

# Promote the Development of Cultural Creation Industry through Technological Policies

—Take the Case of Glove Puppetry of Taiwan

Wei Song, Xue Qi

University of Science and Technology of China, Hefei, China  
Email: [578050793@qq.com](mailto:578050793@qq.com)

Received 27 July 2015; accepted 12 October 2015; published 15 October 2015

Copyright © 2015 by authors and Scientific Research Publishing Inc.  
This work is licensed under the Creative Commons Attribution International License (CC BY).  
<http://creativecommons.org/licenses/by/4.0/>



Open Access

---

## Abstract

Nowadays, the development of digital technology profoundly influences people's consumption patterns around the world. And the progress of cultural creative industry has already brought considerable profits to many countries. So how to develop cultural creative industry with proper policy of science and technology has become a highly focused issue in many countries. This paper focuses on the 3-D Puppet Play which launched by the Taiwan PILI international corporation and tries to explore appropriate ways to make good use of the collaboration between industry-government-academy in order to achieve the value of creative industry. Furthermore, by using this example, the process of tools selection and roles transition of the government in the cooperation, and the theory framework will also be discussed. And all these findings will be a great contribution to the future cross-border cooperation and help to make proper policy of science and technology for cultural creative industry.

## Keywords

Digital Technology, Cultural Industry, Co-Production of Value, Policy Tool

---

## 1. Introduction

In recent years, cultural creation industry has become the focus of academic research. The major difference between cultural creative industry and other industries is that its value depends on customers' demand and the intangible value of goods. Use effectiveness and experience of customers will determine the value of cultural cre-

ation products or cultural creation work [1] [2]. Moreover, the change and dynamic relationship between market demands and cultural creation products will be an issue which is worthy to be discussed to strategic management scholars. Besides, the composition of culture creative industry-government-academy partnership with economic operation pattern is different from the existing industrial economy. The public sector is definitely to have public resources or infrastructure, but it still need the support of the private sector entrepreneurship on goods and services innovation and creativity.

Since the mid-term of 1960, labor-intensive industries in Taiwan have lost their international competitiveness due to increasing salary. The government at that time began to realize the importance of technological independence for the national development. Hence, the government started to actively promote information technology strategies. 1) With promotion of several parties, the Industrial Technology Research Institution (ITRI) was established in 1973. It mainly aimed to help traditional industries realize transformation and develop new growth points through technological innovation. 2) While developing Hsinchu Science Park, improving infrastructure construction and directing the low quality environment, they spare no efforts to have professional manufacturing and national research center focused together and get mutual cooperation. 3) The Institute for Information Industry has been established to consult guidance the development of electronic industry, collect relevant professional information, promote national information policies and improve the government and the private enterprises information technology usage. From an overall perspective, Taiwan government was using its own advantages to promote policies of digital technology and improve the industrial development. However, the IT strategies at that time mainly focused on cultivation of technological talents, construction of scientific centers and launching of technological products. Science and technology policy is not so closely related to the cultural creation industry. Until 2002, Taiwan Administration Council proposed the Challenge 2008: National Major Development Plan. It clearly put forward to develop creative culture industry of Taiwan, strengthen the communication between scientific personnel and cultural innovation talents and cultivate intermediary experts. Furthermore, under the all-round development plans of promoting multimedia, network technology and digital technology to promote cultural creative industries in Taiwan, a batch of cultural creative industry driven by science and technology policy can get rapid development. As typical examples, people will think of the High Technology and Cultural Creation Industry which was started in Zhongxing New Village of Nantou County and constructed in original location of the Taiwan government office [3]. Another example is business hotel operated by Huangshang Enterprise and Tainan government [4].

Cultural creation industry belongs to the artistic creation characterized by high uncertainty and high investment risk. However, cultural creation industry driven by high technology is confronted with technological difficulties as well as shortage of scientific and artistic talents. Nevertheless, BoEr district of Kaohsiung City made some achievements and attracted the people and the media's attention through government-industry-academy cooperation. But the differences can occur between the partners on the development of common goals and willing to pay the same amount of resources. And the behavior of the government in the wake of a problem for the cooperation and the direction of the value creation effects, there are still many places worth exploring.

Therefore, this study tries to explore in the field of cultural and creative industries, for industry-government-academy value creating, it requires them to avoid each other's divergence, especially the role of the government itself to control and the choice of policy tools, let the three parties can achieve benefit maximization and realize value creating. Three parties in this research consist of government (public departments), enterprises which are engaged in cultural creation industry (private departments) and scholarship departments (the third-party institution). Firstly, based on the theoretical framework, this thesis mainly discussed definitions of or relationships between cultural creation industry and technological policies. It also talked about the co-production of the value. Secondly, through the case study method of interview and on-the-spot investigation and data collection to conclude the characteristics of all parties and exert new mode in the field of industry structure framework, the appropriate policy tools used in the process of cooperation will be beneficial to promote cooperation and create the biggest value. Finally, it provides a reference for government policy of science and technology and the partner selection in cross-border cooperation in cultural business industry.

## 2. Literature Review

The academic circle has never achieved consensus about the definition of cultural creation industry. Cultural industry offers basic cultural environment and place for creative talents. Hence, in most situations, the cultural

industry is naturally connected with creation industry. In the definition of the cultural industry, the Englishman Justin Ockham of University of Manchester believed cultural industry refers to an activity in which people sell those goods with symbolic nature. However, value of these goods mainly originates from contained cultural significance [5]. In 2003, Ministry of Culture of People's Republic of China issued *Suggestions for Support and Promotion of the Development of Cultural Industry*. This document defined cultural industry as business which manufactures cultural products and offers cultural service. For creative industries, economist Hawkins proposed explanation for the creative industry from the perspective of intellectual property rights: creative products are under the protection of intellectual property rights protection within the scope of the product, according to the world cultural and creative industries is the father of Hawkins's theory, creative industry is mainly composed of "cultural creative industry" and "science and technology creative industry" two parts, Chinese scholar Wu Qingyang believes that cultural creative industry is both "cultural industry" and "creative industries" characteristics of the industry, the [6] should be the intersection of the both two, after Liao Shizhang stands from the angle of the cultural market and puts forward the concept of cultural and creative industries is the cultural connotation, creative tools, various forms of culture the product is a creative culture explicit, cultural and creative industries is the combination of many cultural and creative products, the cultural market is a collection of various cultural and creative industries.. In Taiwan, cultural creation industry refers to the activity which has the potential to create wealth, bring employment opportunities and improve the overall living environment by accumulating creations and culture as well as generating and employing intellectual properties [7]. Although scholars from different countries may have different definitions of the cultural creation industry due to various perspectives, we can summarize cultural creation industry is generally characterized by taking creations as attraction points, considering symbolic meaning as production value, and guaranteeing the earned wealth through laws.

As for research of technological policies, it could be classified into broad sense and narrow sense based on the research scope. Researches about technological policies in broad sense consist of various political researches which are relevant to technologies, aiming to serve better for policies through technological policies. Technological researches in narrow sense refer to researches about scientific technologies and creation policies based on the mode of science-technology-creation. According to functions, researches about technological policies can be classified into two aspects including application research and theoretical research. Application research needs to solve how to management the research and development of scientific research. Theoretical research needs to find out general rules and objective basis for formulation of technological policies [8]. This article is mainly to study in a narrow sense, mainly applied research in science and technology policy, refers the policy research in the activities of science and technology, emphasizes the general law of social development, the social and economic conditions, cultural environment and other aspects in the combination with science and technology policy at the same time.

In present stage, there are numerous researches about technologies policies and cultural creation area. Scholars of various areas are also engaged in fierce discussion. The scholar HuHuilin considered core ideas about the development pattern of cultural creative industry is combined with science and technology policy of cultural creative value system construction and build an index system of China's cultural industry development [9]. The research conducted by the scholar Mao Lei believed that, with evolution of the clustered cultural creation industry, technological policies will be gradually adjusted and stipulates relevant policies about clustered cultural creation industry. Based on innovation-oriented technological policies, the research mainly emphasized the cultivation of dynamic innovation ability of cultural creation enterprises in uncertain and complicated situations [10]. However, the scholar Liang Ruobing carried out systematic research about cultural creation industry in Taiwan. The six major industries newly launched by Taiwan authority in 2009 include cultural creation industry. *Creative Taiwan—Implementation Plan of Development of Cultural Creation Industry* issued by Taiwan government aimed to provide political guidance for Taiwan cultural creation industry, attract folk investment, broaden cultural creation industry, explore new business opportunities and promote fast upgrade of the industry. After constant evolution and upgrade of technological policies, the cultivation and development of clustering economy the cultural creation industry in Taiwan has witnessed rapid growth [11].

With respect to value co-production, this thesis believed the value should be used to create more value through members of the value network instead of just being added to the original value. Value creation not only refers to linear or transitive nature but also indicates a process characterized by synchronization and interaction. This research aims to enhance the integration of extensiveness, depth, strengtheners of technological policies and cultural industry, so as to promote rapid development of cultural industry through guidance of technological

policies. This also requires research about technological policies should take cultural creation as its core idea, so as to discuss the relationship and functional mechanism of various links including creation, development and marketization of cultural industry as well as complete the value co-production of various cooperators [12]. Through research, this thesis can establish a market-oriented, enterprise-centered, industry-government-academy integrated theoretical basis for technological production and application.

### 3. Research Method

In the background of global economy, this research explained how government, academic institutions and enterprises promote the development of cultural industry and achieves value co-creation during the technological activities which are promoted by technological policies. There must be interrelated and complicated relationships among three major bodies which take part in the value co-creation. It is hard for us to distinguish their contribution to the value co-creation during the activities. We cannot use singular economic or financial indicator to weigh out the social value of cultural creation industry, because its value is influenced by numerous factors like society, culture and cognition. In order to conduct in-depth discussion the value co-creation process of technological activities, this research will adopt the study method of single case to analyze the unique and practical case, so as to construct a theoretical framework which represents the relationship between technological policies and development of cultural industry.

#### Selection of Research Object

This thesis selected 3D glove puppetry launched by Pili International Multi-media Co., Ltd. as the research object, because it performed well in cultural creation industry in recent years. Such traditional folk art as the glove puppetry possesses long history. Characterized by dramatic characters and rich plots, the glove puppetry can attract numerous audiences in Taiwan. Nevertheless, in recent years, the puppetry has been impacted by American Hollywood blockbusters which stress on visual and audio enjoyment. Although interested in this traditional folk art, younger generations still lacks enthusiasm for the puppetry due to its singularity. This thesis discussed how the SD glove puppetry *Legend Password* which was launched by Pili International Multi-media Co., Ltd. and supported by public departments (Taiwan government) and such third-party department as Taiwan Research Center of Experimental Network establish the cooperation relationship, achieve value co-creation and promote the development of cultural industry. Pili International Multi-media Co., Ltd. got rid of the previous mode that the glove puppetry was just displayed on TV. It debuted the puppetry in the form the films in 2010, so as to offer a new channel for younger generations to understand traditional culture by sticking to its enterprise spirit and operation. The 3D puppetry *Legend Password* launched in February, 2015 hit a success and won a fantastic box-office in domestic and international market, which developed a new area for the development of local cultural industry.

Pili International Multi-media Co., Ltd. is a famous TV puppetry enterprise in Taiwan, making first debut of the glove puppetry on TV in 1970 and initiating the episode of “*Pili Series*” from second half of 1980. Although influenced by the TV environment of 1988 and limited by hardware facilities, Pili International Multi-media Co., Ltd. Still adhered to its innovation spirit and finally overcame various difficulties. After 2000, this enterprise changed its name into Pili International Multi-media Co., Ltd. By now, it has grown into a large international cultural communication enterprise integrating TV display, film rent and sales of peripheral products into a single whole. The puppetry episode and peripheral products launched in the first half of 2015 were very popular in youngsters.

With respect to the government, Taiwan Department of Science and Technology acted as the major representative. The predecessor of this department was National Commission of Science and Technology of Administration Council which was established in February 1, 1969 and considered as the organization taking charge of the development of science and technology. It shall be responsible for promoting the development of national science and technology, supporting academic researches and developing science parts. In principle, this department should issue plans of technological development every 4 years, aiming to come up with innovation stimulation measures by integrating industry and scholars, encourage research-oriented industry, enhance technological innovation ability and improve international competitiveness of scholarship and industry.

As a third-party department, High Speed Network and Computer Center under the jurisdiction of Taiwan Research Center of Experimental Network was established in 1991. This department possesses the only shared

computer platform and academic research facilities. This department leads the advanced cloud technology which integrates computation, network, storage and platform into a single whole. In addition, the department also offers cloud-integrated service including high speed computation, high quality network, efficient storage, mega data analysis and scientific engineering simulation. This department wants to become international high speed computing center and promote scientific development and technological innovation. In 2010, the Research Center of Experimental Network has developed mature high speed computation, storage and visual technology. Pili International Multi-media Co., Ltd. predicted such traditional folk art as the glove puppetry would be displayed in cinemas. Hence, the Research Center of Experimental Network became the technological supplier of the Pili International Multi-media Co., Ltd.

The combination of the three parts offers opportunity for them to cooperate with each other and form a special organizational relationship. According to the relation of industry-government-academy, they should observe how to build partnership, understand its process and investigate the roles that the government and academic institution play in the cooperation and how to use policy tools to drive value co-creation, and then improve cultural industrial development.

#### 4. Data Collection and Analysis

To assure the reliability and validity of the data, this research uses many data sources to monitor different data, mainly by deep interview and observation to help collect data (documents and files) [13]. The interview is mainly come into contact with the personnel and the general public to track access, collect data and add files. In the on-the-spot investigation, this research center, on the one hand, communicates with doll makers of this company; on the other hand, experience the atmosphere 3D technique brings for the consumers. The data mainly came from company homepage, government websites, newspapers and periodicals and news report.

In terms of depth interview, for exploring the tripartite cooperation method, this research adopted telephone interview to carry out 1 - 2 hours long semi-open interviews over the period from February, 2015 to May, 2015. On one hand, this research listed questions which need to be asked in the interview. On the other hand, this research would ask further questions about which people care during the interview. This thesis mainly interviewed directors of market and public relationship department, technical manager, project manager of the Pili International Multi-media Co., Ltd, researchers of games, researchers of High Speed Network and Computation Center. Due to limitations of the Department of Science and Technology, we will collection information from words and attitudes shown by relevant officials in news media. We designed different interview outlines for these three parties. As for the aspect about value co-creation, we will ask what advantages you consider the cooperation with Research Center of Experimental Network can bring? We will also ask whether the cooperation can help your enterprise to expand business in some areas. Other questions about heterogeneity and public property will be asked in the same steps.

Afterwards, the interview contents will be organized into books and filed according to heterogeneity, public property, resources and value. These interview contents will be compared and confirmed repeatedly, so as to ensure the credibility of the text.

#### 5. Research Outcome and Discussion

This research involves two aspects. The horizontal aspect refers to integration of government, industry and scholars, mainly researching the mutual cooperation and value co-creation of public departments (government), private departments (Pili International Multi-media Co., Ltd.), and third-party departments (Network Center of Experiment Center). This paper will divide cooperation of the three party cooperation into two categories, namely the heterogeneity and public asset nature (including collective action, social problems and public nature), and a two important concepts such as resource capability and create value, and from the text in the edit and create three value dimensions, this study came up with three party cooperation mode. Secondly, from the time as the axis, observe the public sector (government) during different partners.

##### 5.1. Important Perspectives of the Operation Mode of Partnership

###### 5.1.1. Heterogeneity

Among three parties which are involved in this case, the government enjoys strong ability in appeal and guidance. However, Pili International Multi-media Co., Ltd. possesses rich experience and market channels in

shooting the glove puppetry. Research Center of Experimental Network has mature technological and professional research talents. For example, the Department of Science and Technology came up with combination of digital records and industrial development, so as to promote the innovation of industrial chain (carriers, marketing channels, publishing industry), help the publishing industry cooperate with digital practitioners, improve industrial integration, and create diversified business opportunities of newly-emerging market. In addition, although having high-tech talents of network technology, the Research Center of Experimental Network still lacks intellectuals which are proficient both in technology and culture. In 2013, the Department of Science and Technology issued an announcement to solicit plans about digital cultural research. This announce aimed to establish long-term talent reservation mechanism and excellent research environment according to demands for universal talents. Pili International Multi-media Co., Ltd. sought for further product innovation. Moreover, inspired by the Hollywood 3D blockbuster Avatar, this enterprise prepared its move to 3D film production industry by improving the visual sense of customers instead of being limited to the display of 2D films. Network Center of Research Institution possesses the only high speed computation center in Taiwan. In addition, this institution has mastered advanced scientific visual computation technology for research and development. After accumulation of more than 10 years, the 3D image technology will become mature in 2010. Technical directors of Pili International Multi-media Co., Ltd. explained why the enterprise selected Research Center of Experimental Network:

*“When realizing the technical difficulties, we took part in a technical promotion activity of cultural creation which was organized by Department of Science and Technology. Through recommendation of Department of Science and Technology, we got acquainted with the technician of experiment center. In addition, we also knew that the technology of Research Center of Experimental Network has become mature. Hence, we try to contact with the research center.”*

Technician of the experiment center explained:

*“After commissioning of a certain time, the dimensional counterpoint technology developed by our own team tended to be mature. Hence, we hoped to find an enterprise for cooperation and practical application of our technology. This is also our wish since the establishment of our network experiment center”.*

### 5.1.2. Public Property Nature

The 3D glove puppetry *Legend Password* in this case is based on the culture and popularity of the inherited puppetry which has a long history. The above conditions provided these 3 parties with powerful cultural support, numerous potential customer groups and stable cooperation support. When the Department of Science and Technology came up with the idea of using advanced technology to transform traditional industry, these 3 parties share a common goal that they want to promote the glove puppetry which was considered as invisible public assets and display the puppetry to audiences with a brand-new way. Pili International Multi-media Co., Ltd. constantly reformed its leadership ideas and activated its public assets through several positive measures. Zhang Shancai, director of the Department of Science and Technology positively expressed:

*“Future administration of Department of Science and Technology will stress on excellent and innovation, enhance combination of industry and academy, cultivate practical research talents, understand the gap between industry and academy, reconcile the technology and culture and deepen the application of technology in cultural creation and promotion. In case organizations digitalize the culture of aboriginals, traditional operas, glove puppetry and Taiwan opera, the Department of Science and Technology will offer great support”.*

### 5.1.3. Resources

Partnership should be established on basis of mutual supplement of resources of these 3 parties. In other words, resource shortage of certain party can be supplemented by excessive resource of another party. In addition, these resources can be fully integrated and utilized. Due to reasonable limitations in this case, the government departments showed less interest in promotion of the glove puppetry, because the puppetry cannot bring direct profits.

As a private enterprise, Pili International Multi-media Co., Ltd. focuses on efficiency and output, which could be considered as supplement of the government. Government departments lack professional talents and advanced management mode which can be offered by Research Center of Experimental Network. Although planning to promote the glove puppetry to cinemas and broadening operation channels, Pili International Multi-media Co., Ltd. still lacks technology and suffers from high commission of foreign technology. However, the 3D glove puppetry production technology of the research center can provide support and assistance in terms of

the technology. Extensive promotion of the glove puppetry by government departments plays a positive role. Manager of Pili International Multi-media Co., Ltd. who was responsible for this project emphasizes the cooperation like this:

*“We once considered only Hollywood could make out the effect we expected. However, it was surprised for us to find the ideal effect after the cooperation with the experiment center”. This saved a lot for the overall budget of the whole film. Excluding difficulties in language, the communication became more convenient”.*

#### 5.1.4. Value Co-Creation

In this case, Pili International Multi-media Co., Ltd. promoted the sales of peripheral products and gained economic profits through success of the box-office. This provided valuable experience for promotion of the puppetry to cinemas. Network Center of the Experiment Institution obtained financial support through cooperation with Pili International Multi-media Co., Ltd. Hence, they were able to purchase peripheral programs from American aced technical groups. At the same time, this institution carried out several academic researches during the process. Based on social profits, the display of 3D glove puppetry attracted numerous young audiences. It provided a new channel for people to understand traditional glove puppetry culture. The 3D glove puppetry offered a new leisure choice and improved the reputation of Pili International Multi-media Co., Ltd. From the perspective of government, promotion of traditional culture, pursuit of public welfare will be beneficial for the government to establish credibility and construct service-oriented operation mode. Researchers of the Network Center of Experiment Institution explained:

*“3D glove puppetry not only increased the cooperation opportunities between the government and the enterprise but also brought more opportunities for people to issue theses about industrial research”.*

## 5.2. Change of Government Selection of Political Tools during Different Cooperation Periods

This cooperation started from the co-developed five-minute 3D experiment film *Huansuzhen* which was shot by Network Center of Experiment Institution and Pili International Multi-media Co., Ltd in 2010. At that time, Pili International Multi-media Co., Ltd. has not been engaged in the film industry. In consideration of high technical requirements and investment cost of 3D films, Pili International Multi-media Co., Ltd. has never implemented its cooperation intention. Cultural creation has always been an industry which advocates using new technologies to create new things. Hence, this experiment film shot during the trial cooperation between Network Center of Experiment Institution and Pili International Multi-media Co., Ltd. was promoted by Department of Science and Technology. Encouraged by the achievement from the first successful cooperation, the both parties decided to continue further cooperation and shoot a complete film. However, influenced by job-hopping of members of the screen writing group and artistic design group, the story plot was subject to great impact. The shooting expected an investment of 0.3 billion NTD. Although having the support of high-tech equipment and personnel from the network center, the cooperation in face of difficulties due to high risks of investment return and shortage of cultural creation talents. Until the end of 2011, the Department of Science of Technology provided support for special action effect and research cost. In addition, it also introduced professionals of Hollywood, which cleared obstacles during the cooperation. According to plan about digital cultural research which was issued in 2013, the Department of Science and Technology would establish long-term talent supplying center for future cooperation. To January 2015, a movie called *Legend Password* completed pre-release, in the homepage website of the Ministry of science and technology, Taichung City government website and Yunlin County government website prepared not less than 1000 words for the upcoming films illustrated reports. Besides, Yunlin county government help Pili international media company generation for the release of the film ticket to vulnerable groups, making hot news, the publicity for the film further momentum, officials of the Ministry of culture also said that the public in order to guarantee the benign development of the puppet production capacity will continue to improve the legislation on intellectual property rights, protection of traditional culture inherit and carry forward.

We will be based on the model of governance model and the choice of policy tools to build Arthur B. Ringeling [14] 193-195 (Table 1) to analyze the changes in different periods of the government the policy tool. At the beginning, the Ministry of Science and Technology just put forward policy to encourage science and technology into the creative industry and looking for opportunities to cooperate, which belongs to the general policy of type processing mode; provide subsidies in the interim Cooperation Ministry of science and technology help to attract

**Table 1.** Model of governance model and the choice of policy tools.

Types of Governance Mode	Roles of Involved Doers	Characteristics	Selected Political Tools
Oder and Control Government Mode	Central government is the designer of policies; Central government orders other doers (including public and private doers) to execute policies	Use direct regulations as major political tools	Direct regulations (horizontal mode)
Governance Mode of the General Policies	Central government only designs general policies; Others doers are offered opportunities to explain the policy in detail; More reliance on the self-governance ability of other doers;	Central government establishes legal framework and obligation framework., Others doers should behave according to the framework.	General rules were formulated by central government and detailed rules are formulated by other doers. Vertical tools are used.
Selective Governance Mode	Central government only interfere key matters which may change the thing. Other doers have to use tools which are offered in the selective		Subsidiary, covenants and other economic tools (horizontal tools)
Promotion Governance Mode	Central government promotes the self-governance ability of other doers. Promotion strategy based on practice could help central government to better understand the problems of other doers and offer necessary tools.		

talent, can be summed up in selective governance mode; finally, spare no effort in the film completed early in the Ministry of science and technology led by government departments to help promote and report, and after the show promises to be constantly perfecting the legal system to ensure its long-term benefits, these initiatives are to promote governance model. With respect to the strength, the government interference was relatively weak in initial stage, stronger in middle stage and weaker in final stage.

## 6. Case Findings and Constructive Research Framework

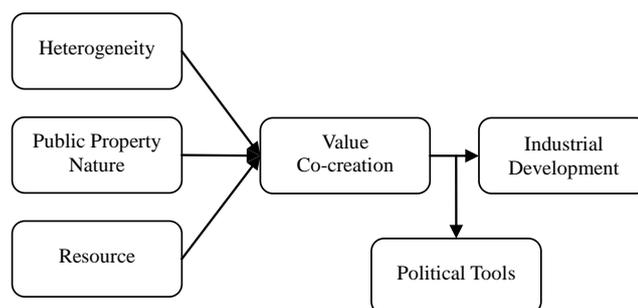
There are many successful cases by industry-government-academy model, but also exists some cases failed because of lacking complementary specialties among three parts in the cooperation. Through interview and data we collected, we can conclude from the cases that the key factor of reaching this public-privacy cooperation is heterogeneity and public property. First, heterogeneity existing in three parts has great influence to value co-creation, especially when there exists risk selection in the cooperation, the action of free-riding behavior can easily occur, which causes social dilemma [15]. At that moment, the success of value co-creation depends on whether the government adjusts these heterogeneity and resources with proper management mechanism. Public property can probably cause the dilemma between jointly supplies and free-riding action. Jointly supplied can bring benefits for all partners, but free-riding action will hurt each other and cause social problems. Therefore, if partnership of each sector in the company can make good use of public property and play a role in it, the company will begin the process of value co-creation. Otherwise, the cooperation relationship will break because of the loss of trust.

Through the cases above, we found that the three parts, government sector represented by Ministry of Science and Technology, Research Network Center and Pili International Multi-media Co., Ltd have their own interests and demand. For example, Pili Company focuses on obtaining economic interests, which conforms to the target that the corporation develops and goes for profit. However, the Ministry of Science and Technology also goes for economic interests, the most important thing are inherit of culture tradition and active demonstration significance that the success of industry upgrade brought for future corporation transition development. As to Research Network Center, it doesn't care for the economic interests, so it can pay more attention to the development of technology. In the cooperation, removing the prejudice and accepting heterogeneity motivation, the three parts put the 3D glove puppetry on the screen, achieving 0.7 billion New Taiwan Currency in China Mainland, Taiwan, Macao and Hong Kong, including more than theaters in first-tier cities, second-tier cities and third-tier cities in China Mainland and over 70 theaters in Taiwan.

Besides, the biggest attention we should pay to: after the cooperation of government, Pili Company and Research Network Center, why this industry-government-academy cooperation can reach value creation and becomes a successful case.

That's mainly because government has its power, strong ability of resources deploy and the ability of using policy tools in every period. Before the cooperation of the three parts, the Ministry of Science and Technology has realized that in the background of scientific knowledge economy, if we want to drive the development of cultural creation industries, help the corporation transition and seek for new benefit growth points, high-tech should offer support and provide different scientific plans which lay foundation for the cooperation. However, when the three parts reached cooperation intention about experiment film and was ready to get down working, they got into trouble of capitals and talented person. At that moment, the investment of Pili International Company in 3D glove puppetry was higher than expectation, and the leaders of this company had no confidence in the market prospect of 3D glove puppetry as well as the crisis of investment. However, though there were a lot of high-end technical personnel, they knew little about glove puppetry, so when they made post-processing to the action, they cannot reach ideal result. Then, Ministry of Science and Technology decided to develop special action effect with the help of number complement plan and invited Hollywood experts, which helped to solve the problem of funds and personnel. Before showing the film, the government made every effort to propagandize for it and put forward intellectual property law to offer strong guarantee to protect traditional culture. So we can see that the government has played an important role and chosen correct policy tool in every period, leading to the success of this cooperation.

According to the case of cooperation of government sector represented by Ministry of Science and Technology, Research Network Center and Pili International Multi-media Co., Ltd and some theories above such as value strategy, value creation and policy tools. This research mainly emphasizes that the three parts, government, cultural creators and academic institutions should cooperate with each other, and government chose proper policy tools in every period to adjust this cooperation. This paper has built the research framework in the following:



Constructive Framework

## 7. Conclusions and Inspiration

This research center has studied the case of 3D glove puppetry released by the combination of technology and cultural creation. Pili International Multi-media Co., Ltd. is combined with Taiwan government and Research Network Center has built industry-government-academy relationship to discuss the heterogeneity, public property and the ability to balance assets of the three parties during the process of cooperation. And then proceed to the key step of complementary resources and approach to value creation with the help of proper policies, and finally contribute to the cultural creative industry transformation. Besides, this research has put forward concept research frame co-created by industry-government-academy under the guidance of government policies during every period, as well as discussing the specialty and value in the cooperation.

The inspiration of this research is that in the background that Taiwan government wants to help develop traditional culture by scientific policies, take the case of industry-government-academy three parts cooperation as research point, to make sure that the cooperation can only be generated when the heterogeneity, public property and resources are complement to each other. However, when the cooperation is facing problems, they will also achieve creative value under appropriate policy guidance. This research also suggest us that if we want to achieve creative value successfully, the first issue we should mention is to choose the key resources complementary partners, and the government should adhere to the dynamics of science policy tools and the matching relation of cooperation patterns. Only through these efforts, the industry-government-academy three parts can obtain considerate profits and help cultural creative industry enter the market quickly and gain certain status. Furthermore, these efforts will also help research institutions gain a better reputation when they face the outside

cooperation, and the government can win public praise as well. And finally, this research will guide the Chinese mainland to help develop cultural creative industry and provide the reference for proper science policies.

The deficiency of this research is the interview of case study and collection of data. On account of condition limits, the interview conclusion from government is mainly paraphrased from data, so in the future research, we can try to contact with relative people to get exact information and rich research results. What's more, for the strength of the policy tools used, if we can develop a chart of policy intensive quantity and value creation, and indicate the peak point (e.g. in which period the peak of tool choice—value creation occurs) and possible influences, we can see how the selected policies affect the value creation made by cooperate partners in different period.

## Acknowledgements

This work was supported by the project of “innovative working method: important method, tool integration and demonstration project of science policy research task” of China Science Ministry Nos.2013IM010100 (2013.7-2016.6).

## References

- [1] Lawrence, T.B. and Phillips, N. (2002) Understanding Cultural Industries. *Journal of Management Inquiry*, **11**, 430-441. <http://dx.doi.org/10.1177/1056492602238852>
- [2] Townley, B., Beech, N. and McKinlay, A. (2009) Managing in the Creative Industries: Managing the Motley Crew. *Human Relations*, **62**, 939-962. <http://dx.doi.org/10.1177/0018726709335542>
- [3] Liu, H.R. and Chen, F.X. (2011) Opportunities of Taiwan Cultural Creation Industry—Inspection of and Suggestions for Cultural Creation Industry in Nantou Senior Research Institution Park. *Academic Journal of Taiwan Administration*, **9**, 23-42.
- [4] Feng, G.H., Dai, S.Q. and Lai, W.S. (2013) Value Co-Creation of Local Cultural Creation Industry. *Academic Journal of Dongwu Economic Business Science*, **82**, 1-33.
- [5] Ockham, J. (2013) Art and Creative Industry. Central Compilation & Translation Press, Beijing.
- [6] Wu, Q.Y. (2010) Distinguishing of Concepts about Cultural Creation Industry. *Economist*, **8**, 57-58.
- [7] Liao, S.Z., Zhang, D.Y., Li, Y., et al. (2002) The Influence of Koinning WTO on Beijing Cultural Industry.
- [8] Xu, X.H. (1987) Several Problems about Researches of Technological Policies. *Science and Technology Management Research*, **1**.
- [9] Hu, H.L. (2014) Indicators for the Rational Development of Cultural Industry—Construction of Indicator System for Development of China's Guidance-Oriented Cultural Industry. *Academic Journal of Shanghai Jiaotong University: (Philosophy and Social Science Edition)*, **22**, 82-87.
- [10] Mao, L., Xie, F.J. and Song, Y.M. (2014) Analysis of Policies about Clustering Cultural Creation Industry from the Perspective of Evolution. *Technical Progress and Countermeasures*, **31**, 88-91.
- [11] Liang, R.B. (2011) Brief Exploration of the Development of Taiwan Cultural Creation Industry. *Taiwan Research*, **3**.
- [12] Xu, X.H. (1987) Several Problems about Researches of Technological Policies. *Science and Technology Management Research*, **1**.
- [13] Yin, R. (1994) Case Study Research: Design and Methods. Sage, Beverly Hills.
- [14] Eliadis, P., Margaret, M.H. and Howleft, M., Eds. (2004) Designing Government: From Instruments to Government. McGill-Queen's University Press, Montreal.
- [15] McCarter, M.W., Mahoney, J.T. and North Craft, G.B. (2011) Testing the Waters: How Collective Real Options Manage the Social Dilemma of Strategic Alliances. *Academy of Management Review*, **36**, 621-640.