



# Digital Technology is Used for the Innovative Inheritance Research of Meishan Nuo Opera

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**Abstract.** As a large number of visual culture has entered people's lives, the traditional drama such as Meishan Nuo Opera, which is restricted by the performance and viewing conditions, has been given an unprecedented impact. Meishan Nuo Opera as one of the national intangible cultural heritage, the urgent need of new path, new methods to realize the protection of endangered records and inheritance innovation, and digital technology as the carrier of intangible cultural heritage inheritance and transmission, With more novel forms and more advanced technologies, greater possibilities for innovative inheritance. This study focuses on Meishan Nuo Opera, and then combines the new digital technology brought by the current technology, discusses the protection and development methods, applies the digital technology to explore the technical art protection and inheritance of Meishan Nuo Opera; conducts experimental digital innovation, constructs the digital technology protection and inheritance innovation system, and proves the practical role of digital technology in the intangible cultural heritage.

**Keywords:** Meishan Nuo Opera · Digital Technology · Innovation · Protection and Development

## 1 Introduction

Intangible cultural heritage needs to actively integrate into modern life and modern aesthetics, and it is particularly important to use digital technology for the creative transformation and innovative development of Meishan Nuo Opera. Since the eighteenth congress, the government emphasizes to strengthen cultural innovation, the innovation in the position of the global national development, the party's twenty great report to the prosperity of cultural undertakings and cultural industry make important deployment, put forward the implementation of the national cultural digital strategy, adhere to the people as the center, better promote the depth of science and technology and cultural fusion, promote cultural digital construction towards a new level, make cultural digital achievements benefit all the people. Meishan nuo play is a fusion of thousands of years of ancient Meishan area of religious culture and folk art, is the local customs, way of life, religious belief, a refraction of folk culture, how to use the latest digital information and technology and virtual reality technology to strengthen the protection of intangible cultural form is worthy of social concern.

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## 2 The Protection Status Quo of Meishan Nuo Opera

Nuo Opera (Meishan Nuo Opera), also known as Nuo Dance, is a traditional drama in central Hunan province, and it is one of the national intangible cultural heritage [1]. It is a representative of the local cultural characteristics of Meishan. Local people use this Nuo Opera activity to pray, seek for children and exorcise evil spirits. The presentation of Nuo Opera and dance is also a beautiful spiritual sustenance for people. Meishan Nuo opera from the folk, faces insufficient protection, lack of talent, skill fault, consciousness, limited channels, and many other problems, the existing main content of Meishan nuo opera performance has road, bridge, Break through the thorns and create the world, such as story, the main purpose of nuo opera performance is fortune, fortune, to disaster, to disease nuo play comprehensive vividly recorded the southern primitive ethnic traditional production and life, its research value can make people understand the essence of traditional culture, with local characteristics [2]. The Meishan nuo opera folk artists of nuo opera inheritance is given priority to, the lack of written data and audio and video data, in this state of inheritance is difficult to achieve the ultimate pursuit of the original effect, in view of the particularity and limitations of Meishan nuo opera, Meishan nuo opera on the verge of dying existing fact, how to apply digital technology to protect Meishan nuo opera, make its unique artistic value to glow, gradually become the focus of the industry research.

## 3 The Advantages of Digital Technology in the Protection and Inheritance of Meishan Nuo Opera

The digital technology of the intangible cultural heritage is mainly reflected in the database technology, digital image technology, virtual reality technology, augmented reality technology, digital animation technology, motion capture technology, 3D technology, etc. [3, 4]. In the protection and inheritance of Meishan Nuo Opera, digital technology can promote the innovation of its \_ mode, shoot Meishan Nuo Opera documentaries and other forms, and refresh the cultural communication mode of Meishan Nuo Opera. The combination of Meishan Nuo Opera and digital video recording also have certain cultural value. Only by integrating cultural elements into it, integrating them with culture, and developing its cultural value, can science and technology gain an enduring impetus for development. Now the world's emerging industries such as digital films, digital museums and other industries are seizing this opportunity to develop gradually developed, and various emerging industries begin to appear, perfectly integrating science and technology with traditional culture, bringing huge economic benefits to the society and driving the development of the local economy [5, 6].

## 4 Innovate the Digital Collection Method of Meishan Nuo Opera

Entering the modern society, with the development of computer and Internet technology, digital technology has been deeply connected to the protection of intangible cultural heritage. Only by using digital means to protect and innovate Meishan Nuo Opera in

multiple dimensions can Meishan Nuo culture be passed on. Nuo opera includes various forms, such as Nuo ceremony, Nuo dance and Nuo song, so digital technology protection is the most mature new technology means [7]. In views of the digitization of Meishan Nuo Opera, we believe that the following practices should be adopted:

A. Use digital photography technology to protect the characters, costumes and scenes of Meishan Nuo Opera. [8]; various characters in Meishan Nuo Opera have unique shapes, and most Nuo Opera performers should wear formal Taoist costumes and specific masks (also known as Nuo masks). Can uses full digital camera for the Meishan Nuo play costume form structure of digital collection, clothing on fine patterns and conformation law nuclear culture connotation, form image database, and will collect good pictures based on the role of Meishan nuo play modelling sorting, on the basis of image digital library of text sorting, in the formation of text data. Meishan Nuo Opera costume belongs to the costume, which mainly explains the role. The content of the drama costume is diverse, and the digital photography technology is used to retain the inherent traditional characteristic culture of Meishan Nuo Opera.

B. Digital image technology is used to protect the props production process, stage arrangement and operation techniques of Meishan Nuo Opera. Traditional Meishan nuo play props production process tedious, need to multiple processing of nuo mask, for this situation must use a camera to the veteran Meishan nuo mask production process is recorded, and in the later digital editing, with text or three-dimensional diagram for each step, to ensure the protection of traditional technology; The performances of Meishan Nuo Opera include a variety of artistic forms. The dance movements of Meishan Nuo Opera come from the daily work of farmers, which is very pure, revealing a strong life atmosphere. There are “Moving to open the Mountain”, “Moving to move the Land”, “Monk”, “Farming”, “Moving to move the Saw Man”, “Beach Nuo Lion Dance” and so on [9]. With the changes of times and population, some plays are no longer circulated, so it is necessary to complete their images with cameras to ensure the integrity of Meishan Nuo Opera culture.

C. With digital recording technology of Meishan Nuo Opera singing protection the record: Meishan nuo play performance is through music the melody, body movements, mouth and nasal pronunciation environment interaction and other elements fusion to convey Meishan culture, Meishan Nuo Opera record Meishan regional cultural characteristics, regional characteristics, its singing high and graceful, according to different voice, tunes, characters are humanized local ancestors, voice, dialogue, humorous humor, with folk songs, minor, rhymes, life interest. Using split track recording technology, different instruments are recorded by track and later mixed, so that they can produce a sense of reality surrounded by music, and the original sound of the performance is vividly reproduced realistically.

## **5 Innovate the Data Storage Method of Meishan Nuo Opera Data**

To realize the three-dimensional knowledge organization, management and display of intangible cultural heritage knowledge, a series of information technologies such as related data technology and geographic information system can be applied to the digital

[10] of intangible cultural heritage work. Meishan traditional Nuo opera connotation is endangered, because it is long, these too backward protection method in the process of worship activities, both scales or popularity has not achieved satisfactory effect, digital storage than the traditional way to store more information, using text, recording, video and digital multimedia and other forms of Meishan Nuo opera inheritance (group) folk culture a real, systematic and comprehensive records and collect the whole different forms of carrier records, such as audio and video file records, paper file records and digital images. Meishan Nuo opera digital will inevitably experience digital acquisition, digital sorting and digital platform construction, so began to use digital input records, digital photography, laser scanning, modeling, rendering to collect materials to archive [11], establish a complete, diverse Meishan nuo play archives database, and using network multimedia technology by digital database, finally by establishing “hidden” + interaction of Meishan nuo culture library to realize the digital protection, development and utilization. See Fig. 1.

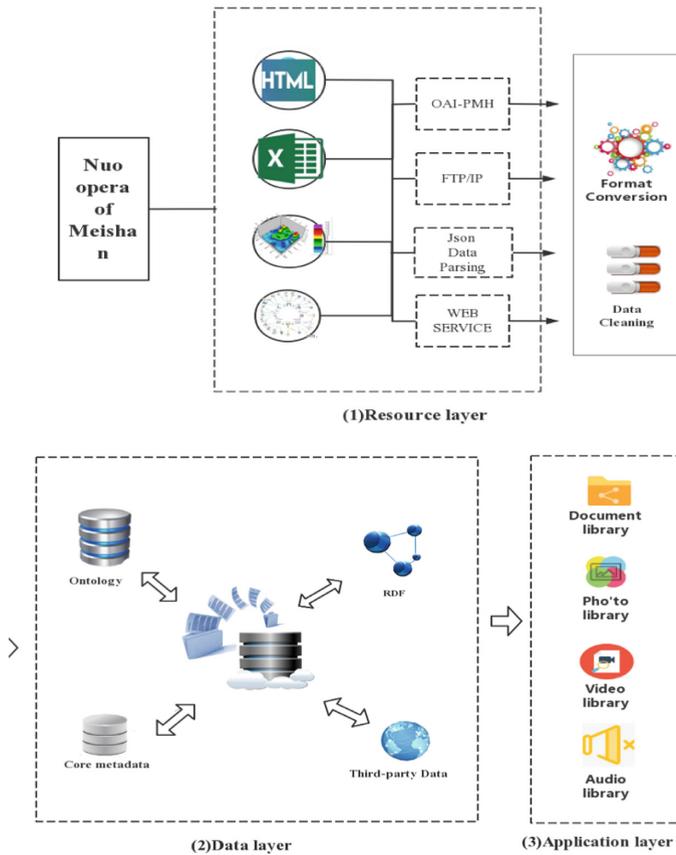


Fig. 1. Storage model diagram of Meishan Nuo Opera digital technology

## 6 Innovative Digital Display Design of Meishan Nuo Opera

Meishan Nuo Opera is an activity displayed at a specific period, it is currently exhibited mainly in the form of performances, the modes of communication involved are TV, specific multimedia platforms, a small audience group, The scope and effect of transmission are not very ideal, using digital technology to disseminate intangible cultural heritage images, can attract the attention of many generations of young people to Meishan Nuo culture, The way of digital dissemination of intangible cultural heritage activities is diversified, for example, the Digital Intangible Cultural Heritage Exhibition Museum, Meishan Nuo Opera all film technology performance, There are also the AR/VR experience of Nuo Opera culture theme and multimedia projection display [12], through fashion technology and digital interaction to feel the historical and cultural factors, strengthening the bold interaction between audience and traditional culture, deepen the cognition of Meishan Nuo Opera, continue to expand the dissemination of traditional culture ways. See Fig. 2.

Meishan Nuo Opera belongs to a kind of performing art, in the text library, the picture library, the video library, audio library, the action library and the model library for data management storage and management at the same time, need a multiple way to display, such as traditional information display type, mechanical control display type, interactive touch screen display type sensor display type, virtual reality display type, etc., Through these ways to let people’s perception experience more real.

A. Innovative application of digital animation of Meishan Nuo Opera. In the traditional intangible an infirm, recording video, audio is the mainstream method, but the video to viewing Angle and great limit, the audience is difficult to see the performance of the subtle action, and recording quantity, recording technology and recording equipment quality will affect its effect, so can combine digital animation of Meishan Nuo Opera innovation. Meishan Nuo Opera extremely rich folk art characteristics, it has a profound cultural connotation and unique artistic modelling, if the Meishan Nuo Opera language further study and refining, through the computer draws two dimensional or three dimensional Meishan Nuo Opera modelling, and add material, binding animation bone action, with rich scenes, made into two-dimensional or three dimensional animation, let Meishan Nuo Opera with a new state, and then out of a national culture animation industry development road, this is very worth our study. The animation of Meishan Nuo Opera

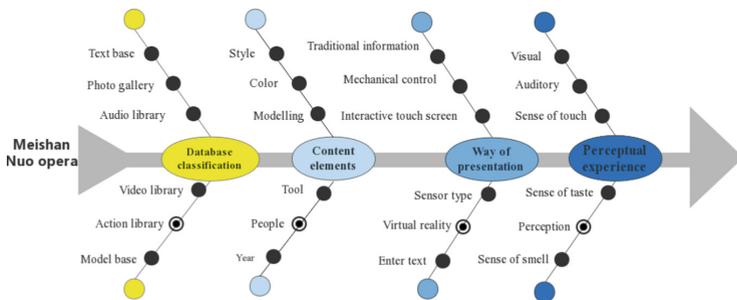


Fig. 2. Meishan Nuo Opera digital display and design the model diagram

will play a very important role in the integration of culture and technology, as well as the exchange and integration of Chinese national culture and world culture.

B, combined with virtual reality technology (VR) of Meishan Nuo Opera innovation: virtual reality technology (VR) is the use of computer system to generate a simulation environment, evolved from digital technology, broke the traditional computer technology plane limit, make the user immersed in the environment, let the project bring strong visual impact [13]. The interaction and multi-perception of virtual reality can make the scenes restored to the virtual scene through the engine unity, and can also interact with the scenes in the virtual scene through the corresponding interactive equipment. Combining Meishan Nuo Opera with virtual reality can realize human-computer interaction. The audience can experience Meishan Nuo Opera in an immersive way, and interacting with Nuo Opera in the virtual world can restore and reconstruct the collective memory, so as to deepen the cognition of the cultural connotation of Meishan Nuo Opera.

C. Innovate Meishan Nuo Opera combined with augmented reality technology (AR): augmented reality technology (AR) is also known as “immersive technology”. The sound, color and visual images presented by VR devices make users completely immersed in the virtual world. The characteristics embodied by AR are the combination of virtual and real conditions, real-time interaction, and 3D registration, which superposition the virtual information on the real information, providing people with an experience beyond the feelings of the real world. For example, AR Nuo Opera can be set: AR technology can be combined with the plot of Meishan Nuo Opera, with Meishan Nuo Opera characters as characters, and develop reality Nuo Opera experience combined with the real environment. AR reading: Make the graphics of Meishan Nuo Opera into AR picture books. After opening the book, scan the books through the specific APP of mobile devices such as mobile phones. At this time, the characters in the picture book will generate a three-dimensional image on the screen of the mobile terminal. See Fig. 3.

D. Innovation in the communication of Meishan Nuo Opera combined with the new media platform: In recent years, VR, AR, blockchain, cloud universe and other new technologies have been continuously applied in the cultural field. Online performances and “cloud” viewing exhibitions, and interactive cultural experience have become the norm. Now has become an indispensable part of the public daily life learning, the Meishan Nuo Opera digital records or made cartoons on the short video platform, liberated the Meishan Nuo Opera inherent performance, no longer subject to venue and performance

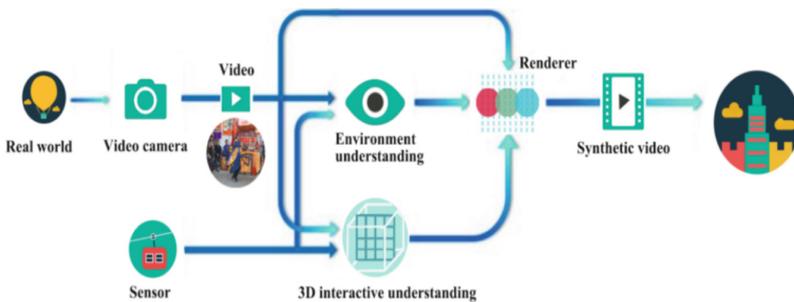


Fig. 3. Digital technology path of Meishan Nuo Opera VR/AR

time, people can watch Meishan Nuo Opera on video multimedia platform anytime and anywhere, stimulate the interest of participants and auxiliary visit effect, promoting the spread of Meishan Nuo Opera has a huge role.

## 7 Conclusion

Technology in the digital age enables intangible cultural heritage. Using intelligent tools, new technologies, intelligent technologies and cloud computing technologies are organically integrated into the spread of intangible cultural heritage. The future life trend will be more switched between virtual and reality. Digital technology breakthrough space design, is also an important means to perfect the brigade production chain, Meishan traditional Nuo opera is the treasure of Hunan culture, is a bright pearl in the history of Hunan, with the help of creative transformation, mining potential of science and technology, promote the sharing, realize the future digital protection, utilization and development. The digitalization of Meishan culture has more rich scientific connotation, and will also expand more diversified, more refined and more vivid application scenarios. With the scientific application of digital thinking, the traditional Nuo Opera of Meishan is a “living fossil” alive, which can gradually synchronize with the development and gradually integrate into people’s daily life.

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