Smart City Enabled by Outdoor Advertising under Intelligent Technology

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Abstract

The ever-improving artificial intelligence technology is increasingly integrated into the content production of outdoor advertising. From consumer insight, creative production to creative optimization, the integration of technology and outdoor media forms is getting deeper and deeper. "Smart city refers to the use of advanced information technology to realize the intelligent management and operation of the city, thereby creating a better life for people in the city and promoting the harmonious and sustainable growth of the city. "New revolutionary technologies such as big data, cloud computing, Internet of things and artificial intelligence are changing our media form, marketing environment and consumers' aesthetics and acceptance. The wide application of information intelligence is changing the traditional advertising operation mode. This paper discusses the communication value of outdoor advertising in the construction of smart city from the aspects of artificial intelligence technology, landscape effect of outdoor advertising, interactive technology and the application of big data.

Keywords

Intelligent Technology; Outdoor Advertising; Empowering Smart Cities.

1. Introduction

In recent years, with the emergence of smart transportation, smart community, smart medical care, smart tourism and smart education in cities, the construction of smart cities is in full swing and thriving. With the rapid development and commercialization of artificial intelligence technology, using artificial intelligence technology to enhance the function and performance of smart city applications and enhance the user experience has become a wide demand of smart city application providers [2]. The ever-improving artificial intelligence technology is increasingly integrated into the content production of outdoor advertising. From consumer insight, creative production to creative optimization, the integration of technology and outdoor media forms is getting deeper and deeper [3]. With the vigorous development of radio and television industry and the increasing enrichment of radio and television broadcast program content, the audience market of radio and television has prospered, and it also provides broad prospects for the advertising industry of radio and television [4]. "Smart city refers to the use of advanced information technology to realize the intelligent management and operation of the city, so as to create a better life for people in the city and promote the harmonious and sustainable growth of the city." new revolutionary technologies such as big data, cloud computing, Internet of things and artificial intelligence are changing our media form The marketing environment, consumers' aesthetics and acceptance, and the wide application of information intelligence are changing the traditional advertising operation mode [5]. To effectively monitor the broadcast content of every radio and television channel, we must be able to accurately identify the advertisements in every program without affecting the quality of the program [6]. The design ability (algorithm), calculation ability (computing power) and data processing ability (big data) are the three core elements in the development and application of artificial intelligence

technology. The level of smart city application providers in these three core elements is uneven, especially the algorithm design ability is generally weak, which affects their ability and enthusiasm in developing and using artificial intelligence services [7].

Smart city can not only reflect the informatization and efficiency of urban service and management, realize the effective integration of urban resources, but also facilitate citizens' life, realize the urban concept of human text, build an intelligent system of urban service, urban management and citizens' life, and build a smart public urban environment [8]. The government management department of radio and television advertising program supervision also puts forward a new challenge, that is, how to monitor and supervise radio and television advertising programs through effective technical means, so as to better promote the healthy and orderly development of radio and television advertising programs [9]. We should pay attention to scientific, refined and intelligent efforts, give full play to the development advantages of Shenzhen's information industry, promote the innovation of urban management means, management models and management concepts, and make the city run smarter and wiser [10].

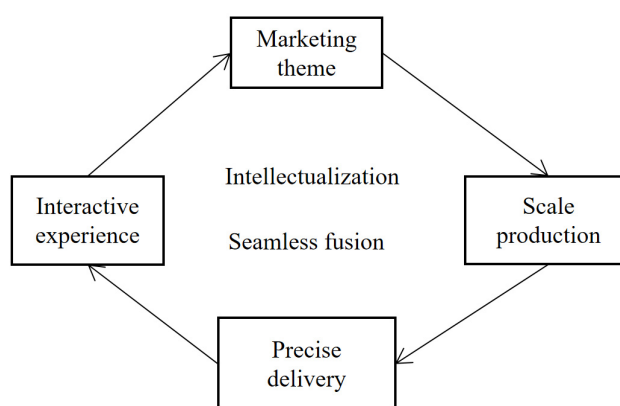## 2. Intelligent Technology Helps Outdoor Advertising Content Production

2.1. Technology Assisted Consumer Insight

The continuous progress of artificial intelligence technology is increasingly integrated into the content production of outdoor advertising. From consumer insight, creative production to creative optimization, the integration of technology and outdoor media forms is becoming more and more in-depth. Smart city applications and artificial intelligence service platforms are usually provided by different institutions, and there is no direct connection between them. Intelligent technology brings the enrichment and integration of data information, the original information selection structure has changed, and users have more initiative in the process of information dissemination and content generation. In the traditional outdoor advertising production process, marketers need to dig and design the theme of advertising content, so as to better attract and fit the target audience. Smart city application providers do not care about or provide artificial intelligence services, and smart city application users and devices directly use artificial intelligence services on the public cloud.

Intelligent technology not only enriches the channels for users to have a direct dialogue with the brand, but also speeds up the speed of information flow, which requires enterprises to respond to users' dialogue at a faster speed. In order to respond quickly, we must remove the level of manpower and reduce the time cost in the process of content production. In this kind of service mode, when a smart city application needs to use different types of AI service capabilities of multiple AI service platforms, the smart city application may need to connect to multiple AI service platforms at the same time, which will increase the complexity of the development, operation and maintenance of smart city applications. Intelligent technology is taking on this job more and more. The intervention and use of technology not only reduces the workload of marketers, but also helps consumers in outdoor marketing activities to gain more accurate and scientific insight, and improves the communication effect of outdoor advertising. The artificial intelligence service platform directly provides universal artificial intelligence services, such as speech recognition, image recognition and semantic analysis, to users in smart cities. In order to recognize in time, especially online recognition, it is required that the adopted recognition algorithm has very high efficiency. Artificial intelligence service providers can use smart city data to train, deploy and provide localized artificial intelligence services in smart cities.

2.2. Technology Helps Creative Production and Optimization

The content production of traditional outdoor advertising almost follows the creative idea of print advertising, and the deeper involvement of technology in outdoor advertising provides more possibilities for the content production of outdoor advertising. Since smart city applications and artificial intelligence services are provided by the same institutions, there will be no problems in the security and privacy protection of smart city data. With the increasing demand for intelligent urban comprehensive management and governance, the demand for joint urban multi scene analysis and deep data mining continues to expand, which requires the construction of a larger scale system, moving towards the order of 10000 or even 100000. With the rapid iteration of intelligent technology, the original media ecological map has been subverted, and the consumer's life path is being reshaped. The great changes in the marketing environment have driven the brand content marketing to be intelligent. We can explore along four paths and apply intelligent technology throughout the whole process of content marketing, as shown in Figure 1.

Figure 1. Intelligent development of brand content marketing

Digital outdoor advertising media is breaking through the content production mode of traditional outdoor advertising, relying on intelligent technology to automatically realize the production and optimization of advertising creative content, which greatly reduces the labor investment and cost. In this kind of service model, smart city applications are not only providers of artificial intelligence services, but also providers of smart city applications. Smart city applications are closely coupled with artificial intelligence services. Large-scale and comprehensive city-level data analysis scenarios will become the future development direction of smart cities. Intelligence makes the creative content of outdoor advertising more humane, and even changes people's cognition of traditional advertising a little bit.

3. The Value of Outdoor Advertising in the Construction of Smart City

3.1. The Landscape Effect of Outdoor Advertising Creates the Business Card of Smart City

The outdoor advertising media placed in the business circle and traffic crossing is the window of city image publicity. It can build and spread the city image with a strong visual image, just like the business card of City publicity and the beautician of city image. The core concept of smart city construction and dissemination is to continuously apply new technologies to create intelligent and efficient management and services, improve the quality and level of citizens' life, and truly realize the harmonious coexistence between people and the city. In the traditional advertising communication mode, all links from marketing content theme setting to

implementation are decided by marketing personnel, which is full of empirical decision-making and uncertain factors. In addition, Qingdao, Xi 'an, Nanchang and other cities have also carried out outdoor advertising cleanup activities one after another, and the development of urban outdoor advertising industry is becoming more and more standardized, which will achieve considerable development. Audience-oriented outdoor advertising and communication strategies such as interactive creativity and innovative application of media technology all highlight the intelligence and high efficiency of smart cities, and become the business card and window for the construction and dissemination of smart cities. Because this reaction is the actual behavior, its result does not act on the mimetic environment caused by the stimulus, but on the real environment where the behavior actually occurs.

3.2. The Interactive Participation of Outdoor Advertising Shows the High Efficiency of Smart City

"Advertising is a good consumer adviser", and its consumer guide ability is particularly prominent. Repeated dissemination of advertising will not only stimulate consumers' interest and desire in consumption, but also affect or even change consumers' original consumption concepts and accept new consumption concepts promoted by advertising. The ultimate goal of advertising is to communicate with the audience more effectively, arouse the audience's resonance and effectively convey advertising information. With the construction of urbanization and the improvement of citizens' consumption level, more and more consumers are going outdoors, and the contact frequency and arrival rate of outdoor advertisements will increase day by day. Outdoor advertisements are more and more closely connected with citizens' lives and play an important role in citizens' daily consumption life. As the core carrier of digital economy, smart city provides an inexhaustible driving force for the innovative application of information technology in various fields of society. At the same time, the audience's participation deepens the memory and impression of advertising, effectively conveys commodity information and strengthens the publicity effect of advertising, which truly demonstrates the high efficiency of smart city. Due to the transformation from "eye effect" to "experience effect" and the increasingly prominent subjectivity of the audience, outdoor advertising creativity should not only focus on attracting the attention of the audience, but also pay attention to the participation and experience of the audience and interact with the audience.

3.3. Data Informatization of Outdoor Advertising to Create Intelligentization of Smart City

Outdoor digital billboards provide consumers with a more three-dimensional and omni-directional way of brand communication. Outdoor advertising exists in a wide space, and has natural complementarity and docking with mobile internet media. The in-depth integration of information technology and industry has not only changed the development mode of traditional industries, but also spawned more and more new economies and new formats, providing new ways and means for the construction of smart cities. In the era of mobile Internet and big data, through the built-in HD camera and 3D camera, we can capture the gender, approximate age and other data of the experimenter, accurately locate the audience, and provide a scientific basis for the brand to obtain effect feedback in time and effectively adjust the market and product strategy. In the "smart +" era, with the development of "people-oriented" intelligence and interaction such as touch technology, face recognition technology and AR technology, it is more convenient and effective to provide citizens with commodity information and traffic travel information. The technical support system with the overall platform of the new smart city as the core is a powerful force to build the technical capacity of grass-roots governance. As shown in Figure 2.
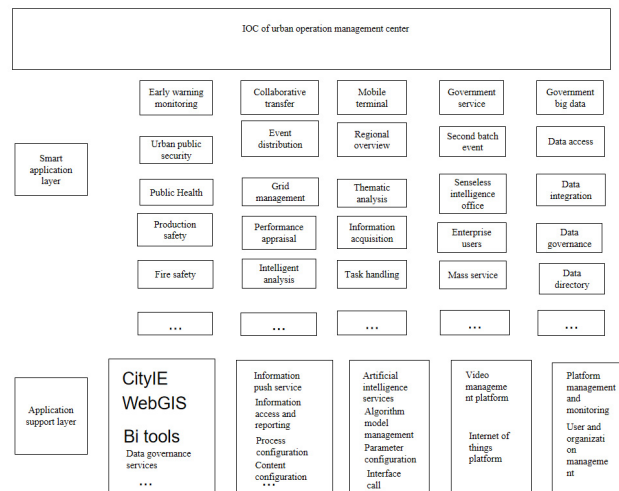
Figure 2. Overall platform of smart city

In the process of urban intelligence, while focusing on urban governance, we should also speed up the cultivation of a perfect and mature data element market system. The deep integration of external advertising and mobile media enables mobile Internet users to participate in the information diffusion and interactive experience of outdoor advertising, which can truly realize the interactivity and information dissemination of outdoor advertising in the era of mobile Internet.

4. Conclusion

To sum up, as an important link connecting cities, enterprises and citizens, outdoor advertising in the wave of smart city construction, its communication value and social role should not be underestimated. The application of artificial intelligence technologies, such as face recognition, voice recognition, natural language processing and augmented reality, has brought about changes in outdoor advertising communication in content production, media delivery and interactive experience. In the digital development environment and the emerging era of mobile internet, outdoor advertising communication needs to change its concept, always adhere to the fundamental principle of audience-oriented, adopt new technologies to interact with audience individuals, meet the preferences of the main consumer groups, and accurately position the audience. How to develop and innovate outdoor advertising in a smart city needs new thinking from the industry and academia. It improves the visual attraction of outdoor advertising and the interaction with users, provides more choices for brands to establish real-time communication with audiences, and integrates artificial intelligence technology into the field of outdoor advertising. Intelligent technology promotes the change of media form, subverts the original media ecological territory, reshapes consumers' life path, and a new intelligent technology marketing system is gradually formed. Intelligent technology promotes the transformation of traditional advertising industry. It will promote the intelligent, digital, interactive, platform and ecological development of outdoor advertising, and realize the integrated marketing value of outdoor advertising media and various online marketing. The phenomenon of smart city is creating real opportunities for the outdoor advertising industry. Similarly, outdoor advertising communication can also contribute to the construction of smart city.

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