



Statistical Thinking and New Forms of Contemporary Art under the Background of Big Data

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Abstract: Currently, the rapid emergence of the digital economy has spawned the arrival of the era of big data. With the rapid development of science and technology, Chinese has also entered the era of big data for contemporary art. The engagement of big data in every aspect of our life has begun to influence the development process of Chinese contemporary art, which has also begun to shape a new form of Chinese contemporary art, with many creation modes emerging at home and abroad. The influence of the era of big data is first reflected in many aspects, such as digital art media, art collection and trading market, art management education, etc. In some colleges and universities, design disciplines, such as art and technology, digital media art and interactive design, have emerged to meet the needs of the development of contemporary science and technology and art. They are new forms of art expression at the historic moment with great development prospects and possibilities. This paper mainly studies the influence and change of the development of big data on the contemporary art world, how they change, integrate and develop, and evaluates the value of statistical thinking under the background of big data and the new form of contemporary art.

Keywords: big data statistics, artistic value, trend of the times

1. Introduction

To study and analyze the influence of statistical thinking on artworks under the background of big data and the possibility of market development. The commercial development of artworks value from galleries to auction houses to online development see the changes brought by the times to the art industry. This paper analyzes the changes and possibilities of artworks under the background of contemporary big data statistics.

Big data statistics is the science and art of data collection and analysis. It is a specific branch of mathematics, and it is a discipline that collects and analyzes data with random influence in an effective way. At the same time, it has strong application in various fields. It studies how to effectively collect, sort out and analyze the random big data, and make inferences and predictions on the issues under consideration until it can provide basis and suggestions for decisions and actions.

"Big data is a concept that originated on the Internet, which has the characteristics of magnanimity, fast growth, multiple types with more and more unstructured data (that is, text, image, sound and other data not convenient to use the database two-dimensional logical table for expression of the data), various sources, large-scale processing and timely response, high value but low density (that is, low proportion of valuable data behind massive data) and so on. Just as the telescope allows us to experience the universe and the microscope allows us to observe living things, big data is changing the way we live and understand the world[1].

For example, today's traditional print media such as newspapers and magazines rely on the transmission of information on the Internet. Most of the traditional media operate accounts on the Internet platform for publicity, which can show the relevant data and background information of the accounts, and play a role of interconnection. Due to the change of people's life pace, the digitalization of paper text and the rise of short video of information transmission online has been a common phenomenon.

There are three formats of big data: Traditional enterprise data, Machine-generated data and Social data. Except for a little Social data, these directions are basically unknown in the art industry at present.

2. Forecast the engagement of big data in the art industry

The art and technology is closely connected, mutual promoted with common development.[2]

With the development of economy, the flow of information, the rise of people's pursuit of spiritual demand and the discovery of the potential of the art market, the form of the global art market are flourishing, and art is changing from the function of collection to the function of investment. However, the return and adjustment of the Chinese art market is a driver

for auction companies to turn to a more stable marketing strategy after the ebb of large institutional capital.

With the gradual maturity and development of art trade, a series of related professions derived from gallery, broker, curator, related news media, auctioneer, publisher and appraiser have gradually emerged in the industry in order to ensure the interests of both sides of the trade. With the development of the market, these professions have been gradually systematically trained under the background of higher education. Together they make up the contemporary art industry.

First of all, the real value core of big data is summarized into a sentence, and the existing historical data is used as the basis for analysis and analysis. In the actual process, the data basis and algorithm model and other utilization scenarios are constantly verified and adjusted. The ultimate goal is to make stable and reliable prediction of the future value and trend by using the formed model and big data basis.

As far as the theoretical discipline construction of art is concerned, the construction of big data ecology has been gradually improved regionally, but the systematic study of its combination with art management has been carried out[3]. At present, most theoretical researches related to big data are confronted to the macro level, and there are few systematic researches on the application of big data in art management. The construction of big data ecology is becoming more and more perfect, which provides favorable conditions for the innovation and development of art management from the perspective of big data, which conforms to the Program of Action for Promoting the Development of Big Data, a management mechanism of "speaking with data, making decisions with data, managing with data and innovating with data" should be established.

Unlike traditional data processing, which is based on sample data and strives to answer the question "why", big data processing is based on huge amounts of "total" data and focuses on answering "what".[4] As British big data expert Victor Mayer-Hornberg once said, the core of big data is prediction.

"We can no longer rely on empirical judgment to make investments. We can rely on empirical judgment to analyze and collate accurate, large, and trending data so that we can survive." Said Mr. Liu, the art investor. We want to make data into services because big data is so useful. Data reflects the situation of the whole market from another level, and the importance of data has become very indispensable in modern times.

In practical application, compared with other industries, the most unique point of the art industry is the difference between works of art and other ordinary commodities. The value of works of art cannot be evaluated by the existing methods of other industries. Each work of art is an isolated product and cannot be reproduced, and its own value is largely influenced by the creator.

Ordinary life commodities are often reproducible, relying on a variety of production machines to achieve maximum quantitative production. They have different commodity attributes and therefore different methods of doing business. The real value of art can be almost equal to collection and investment, so the value of big data in the art industry may only lie in value prediction.

When big data is combined with art works, what kind of changes will happen to art works? After big data has fully intervened in the art industry. We can make big data statistical prediction for any artist, artwork or art industry. After an auction, for example, we can predict how high the price of the same kind of art will go next time. What is the holding value? What is the price going to do in some time period in the future?

Works of art are statistical with real big data, so that people can rationally analyze whether they want to collect or invest in works of art based on these data. The art industry has become a quantifiable standard, and the information is transparent and open about whether an artist engaged in the production of a certain work of art has investable value. It's a beautiful, scary scenario.

But such an idea, we can only start at the preliminary stage, the road will be quite far. The concept of big data statistics itself is a struggle against thousands of years of experience in the art industry. Perhaps only through big data can the information that has been operated for several decades by galleries, experienced art investors or auction houses have the vision and experience to weigh become a quantitative standard of value, which is enough to change the industry. Only from the one-sided judgment of the value of the art. So, assuming that these methods are implemented, there are several problems.

2.1 Advantages of the statistics of big data on artworks

Big data is bound to have a great impact on the art industry. Even the most traditional works of art are controlled by the environment, and from the perspective of science and technology, this impact has already begun.

The unit price of artworks is generally exorbitant in price, and most of them are private individuals, so it is bound to be an industry with highly asymmetric information. The primary market represented by galleries is relatively closed, and buyers may encounter the starting price, so it is relatively difficult to make an accurate judgment. Therefore, many people will say that the industry is very complicated, assuming that all artworks are covered by big data statistics. By obtaining data, collectors can get rid of the problem of information asymmetry and avoid being cheated and subjected to the industry's shady

markups.

On the other hand, the relative galleries and art gas stations can make clear of the industry through data statistics to carry out reasonable valuation. The Internet does have the potential to transform the industry, but the logic of its business is based on breaking one type of information asymmetry while building another.

For example, through big data statistics, users' preferences and needs can be understood, and then some artists may create works for them. In this way, a new "industrial chain" will be formed.

artnet.com, a website that makes money by selling information about artists and art, aggregates hundreds of thousands of artists and tens of millions of auction records through a very traditional manual collation.

Through the statistical trading data on Artnet website, various changes in the art market can be analyzed, and the changing rules can be obtained by classifying the same types of works. After the rapid growth of China's art market after the reform and opening up, many Internet big data methods have to be used to intervene in the art market. Through the data analysis of various platforms, we can observe the value degree of artworks and analyze the trend of artworks from this perspective, so as to provide effective and scientific research methods for this market and make the art market more transparent.

Shanghai Bojue Culture and Art Development Co., Ltd. insists on measuring and judging the investment value of artworks from the perspective of big data analysis so as to control the certainty of each investment target for investors. Through the comprehensive data analysis of 570,000 artists around the world, the Bojue Art Asset Management project team first locked the time section, work type and price range of the global investable artworks.

When it comes to art auction, although the era of data statistics has come, and all major auction houses and banks will use or refer to the art index, big data is not omnipotent. Big data relies on a huge database, which implies a change in the way of calculation and thinking. However, in reality, there are errors, false and other "traps" in the samples sampled, which cannot be solved simply by relying on larger, newer and faster data.

The contemporary Internet industry also has great integrated functions for this industry. Many artists and creators have opened social accounts to release their works directly on social platforms to let more people know about them, and they can also directly conduct online transactions. Especially with the change of lifestyle, many galleries have opened social media to announce relevant information of auctions for dissemination.

2.2 Problems encountered

There are many problems in China's art data: There is no authoritative large-scale art trading website in China, the transactions are scattered, the data are incomplete, and private individual transactions are the main ones, which is highly private. Almost all artists will report their annual work sales and income to any organization or institution, and the agency will not disclose the truth to the outside world in order to evade taxes. On the other hand, the secondary market is made up of companies and large auctions, whose data are well documented and easy to use as data, but they still need to be classified according to the factions of the works.

There are also fakes and counterfeits in the art industry, which prove to be with a lot of moisture and bubbles. If it is not checked out in the process, the authenticity of the industry data will be greatly reduced. The commercial nature of the data compilation institutions themselves and the way of establishing the calculation model also affect the objectivity, fairness and professionalism of the data itself.

"The art data based data can be collected in a clean or suspicious and even and spam manner." Clean data is accurate data that has been cleaned up in a timely manner, while dubious data and junk data are questionable and useless data respectively."Kondada said the data was provided by auction companies, but it was only initial data, with a lot of hard to judge junk mixed in.

2.3 Missing of a large number of historical data

As there is no unified trading market for Chinese artworks, the trading places are scattered and relatively regional, among which the disclosure of trading information is scattered and unsystematic. In order to make a big data analysis of artworks, we were confronted with the loss of a large number of historical data, and even with historical issues. Besides, there is a huge cost of labor and time input and extremely complex calculation and statistics process. In the face of extremely complex calculation and statistics, many aspects will not be able to be calculated. For example, how to determine the value of this work based on the story and meaning behind it? How will the history it represents be as fairly valued as possible?

2.4 Establishment of algorithm model

The value utilization of all big data requires the establishment of algorithm models in the process of prediction and analysis, such as the popular research report on population flow during the Spring Festival Travel Rush[5], etc. If the prediction of the third stage is involved, the establishment of big data must be achieved based on algorithm models. For example, the

big data [6] model of Japan's Disneyland in predicting the flow of people is introduced. The reference dimension is detailed. In the case of historical data analysis, the weather, the surrounding traffic, the holding cycle of other activities in the city, holiday information, the birthday and age information of the city's resident population are all taken into account through the algorithm model. Finally, we can make a prediction of the flow of people in the next few days.

If the art industry can achieve the statistical prediction of the value of big data, such as the mainstream intention of art consumers, the development of the industry, the popularity of category collection, the distribution of artists' industry categories, the situation of major auction houses in spring and autumn, the flow and trading volume of artworks in small auction houses, the investment bias of galleries and investment self-purchase, and even the industry premium, uncontrollable and controllable factors such as resale premium during the acquisition need to be included in the statistics. Even without in-depth implementation, it can be seen at a glance that the factors will affect the final result. The algorithm and logic of this relationship, through a long time to verify and their own practitioners to figure out things, and the evaluation standards are vague, can not be really put into implementation.

2.5 Industry exclusion

This is a problem that most other industries will not encounter, but it is a serious problem. Big data statistics will have a huge impact on the art industry, especially the art industry itself can not be measured with the surface of the basic value, the exclusion of the industry will be an inevitable and very realistic problem.

If it were true that an authoritative body had issued a report to auction houses telling them that the value of Wang Xizhi's calligraphy would decline over the next five years, and that they should not buy or invest in it, how likely would the auction houses have believed that report given the current industry environment? It is in the hands of the auction houses that much of the value of the industry lies.

Moreover, even if the auction bank trusts this forecast result, how much will the industry accept it? What will the artists in the purple clay pot industry think about it? The difference between the value utilization of big data in the art industry and the traditional Internet industry is that the big data in the Internet industry is to explore things that no one can see for everyone to use, while the results of big data mining and analysis in the art industry will damage the interests of some people. Art is not a machine assembly line. The reason why it is called art is that it carries the experience and emotion invested by designers and artists, which cannot be measured by big data.

2.6 Is big data really suitable to get involved in the art industry?

Many people say that big data is the third industrial revolution. If big data is completely involved in the art industry, it will not only change the industry, but also change people's aesthetic value.

In order to estimate the future market of art market, it is necessary to conduct in-depth research on the preferences of mainstream art consumers, national supporting policies, industry development, types of artists, classification of works, the situation of major auction houses in spring and autumn, the flow and trading volume of artworks in small auction houses, gallery and investment self-purchase investment bias, market saturation capacity and so on.

In order to make the art industry to operate based on quantifiable standards, the above possibilities I mentioned are only preliminary predictions. We have no way to grasp the actual situation we will encounter. We can only avoid bad things as far as possible according to the existing situation.

Originally, we went to buy a painting, just because I like it, and the price is acceptable, then what about the future? Perhaps due to the quantification of the standard, any work of art is clearly priced and its future value is analyzed, which has become the most common commodity. People are willing to invest in those with obvious returns. However, when you meet a work that you like very much, but the industry predicts that its value will continue to decline in the next few years through big data analysis, will you still buy it? People are not pure in the face of their heart, people no longer treat the art for the sake of beauty, which is itself a sad thing.

3. Conclusion

It is not feasible to analyze the value of all artworks by data. Then, is there a way to make artworks conform to the changes of the times while preserving the characteristics of artworks without destroying them?

Generally speaking, works of art can be divided into two categories. One is commercial works of art. Statistical analysis of big data enables artists and designers to better understand the preferences and demands of the public, which makes the art trade requiring commercial operation more reasonable and reliable. They can also evaluate the market and their own works, and sell them on public platforms. Buyers can compare the price with the modern trend, and the price is transparent to ensure the authenticity. The second category is those works of art with real collection value, whose value cannot be measured by

production cost. They can exist independently from big data statistics and need the attention of those who appreciate them without too much commercial interference.

While collecting and analyzing historical data, the art industry can release relevant reports, industry status and trends based on the current situation in the industry environment, and provide partial guiding opinions and partial suggestions to the companies and individuals engaged in the industry, rather than really quantifying the art industry and the concept of beauty.

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