Machine Learning-Enabled Development of Model for Japanese Film Industry

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Not only are numerous components absorbed and modified in terms of movie subjects, but also various art forms like painting and music are researched and examined in the production of Japanese cinema, resulting in the development of film styles with national characteristics. The fundamental role of film industrialization is to increase production efficiency, reduce industry risks, create job opportunities, and provide related technologies and services for professional creative people, so that the creativity crystallization of all industry insiders can become an invisible creative power and tangible economic values in the economy and can circulate continuously within the overall film industry structure. On the basis of summarizing and analyzing of previous research works, this article expounded the research status and significance of the Japanese film industry, elaborated the development background, current status, and future challenges of film industry model, introduced the creation and production of genre films in Japanese film industry, established the relationship between personalized creation and market trend of Japanese films, proposed the competition and cooperation model for the distribution of local and imported films, analyzed the market share of sequel and anime films in Japanese film industry, conducted the analysis of terminal construction changes and localized cinema lines operation, and discussed the exploration and management model of film screening bodies. The research results of this article provide a reference for further researches on the development model of Japanese film industry.

1. Introduction

Film, as a full art form, encompasses a wide range of artistic disciplines, including literature, painting, music, and theater. Not only are numerous components absorbed and modified in terms of movie subjects in the creative process of Japanese cinema, but also other art forms such as painting and music are researched and examined, resulting in the development of film styles with national characteristics [1]. Japan has developed and cultivated a distinct national culture as a result of its geographical limits. However, this culture has resulted in some simplicity in order to ensure the self-confidence of local views. This phenomenon may be seen in the film business, namely, in the trough period after the golden years of the Japanese film industry [2]. Since the beginning of the 21st century, Japanese movies have once again exploded into new growth points. Japanese movie industry, which has experienced many troughs and has recovered again, has risen steadily as a whole, with local in-depth development and a variety of styles, showing new vitality and vitality. New and old directors present a variety of video styles and express their artistic demands, which is this diversified development trend that shows the tenacity of Japanese movies [3]. The diversification has a prerequisite; that is, every element in pluralism tends to mature. Since the new century, Japanese movies are entering an era of diversification; although each dollar is not fully mature, such a trend has already emerged [4].

The fundamental role of film industrialization is to maximize production efficiency, minimize industry risks, create employment opportunities, and provide related technologies and services for professional creative person, so
that the creativity crystallization of all industry insiders can become an invisible creative power and tangible economic values in economic market and can circulate continuously within the overall film industry structure [5]. Therefore, a complete and mature film industry structure is necessary for project development, investment risk management, creative asset utilization, and so on. The contemporary Japanese genre movies have shown a vigorous creation and gradually formed a strategic trend [6]. New filmmakers uphold the rich and diverse theme performance and consciously positive genre concepts, expressing the present with fresh brushstrokes and introspective emotions with the diversified realistic demands of Japanese society, and interpreted a world of light and shadow full of oriental charm with an independent and distinctive image style [7]. Therefore, it is necessary to understand the changes in the development stages of Japanese film industry and then trace the roots and explore the influencing factors related to each development stage. This mainly includes several aspects such as Japanese social background, the changes of Japanese film industry, the types of Japanese films, and its management methods [8].

This article elaborated the research status and significance of the Japanese film industry, elaborated the development background, current status, and future challenges of the film industry model, introduced the creation and production of genre films in the Japanese film industry, established the relationship between personalized creation and market trend of Japanese films, proposed the competition and cooperation modality, and proposed the competition and cooperation modality. The research results of this article provide a reference for further researches on the development model of Japanese film industry. The detailed chapter arrangement is as follows. Section 2 introduces the creation and production of Japanese film industry including the creation and production of genre films and personalized creation and market trends. Section 3 analyzes the development characteristics of screening market of Japanese film industry, proposes the competition and cooperation models for the distribution of local and imported films, and analyzes the market share of sequel and anime films. Section 4 discusses the terminal construction changes in Japanese film industry. Section 5 is conclusion.

2. Creation and Production

2.1. Creation and Production of Genre Films. As the current mainstream investment method for film production in Japan, production committee’s investment operation method has the greatest advantage in that multiple companies in all sectors of film industry chain jointly participated in the investment and has a risk diversification and profit sharing mechanism for high investment in film industry chain. In this mode, the production committee will conduct a comprehensive market evaluation of the selection of movies from the perspective of the film industry chain due to the immediate economic benefit interests of all investors so that the selection of works will take into account the investors of each industry chain. At the same time, in the promotion of the film industry, each enterprise of the investor can maximize the advantages of its own media and other resources, integrate the promotion of the work, and ensure the smooth entry of the work into the market, and at the same time when the work is released, it can quickly realize the goods related to the work [9]. A movie work will bring the rights of hundreds of units, such as the rights of television projection, overseas sales, online broadcasting, and role copyright. The biggest purpose of the investor’s participation in the production committee is to obtain the exclusive use rights of the various rights brought by the invested work, and then flexibly apply it to the diversified business activities of the investor’s expertise and promote the secondary use of the work to maximize business. The movie types and their creations and productions in the development model of Japanese film industry are shown in Figure 1.

From the perspective of action mechanism of animated movies on the audience’s aesthetic psychology, the role relationships of Japanese animated movies can be divided into three categories: animated movies that convey positive forces, encourage people, and are classified as inspirational, animated movies that ease the audience’s emotions and play a role in soothing the spirit; animated movies that are classified as grooming types; and animated movies that bring spiritual relaxation and pleasure to people and are classified as relaxed types. This categorization is different from the division by theme, which cuts in from the three types of role relationships and can generally represent the general role relationship types of Japanese anime films. At the overall level, this categorization can refine and express the theme value of Japanese anime films. Whether it is inspirational, counseling, or relaxed, it includes the contradictions and conflicts between positive and negative forces and their denial and denial of the opposite and even the evil side. With the development and maturity of Japanese genre anime films and the consolidation of systematic styles, the genre character relationship model of anime films has become more stable, and the distinctive characters and genre characters and their relationships have become an important mark of Japanese anime films. The research on Japanese film industry includes Japan’s social background, changes in the film industry, film genres, and business methods.

2.2. Personalized Creation and Market Trend. Inference movies made with original scripts are relatively rare mainly because the original scripts lack the gradually accumulated audience base of the general model. Once the original script is used, it means that the producer has greater confidence that the series is recognized by the market. This type of script is generally caught by a famous inference writer, and the plot is tailored to some of the main actors selected by the producer, so as to ensure the quality of the plot. Some reasoning works sometimes have aspects of suspense, thriller, horror, adventure, and other genres, and the story is frequently intelligent, engaging, and captivating; the works typically portray a detective solving numerous issues. Figure 2 depicts the Japanese film industry’s topic selection, individualized creation, and market trend analysis. Most of these pictures have a distinct personality and are simple to impress; after this kind of image has been effectively generated, a series of
series works is often translated, leaving a lasting impact on the audience. Reasoning these characteristics of film and television dramas is in line with the mode of operation of Japanese film and television industry with a small investment scale, heavy plots, and star actors. In this way, the inferential films and episodes will last forever since the birth of its local film and television industry. With the development of literary and artistic genres and the continuous improvement of the appreciation level of readers and audiences, the form and content of inference-themed works have been almost exhausted, and innovation is difficult.

Japanese people’s understanding of new things and new knowledge is generally achieved by combining new things and new knowledge with the Japanese traditional culture. The coordinated production and complementary lengths of Japanese film industry and the broadcasting industry are another reason for promoting the development of Japanese film industry. The responding to social needs, catering to the audience, and reforming the film industry marketing method from its own are also the key reasons for the development of Japanese film industry. The diversification policy of the Japanese government, the legal protection of intellectual property rights, and the management strategy of the cultural industry are the most fundamental factors that promote the development of Japanese film industry [10]. As an upgraded or specific version of other versions, the movie version reduces the risk of selecting the wrong movie theme to a certain extent, saves marketing publicity and advertising costs, and can ensure the number of audiences, but at the same time, it is difficult to make it independent art film. This is easy for viewers who have watched programs, but it will be weaker for viewers who have not watched programs. Regarding this level of issues, if the film can be made to correspond with the program at the time of production, it can also be made into an independent artistic film, which can better achieve the effect of promoting the development of the film industry.

3. Development Characteristics of Screening Market

3.1. Competition and Cooperation between the Distribution of Local and Imported Film. In order to further compare the international competitiveness of local and imported films in Japanese film industries, here an analysis of the local and imported film competition index is introduced, which reveals the relative comparative advantage of a certain country’s product in international trade to reveal the country’s international competitiveness status:
where $H_{ij}$ is the competition index of local and imported movies; $S_{ij}$ is the local movie circulation of $j$ products in country $i$; and $Q_{ij}$ is the imported movie circulation of $j$ products in country $i$.

An economic model is required to determine the proportional amount of film and television commerce circulation. The primary concept of these models is that manufacturers in a country make investment choices based on the complete market potential of their goods, which includes both local and international markets.

Among them, for a local film distributor, its potential market $W(H_a)$ can be calculated as follows:

$$W(H_a) = \sum_{i,j=1}^{n} K_i \left( \frac{p_i^2}{H_{ij}} \ln \left( \frac{p_i^2}{H_{ij}} + \frac{R_j^2}{H_{ij}} \right) \right)$$

(2)

For distributors of imported $b$ films, the potential market $W(H_b)$ can be calculated as follows:

$$W(H_b) = \sum_{i,j=1}^{n} K_i \left( \frac{p_i^2}{H_{ij}} \ln \left( \frac{p_i^2}{H_{ij}} + \frac{R_j^2}{H_{ij}} \right) \right)$$

(3)

where $W(H_a)$ and $W(H_b)$ are the size of all potential audiences of $a$ local movies and $b$ imported movies; $P_i$ and $R_j$ are the per capita movie consumption of $i$th local movie and $j$th imported movie, respectively; and $K_i$ is the basic structure of the $i$-part local film economy, that is, its total film consumption. The relationships between competition index and potential market coefficient with a local films and $b$ imported films are shown in Figure 3.

Japanese films are not only rich in genres and diverse, but different types of genres have corresponding representative works and the creation of genres films shows overall vitality and good market prospects. Some successful movie genres such as cartoons, love movies, and horror movies continue to maintain a good development trend. At the same time, relatively immature disaster movies, war movies, and historical movies are also in the stage of active exploration and development. The diversified development of film genres has brought unprecedented vitality and hopes for recovery to Japanese films, and has made Japan one of the
few film powers in the world that can compete with Hollywood in the local film market. In the concept of film creation, the excessive preference and expectation for a certain type should be broken, and the blind movement in creation should be caused by this preference and expectation. In the management of film creation, more creative freedom and greater creative space should be provided. In Japanese films, from purely romantic love films to violent and bloody horror films, Japanese films are not limited to erotic films that break through social moral barriers and even adult films, and it is not difficult to imagine their freedom of creation is relatively large. In the film distribution system, corresponding improvement measures that are more conducive to the development of domestic films should be adopted [11].

Due to the growth of rising technologies such as Internet, investing in movies has become a new financial instrument in recent years. Many more sectors have joined the film and television industry, and film production has resumed, with a higher need for ideas that can delight the general audience. Production factors, demand circumstances, linked industries, and supporting industries, as well as the strategic structure of their firms and the performance of rivals, are the four primary elements that define a country’s industrial competitiveness. Among them, production factors can be divided into primary production factors and advanced production factors, and advanced production factors refer to modern communications, information, transportation and other infrastructure, highly educated manpower, research institutions, etc. The development characteristics of screening market in the development model of Japanese film industry are shown in Figure 4. Advanced production factors are of undoubted importance for gaining a competitive advantage. From another perspective, production factors are divided into general production factors and professional production factors. High-level professionals, professional research institutions, and dedicated software and hardware facilities are classified as professional production factors. The more refined the industry, the more professional production factors are needed. From the measures and practices of personnel training in the Japanese content industry, the Japanese government, enterprises, and universities have gradually reached a consensus to form a joint force, and there is already a set of better talent training mechanisms.

3.2. Market Share of Sequel and Anime Movies. There is a general psychological structure that depends on Japanese people, and this structure determines the Japanese attitude towards foreign cultures, determines the institutional construction and thinking style of Japanese society, and also determines the expression of the values of works of art. The market share analysis of sequel and anime movie in the development model of Japanese film industry is shown in Figure 5. From the observance of the hierarchical system and the maintenance of class identity, the Japanese will adapt and get used to a model in the shortest time to the viewing of movies and programs, but they are not good at coping with changes. The narrative method of youth group image has a unique perspective. It is necessary to repeat one thing repeatedly from different angles. The seemingly messy thing is actually a kind of in-depth excavation and supplement, in order to reveal the hierarchical relationship and the complex psychological structure of people in the campus world. Perhaps, it is precisely because of the special status of the director that many details in the movie are almost true to the documentary, so the objectivity is maximized in the movie. The theatrical versions of dramas are mostly directly invested in and produced by companies that make dramas.

![Figure 3: Relationship between competition index and potential market coefficient with the distribution of a local films (a) and b imported films (b) in the development model of Japanese film industry.](image-url)
During the end of the series or during the season repair, they are represented in the form of a movie. The audiences are directly converted into movie audiences, so the box office income can be basically guaranteed and this production model of Japanese drama movies is a reflection of its unique national character and culture.

In the anime film business, the animation production model in Japan is a critical link, and the success or failure of the animation is strongly tied to the success or failure of the comics. It is fair to say that comic books are the cornerstone of animation production and a must for success. The values of discipline, clarity, efficiency, pragmatism, and practicability guide Japanese animation films. The comics will join the animation production process after they have been widely circulated [12]. If the animation is successfully broadcast, the animation movie image authorization and derivative development will be carried out. From comic publishing, script planning, character setting, animation production, to product sales, image promotion, and derivative development, all are developed by comic companies, animation companies, copyright agencies, magazines, printing and publishing, television stations, and derivatives. Sales and other organizations are completed. Although these organizations are not in an industrial chain, they have clear division of responsibilities, clear work objectives, perfect cooperation mechanisms, and reasonable distribution of benefits. This good operating mechanism has ensured the rapid, healthy, and orderly development of Japanese anime films, which is this rolling and

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![Diagram](image_url)

**Figure 4:** Development characteristics of screening market in the development model of Japanese film industry.

![Diagram](image_url)

**Figure 5:** Market share analysis of sequel and anime movie in the development model of Japanese film industry.
developing industrial chain that has made Japanese animation movies popular all over the world and continuously gaining huge economic benefits. This industrial chain is still playing its huge role in the constantly comprehensive, interactive, and three-dimensional industrial network.

4. Terminal Construction Alteration

4.1. Localized Operation of Cinema Line. The security of Japan’s film industry covers the security status of the entire industrial chain. At present, the local film industry chain in Japan is mainly composed of two parts: film production and film circulation. Therefore, its industrial security also includes the security in the field of film production and the security in the field of film circulation. From the perspective of security in the field of film production, it mainly involves the security of investors and marketers. From the point of view of the security of the film circulation field, it mainly involves the security of distributors and derivative product marketers. Figure 6 shows the impact factors of different development elements that affect the localized operation of cinema line in the development model of Japanese film industry. Among them, the film distribution company obtains box office revenue through film distribution and enters into major theaters for screening, that is, the use of film resources. The film industry also includes two aspects of industrial survival security and development security. The survival safety of the film industry refers to the state where the survival of the film industry is not threatened. For the film industry to survive, it must realize the unity of its monetary capital cycle, production capital cycle, and commodity capital cycle. The development of the film industry under open conditions means that a country’s film industry must keep pace with the development of the international film industry and gradually achieve industry surpass in development. Specifically, the development security of the film industry refers to the continuous improvement of the value or market share of the film industry, the continuous innovation of film production technology, and the surpassing development of the film industry [13].

The main features of the Japanese content industry strategy contain that the development of the cultural industry is viewed from a national strategic perspective, raising the importance of the cultural industry to an unprecedented height. Some corresponding policy measures are formulated and implemented, and a strict market operation model is followed. Although government forces play a tremendous role, most of them are the formulation of strategies and policies. Cultural industry projects have entered the market, and the overall development of the industry has been promoted through financial and fund support and a flexible investment system. Fourth, the intention to export Japanese culture overseas is obvious. Genre films are an unavoidable by-product of the market economic system’s evolution, and genre film refers to the film’s brand. The higher the demand for the type system, the more mature the economic system, and the genre strategy of movies plays an essential part in fostering the growth of the movie business. Japan has been more successful in genre films, which not only have horror films, romance films, and other genre films developed more maturely, but also have a certain influence in the world film market. More importantly, Japan can animate according to the characteristics of the country’s own culture and this type of film has developed to the extreme, becoming the banner and important pillar of the local film industry.

4.2. Exploratory Business Model of Projection Subject. Film distribution involves the three parties of the film producer, distributor, and producer. The distribution revenue comes from the box office revenue share of the distributer and film producer after the film is released. It is the...
first important checkpoint for cost recovery after film production and screening after deducting distribution costs, office expenses, sales staff salaries, public relations, and other expenses, and it becomes the cash flow for investing in new movies. Since the issuance link is the main source and stage of obtaining cash flow, the main concept of issuance can be regarded as paying tolls to the issuing organization, so as to use the existing media channels to approach and reach the broad audience [14]. The contribution coefficients of different development factor distributions of a local films and imported films are shown in Figure 7. The stage determines whether the film can recover the huge investment cost, and whether it can obtain an advantageous schedule and location to make the film sell. Publishers use the current film list and their box office appeal to negotiate with the exhibitors for the ratio of the debts and the screening schedule; the publishers compete with the publishers by controlling the schedule and the advantages of the number of theaters. In the film industry, there is not only competition, but sometimes the relationship between competition and cooperation can occur simultaneously; distributors can form a multi-win system with other producers. Although the oligopolistic structure is still the main form of the media industry, because it shares the same interests, it is easier to reach consensus on certain standards and practices.

The emergence of booming Japanese movies in recent years is also closely related to the increase in funding to enter the film production industry. The studios represented by the three major film companies used to rely mainly on film distribution and box office revenue to support operations, and the losses were supplemented by their own real estate revenue [15]. The inherent capital of film companies, the investment of films in some stations, the investment of talent institutions with a large number of artists, the investment of publishing houses, and the film funds distributed as financial commodities, among other things, are the main sources of Japanese film funds. When investing in individual investors, in addition to analyzing the content and market prospects of the movie, personal emotional tendencies are also an important reference element. Multi-channel and strong publicity is an important part of Japanese film industry’s increase in box office revenue. Independent movie theaters are not affected by the production company, and the film is selected based on the subjective selection of the boss. Therefore, although the size of the film is small and the variety is more abundant than in the past, this provides screening opportunities for small movies and special movies loved by movie lovers. Although independent film costs not much, it has a strong personality, unique script, exquisite video, and high quality because the new directors pursue their own aesthetics and art and they slowly attract their own audience.

5. Conclusion

This paper introduced the machine learning [16], enabled creation and production of genre films in Japanese film industry, established the relationship between personalized creation and market trend of Japanese films, proposed the competition and cooperation model for the distribution of local and imported films, analyzed the market share of sequels and anime films in Japanese film industry, conducted the analysis of terminal construction changes and localized cinema lines operation, and discussed the exploration and management model of film screening bodies. The diversification policy of the Japanese government, the legal protection of intellectual property rights, and the management strategy of the cultural industry are the most fundamental factors that promote the development of Japanese film industry. In this mode, the production committee will conduct a comprehensive market evaluation of the selection of movies from the perspective of the film industry chain due to...
the immediate economic benefit interests of all investors so that the selection of works will take into account the investors of each industry chain. Japanese animation movies are based on the principles of rigor, clarity, efficiency, pragmatism, and practicability. When the comics are distributed well, they will enter the animation production process. The animation movie picture permission and derivative creation will be completed if the animation is successfully aired. The film industry’s survival safety refers to the situation in which the industry’s survival is not endangered. For the film business to exist, it must recognize the interdependence of its monetary, production, and commodities capital cycles. The primary goal of the investor’s participation in the production committee is to obtain exclusive use rights to the various rights conferred by the invested work, which can then be applied flexibly to the investor’s diverse business activities, as well as to promote secondary use of the work to increase business. The findings of this study may be used as a starting point for additional research into the Japanese film industry’s development model.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

[1] J.-I. Yamada and M. Yamashita, “Entrepreneurs intentions and partnership towards innovation: evidence from the Japanese film industry,” Creativity and Innovation Management, vol. 15, no. 3, pp. 258–267, 2006.
[2] A. Davidson, D. Verhoeven, and C. Arrowsmith, “Petal diagrams: a new technique for mapping historical change in the film industry,” International Journal of Humanities and Arts Computing, vol. 9, no. 2, pp. 142–163, 2015.
[3] H. Kitamura, “Coproducing Asia: locating Japanese-Chinese regional film and media,” Historical Journal of Film, Radio and Television, vol. 36, no. 1, pp. 110–112, 2016.
[4] D. Martin, “Subtitles and audiences: the translation and global circulation of the films of akira kurosawa,” Journal of Film and Video, vol. 69, no. 2, pp. 20–33, 2017.
[5] B. Tadesse, “Revolutionary Ethiopia through the lens of the contemporary film industry,” Northeast African Studies, vol. 16, no. 1, pp. 167–196, 2016.
[6] H. Yoneyama, “How to maintain the strength of Japanese industry: Responses to the IT revolution and the future of manufacturing technologies,” Bioorganic & Medicinal Chemistry Letters, vol. 14, no. 5, pp. 1347–1351, 2015.
[7] D. Ashton, “Making media workers: Contesting film and television industry career pathways,” Television & New Media, vol. 16, no. 3, pp. 275–294, 2015.
[8] P. Vistisen, T. Jensen, and S. B. Poulsen, “Animating the ethical demand: Exploring user dispositions in industry innovation cases through animation-based sketching,” ACM SIGCAS-Computers and Society, vol. 45, no. 3, pp. 318–325, 2016.
[9] J. Mertens, “Parting words: Japanese animation and the fall of House of Ghibli,” Film International, vol. 13, no. 4, pp. 145–147, 2015.
[10] S. Takano and M. Yamada, “Perception and analysis of "Moe" voice,” Journal of the Acoustical Society of America, vol. 140, no. 4, p. 3399, 2016.
[11] R. C. Redmond, “Constructing boyishness: A sociophonetic analysis of Japanese anime voice actresses performing male roles,” Journal of the Acoustical Society of America, vol. 140, no. 4, p. 3402, 2016.
[12] R. Minami, “Hello Sha-kitty-peare?: Shakespeares cutified in Japanese anime imagination,” Journal for Early Modern Cultural Studies, vol. 16, no. 3, pp. 116–137, 2016.
[13] J. Reichert, “Oyama and anxieties about the feminization of Japanese film,” Positions: Asia Critique, vol. 22, no. 2, pp. 371–402, 2014.
[14] D. Ross, “Miyazaki’s little mermaid: A goldfish out of water,” Journal of Film and Video, vol. 66, no. 3, pp. 18–30, 2014.
[15] R. Denison, “Franchising and film in Japan: Transmedia production and the changing roles of film in contemporary Japanese media cultures,” Cinema Journal, vol. 55, no. 2, pp. 67–88, 2016.
[16] H. Zhao, Z. Liu, X. Yao, and Q. Yang, “A machine learning-based sentiment analysis of online product reviews with a novel term weighting and feature selection approach,” Information Processing & Management, vol. 58, no. 5, Article ID 102656, 2021.