, the organisation of work within the industry has shifted toward more flexible arrangements. Japanese production houses increasingly recruit animators through social media in processes sometimes referred to as “production progress,” relying on freelance and short-term collaborations rather than stable employment. Some animators, including those without formal training, obtain work through self-promotion and remote collaboration. In addition to freelancers, outsourcing studios—such as Taiwan-based R.Animation, which collaborates with Japan's TMS Entertainment—play an important role in sustaining production. As a result, the animation supply chain has developed into a large-scale, interconnected ecosystem.

This research therefore aims to critically examine the transformation of animators' work through the lens of digital labour theory. It will investigate how AI reshapes the animation production supply chain, and whether it leads to technological unemployment or, more likely, forms of underemployment and intensified precarity. Furthermore, it will consider whether animators will have reduced bargaining power, and whether AI-driven production contributes to broader economic challenges. This research also plans to explore both workforce and workflow transformations, as well as conduct in-depth interviews with freelance animators.

## Introduction

AI-generated content has sparked numerous debates. One major question is whether generative AI will cause people to lose their jobs or support workers by improving efficiency and reducing labour-intensive tasks. It is undeniable that generative AI has changed modes of production in many ways. Corporations have historically relocated their production lines to cheaper markets. As discussed in *No Logo* (Klein, 1999), workers in factories produce goods for global brands, while many famous brands rely on products manufactured in the same factories. However, these workers often receive very low wages and may have little knowledge of the brands for which they produce coats, clothing, jeans, and other products. The factories manufacture products for different brands, while the workers themselves remain largely invisible behind the logos.

A similar dynamic can be observed in the anime industry, where production companies often dominate the production process and outsource work to freelancers around the world. Freelance animators may work for different production houses and contribute specialised skills to individual projects. In particular, some freelance animators possess highly specialised skills and may serve as key creative workers who help define the visual style and characteristics of an animation. However, similar to the workers discussed in *No Logo*, animators can be crucial to the production process while remaining largely anonymous and invisible to audiences. Moreover, unlike factory workers who may have some forms of collective labour organisation, freelance animators often work as independent individuals and may have limited legal protection or access to unions through which they can collectively advocate for their rights (Vallas and Schorr, 2020).

With the rise of AI-generated content, the anime industry has also begun experimenting with new technologies, as demonstrated by *Twins Hinahima*. This raises several questions, 1) will AI-generated anime transform the current production process? 2) will freelance animators lose employment opportunities? 3) or, will a new mode of production emerge? This research explores the relationship among cultural policymakers, freelance animators, and production companies. In order to examine these relationships, this paper analyses how power is distributed and exercised among different stakeholders and how AI may transform modes of production and the labour market.

## Digital Labour and Gig Economy

Digital labor lacks a single definition and is interpreted through various theoretical approaches. Broadly, any work involving digital technology (Jarrett, 2022) can be defined as digital labor. Some scholars emphasize the labor required to produce digital technology products across the global value chain (Fuchs, 2013; 2014). This new international division of labor connects to the mode of production and the value chain, which is defined as "a collection of activities that are performed to design, produce, market, deliver and support its product" (Porter, 1985, p. 36, as cited in Fuchs, 2013, p. 10). This global cooperation enables companies to reduce costs by relocating operations and seeking the cheapest digital labor worldwide.

Some forms of digital labor are executed entirely through digital platforms. The rise of these platforms has transformed the landscape of labor markets. Digital platforms exercise significant market power by integrating design, production, and distribution within a single ecosystem to facilitate services, goods, and transactions. Consequently, numerous new occupations—such as platform-based freelancing—have emerged that function exclusively online. Vallas and Schor (2020) categorize these digital-native jobs into five distinct types of digital labor: first, platform

architects and engineers: infrastructure professionals, such as software engineers and architects, who design and maintain the digital platform. These workers often endure long working hours to increase their earnings. Second, professional platform workers: high-skilled workers and freelancers who utilize platforms to offer specialized services. They act simultaneously as platform users and independent service providers. Third, gig workers: individuals who connect with clients online through platforms to deliver services offline, often performing day labor or irregular tasks. Their working conditions and compensation are frequently dictated by platform terms. Fourth, microtaskers: workers who perform routine tasks entirely online that require human intelligence where automated computing falls short. Unlike project-based consultants or high-skilled freelancers, microtaskers perform low-barrier tasks under extremely competitive, low-wage conditions, which leads many corporations to outsource work to these platforms. Fifth, content creators and influencers: individuals who produce media content, build digital audiences, and monetize their personal brand or media output via platforms.

Crowdwork and gig work conducted through crowdsourcing-based platforms have been viewed as an incubator of entrepreneurialism (Vallas and Schor, 2020). This argument suggests that platforms offer a range of advantages over traditional corporate forms because they can “reduce the bureaucratic mediations and reduce the transaction cost as well as delimitate barriers that have constrained labor force participation by rural residents, people with disabilities, or those with care-giving obligations” (Vallas and Schor, 2020, p. 16.5). However, while platforms may provide workers with greater flexibility and access to employment opportunities, algorithmic management can also give companies greater power to monitor and control workers. In this sense, human labour can become increasingly governed by technological systems, creating what some scholars describe as a digital cage. At the same time, gig workers often experience precarious working conditions, including unstable income, limited employment security, and a lack of social protection. This reflects a broader institutional shift away from conventional employment relationships towards casualised work and zero-hour contracts. Gig workers such as freelance animators are commonly classified as independent contractors rather than employees. Consequently, they may fall outside the scope of some forms of labour protection and collective representation, making it more difficult for them to defend their rights and negotiate with production companies or platforms.

By contrast, Schwartz (2018) examines the work experiences of freelancers engaged in crowdsourced work. Through participation in an online occupational community, freelancers “developed portfolios, learned expert practice, and confronted the challenges of contingency in a competitive market” (Schwartz, 2018, p. 249). These findings suggest that freelancers not only derive meaning from their work but also develop their skills, professional identities, and career trajectories outside formal employment relationships. Therefore, although freelance work can be characterised by uncertainty and precarity, it can also provide workers with opportunities to develop expertise and pursue greater autonomy over their careers.

Overall, the literature on digital labour highlights three interconnected dimensions. First, corporations seek to reduce production costs by outsourcing labour and relocating production to cheaper labour markets. Second, the development of digital platforms has contributed to the emergence of new labour markets characterised by gig work, outsourcing, and precarious employment conditions. Third, although digital labour is often associated with uncertainty and insecurity, it can also provide workers with opportunities to develop their skills, build professional networks, and pursue entrepreneurial forms of work.

## Animation Production: Management and Network

Japan is a leading country in the global animation industry (Daisuke & Aki, 2011). However, young animators often face poor working conditions, including low wages and long working hours. Although Oyama (2024) conducted a case study of Shueisha and *Weekly Shōnen Jump*, demonstrating that the company's recruitment system provides a stable career path for university graduates, even those without prior professional experience or formal training in manga production, this system can also be viewed as relatively inflexible. The employment security and prospects for long-term careers offered by Shueisha differ considerably from Western approaches, which tend to place greater emphasis on flexibility and individual creativity. Oyama (2024) therefore describes Shueisha as the "last paradise" for creative workers.

In fact, according to a survey conducted by the Japanese Animation Creators Association (JAniCA), many Japanese animators struggle to make a living in the animation industry. This difficulty is partly attributable to the structure of the production process, which involves production committees, primary contractors, professional subcontractors, and consumers. As Daisuke and Aki (2011, p. 265) note, some animators "have to draw a large number of in-between animations in order to make a living." As a result, Japanese animators often receive very low incomes while working extremely long hours. These difficult working conditions contribute to young animators leaving the industry at an early stage of their careers (Daisuke & Aki, 2011). Primary contractors are generally large production companies that participate in or organize production committees, whereas subcontractors tend to be smaller studios or freelance animators.

Creative workers have been conceptualized as occupying an intermediate position between immaterial and material workers (Garrett, 2018). Immaterial creative work within the traditional production chain, like raw material, "is not the starting point, but is embedded within the continuous chain" (Garrett, 2018, p. 8). In contrast, "material workers represent the work of creative labourers whose material skills are required to give birth to the intellectual property" (Garrett, 2018, p. 9). Japanese animators can be understood through this distinction because their work involves both creative input and the material production of animation. Most animators work under a fee-for-service arrangement, and the average career length of an in-between animator was 4.1 years, according to JAniCA surveys conducted in 2009 and 2015. The company also pioneered the hiring of freelancers and contract workers rather than salaried employees as the majority of its production staff, a mode of employment that has subsequently become prevalent throughout the industry.

The mode of production in the anime industry has developed into a social network and community of practice (Wakabayashi, Naoki, Yamada, Jin-Chiro, & Yamashita, Masaru, 2018). Creators, producers, and managers work together to pursue new business opportunities while developing their skills and careers. Although animation production is characterized by producer-centred teamwork, one of the primary challenges is to assemble a highly skilled professional workforce within a limited timeframe while maintaining budgetary control. As animation production is often conducted in a stressful and time-sensitive environment, trust and social networks play an important role in facilitating collaboration and achieving successful production outcomes.

## Animators and Outsourcing

Taiwan has long been an important outsourcing location for Japanese animation production. Japanese studios have outsourced animation work overseas partly because of cost and production pressures, while Taiwan developed a substantial subcontracting industry. At the same time, Japan's animation industry has struggled with low pay and long working hours, which have made it difficult to attract and retain young animators.

Producers and production coordinators (*seisaku shinkō*) at Japanese production houses actively recruit animators through social media. Although Japanese animation production is outsourced to various countries around the world, Taiwan remains an important location within this transnational production network. Yao ([X/Twitter](#)), who is currently based in Japan, initially shared his own work on X (formerly Twitter). Through this online portfolio, he was recruited to work as a key animator (*genga animator*) on *My Hero Academia* and subsequently joined BONES. Yao now lives and works in Japan. According to Yao, animator-related production costs can account for more than 40% of the overall production budget, while the demand for key animators remains particularly strong. This high demand creates employment opportunities for Taiwanese animators and facilitates their participation in Japanese animation production.

Chuan ([X/Twitter](#)) is a freelance animator who has worked professionally for approximately three years. He obtained his first freelance opportunity through X. When Chuan initially posted his work on the platform, he was an inexperienced animator. He subsequently received professional enquiries and became involved in a well-known anime film. Since then, he has had further opportunities to participate in different productions as a key animator. Interestingly, rather than experiencing a lack of opportunities, Chuan has received so many offers that he has had to select the projects in which he is genuinely interested. Although he is considering working in Japan in the future, the high cost of living and uncertainty surrounding working conditions have encouraged him to remain based in Taiwan. Despite participating in numerous anime productions, Chuan generally remains anonymous to audiences, illustrating the invisibility of freelance creative labour within the anime production system.

Nichi Studio is a 2D Japanese animation outsourcing company that works on productions such as *Attack on Titan*, *Dandadan* (ダンダダン), and *Solo Leveling*. Rather than working exclusively as individual freelancers, animators can join the company and benefit from a more stable working environment and regular employment. This model provides an alternative to the precarious conditions often experienced by freelance creators, who may face uncertainty, financial pressure, and professional isolation.

For freelance animators, managing not only the creative works but also business-related tasks, communication with clients, project management, and negotiations can create additional pressure. An animation company can therefore provide organisational support and enable animators to work collectively. In this sense, Nichi Studio demonstrates how the organisation of creative labour can potentially reduce some of the vulnerabilities associated with freelance work while maintaining access to the flexible and international nature of animation outsourcing.

R. Animation ([X/Twitter](#)) was founded in 2017 and currently has approximately 40 animators. From 2020, the company began collaborating with MAPPA and Toei Animation, and in January 2026, it established a partnership with TMS Entertainment. Through these partnerships, the organisations share knowledge, skills, and production practices. For TMS, this partnership provides access to a more stable outsourcing partner, while R. Animation views the collaboration as an opportunity to train its animators and develop its production capabilities. R. Animation acknowledges that

outsourcing work represents only a small proportion of the company's profits. Nevertheless, the company considers these partnerships valuable because they provide opportunities to acquire knowledge and experience that can eventually support the development of its own productions.

## **The transformation of the product mode**

The rise of AI has brought both significant challenges and new opportunities to the animation industry. In Taiwan, the AI Animation & Visual Effects Association has launched the *Vision for Animation & VFX 2026* initiative, which focuses particularly on the development of AI and its potential to transform animation and visual-effects production. This development is supported by government cultural policy, particularly through the Ministry of Culture and the Taiwan Creative Content Agency (TAICCA), which has placed increasing emphasis on professional training, international collaboration, and the development of original intellectual property (IP).

For example, TAICCA is organising the 2026–2027 TAICCA × GOBELINS Paris training programme, which aims to support Taiwanese creators and animators in developing original animation IP. Participants are required to form teams of two to four people, with at least one team member holding Taiwanese nationality. The programme is conducted in English and runs from October 2026 to June 2027. At the end of the programme, participants will develop their own animation proposals, with the top five projects selected to participate in the Partner Pitches section of the Annecy International Animation Film Festival. Through these presentations, the participating creators have the opportunity to attract international investors, producers, and buyers. This initiative demonstrates that Taiwan's response to changes in the global animation industry is not limited to adopting AI as a production technology. Instead, cultural policy is also attempting to strengthen the capabilities of local creators and encourage the development of original IP.

Alongside the training and support provided by TAICCA, the rise of AI has created new possibilities for Taiwanese animation creators. While AI may allow Japanese production houses to reduce the costs associated with outsourcing, it may also enable animators and small studios to develop and produce their own original works. MK Origin Studio provides an example of this emerging model. The studio uses AI technologies in its animation production and focuses particularly on stories related to Taiwan's Indigenous peoples.

One of its projects, *CEMACEMAS*, explores Indigenous knowledge and cultural heritage through a fantasy-adventure narrative. *PURINGAU* similarly draws on Indigenous cultural knowledge and traditions. These projects demonstrate how AI can potentially be used not only to increase production efficiency but also to support the creation of culturally specific and locally owned intellectual property.

This development is significant because it suggests that AI may change the position of Taiwanese animators within the international animation production network. Traditionally, Taiwanese animators have often participated in Japanese productions as outsourced labour, contributing their specialised skills without necessarily owning or controlling the final intellectual property. However, AI-assisted production may lower some of the technical and financial barriers to independent production. Combined with government support, training programmes, and international networks, this could allow Taiwanese creators to move from outsourced production towards original IP development.

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