

Experience the Design of 3D Printed Furniture Brand Websites in the Era of Economy

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Received: 26 February 2022; Accepted: 20 March 2022; Published: 31 March 2022

Abstract:

This paper analyzes the market background and development prospects of 3D printing furniture at home and abroad in the current era, expounds the advantages and characteristics of 3D printing furniture from many aspects, discusses the relevant technologies of electronic marketing websites development, and comprehensively obtains the design method of 3D printing furniture brand website and summarizes it. In the development process of furniture marketing websites, personalized recommendation technology is integrated into network sales, and software engineering ideas are adopted to analyze the entire process of network furniture sales in detail to achieve a better service and profit model. Finally, it is pointed out that with the fermentation of different fields, 3D printing technology will continue to improve its defects, and online 3D printing of modern furniture will be a very hot industry in the future.

Keywords:

Modern Furniture, 3D Printing Technology, Website Design

1. An Online Market for 3D Printing Modern Furniture in the Economic Era

1.1. Internet Platform in the Economic Era

In 2019, the term “industrial Internet” was written into the “Government Work Report of the State Council”, and its essence and core are to closely connect and integrate equipment, production lines, factories, suppliers, products, and customers through the industrial Internet platform. The two sessions officially put forward the important strategy of “smart +”, emphasizing the deepening of research and development applications such as big data and artificial intelligence, building an industrial Internet platform, and empowering the transformation and upgrading of the manufacturing industry. Based on the current policy trends of the country, the Internet platform should combine 5G technology to promote the transformation and upgrading

of the manufacturing industry, promote the application of big data in the manufacturing industry, and achieve sustainable prosperity and development.

1.2. The Current State of the Online Market for 3D Printed Furniture

3D printing technology has developed rapidly and has gradually become a new production power leading the times. With the development of 3D printing technology, the traditional furniture manufacturing process can not be broken, and it is gradually applied to furniture design. 3D printing uses powdered metal plastics and adhesive materials to make furniture by printing layer by layer. With the continuous improvement of people's quality of life, safer, greener, and more beautiful 3D printed furniture has been recognized by consumers, and 3D printing products have gradually replaced some traditional manufacturing industries.

The survey report shows that the scale of China's furniture online shopping market is constantly expanding. The office furniture market is poised to grow by USD 22.67 billion during 2020-2024, progressing at a CAGR of almost 6% during the forecast period [1]. The market size of furniture online shopping is still proliferating at a rate of 45.6% per year. Consumers buy furniture online for 31.6% of all furniture purchases, with 15% of consumers saying that online furniture purchases will account for more than half of other spendings. Under this development trend, it can be concluded that the furniture online shopping market has ushered in a new opportunity for development.

1.3. The Current Pain Points of the Furniture Market

With the rise of e-commerce, the traditional development model of China's furniture enterprises can no longer meet the rapid development of the market and the cruel market competition mode of operation. The lagging nature of marketing models is becoming increasingly prominent, and it is impossible to grasp clear market information quickly. At present, The overall degree of informatization of China's furniture enterprises is low, it is difficult to dock the market, it is difficult to quickly and effectively receive customer orders, the traditional furniture market has serious homogenization problems, poor purchase experience, production, and manufacturing links are difficult to control, etc.; in addition, there is a lack of high-quality information and intelligent solution platforms to help them achieve digital and information-based production.

1.4. The Development Prospects of 3D Printing Technology in the Current Era

3D printing website custom furniture can produce a large number of differentiated products, making up for the severe drawbacks of product homogenization in the furniture market. 3D printing technology can make the recycling of furniture easy from both technical and material aspects and has the advantages of being replaceable and recyclable. At the same time, 3D printed furniture models can be transmitted by computer, and entities can be manufactured in different places, resulting in a new production model of off-site decentralized manufacturing.

There are more and more literature discussions and case studies on 3D-printed furniture. The changing times are a turning point in the industry, young people are a group chasing the trend of personalization, and the diversity, design, and futurism of 3D printing technology cater to this demand. Customers want to be fully involved in the entire process, leading the product from idea to product delivery, and customers

are eager for more interaction rather than passively accepting the product. The updated and iterative production and marketing model will become a new model for the development of the new era. In the future, 3D printing furniture will be a very hot industry, and it will also be more closely related to the Internet big data technology.

2. The Advantages of the Era of 3D Printed Furniture

2.1. Personalization and Innovation of 3D Printed Furniture

The structure of 3D printing furniture is a complex shape that traditional technology cannot make. Customers can use the custom website and APP developed by 3D printing furniture, communicate with designers online, and communicate with designers online, offline real-time documentary and communication, to purchase their innovative furniture. Customers pursue a sense of design, personalized furniture products, and put forward higher requirements for consumer experience. The growing demand for the individualization of 3D printed furniture has made it popular to turn everyday objects into interesting works of art.

The website is a platform for customers and designers to work together, and the two sides jointly establish participatory innovation brands to customize furniture for customers. Customers can have original 3D printed furniture or share it with others. The emergence of 3D-printed furniture meets the needs of each consumer's personalized choice. Help furniture stores achieve customized orders, share design resources, and help the traditional furniture industry achieve flexible production around the user's personalized and accurate customization needs to provide diversified products and high-quality services and improve enterprise production efficiency.

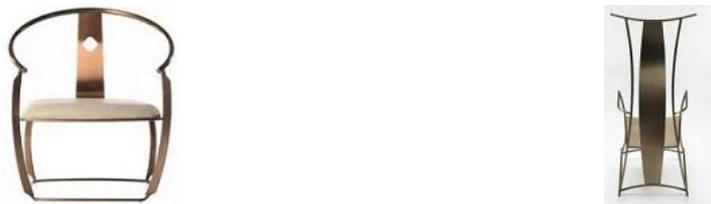


Figure 1. Furniture drawings made by 3D printing technology.

2.2. The Formal Beauty and Futuristic Sense of 3D Printed Furniture

Formal beauty mainly refers to the relative aesthetic uniqueness of the external forms presented by things. Designers should pay attention to the overall grasp, emphasize the integration and unity of each part, and use a comprehensive perspective to recognize things and emphasize the overall concept of overall unity and contrast between reality and reality [2]. The application of 3D printing technology in furniture is one of the best tools for generating surface shapes, enriching the functions of 3D printed furniture through simple, smooth lines and more thoughtful design. Under the guidance of modern science and technology, while pursuing the external coordination of furniture and the cultural connotation presented, the space, function, and combination of furniture are perfectly presented. At the same time, 3D printed furniture takes biologically inspired design as a unique design model, mirror reconstructing life to build complex forms, and furniture design can also reveal the unusual beauty and structure of living organisms, opening up unknown formal aesthetic standards [3].

Furniture design requires designers to have a modern sense of thinking that keeps pace with the times, as well as the ability to understand new things. The formal beauty of modern furniture is rich and colorful, through abstraction, generalization, exaggeration highlighted, furniture design must not only have the ability to express the form of art but also have a clear understanding and feeling of life, especially the purposeful refinement, processing, highlighting the essential characteristics of life, the modern beauty of the factors presented.

2.3. The Efficiency and Environmental Friendliness of 3D Printed Furniture

3D printing is different from the traditional processing and manufacturing process, is a typical digital manufacturing process, can be through small batch production and sales, mold opening and simplifying the overall product supply chain, etc., to achieve the integration of information technology, production equipment, with the gradual maturity and development of technology, 3D printing has shifted from research and development to industrial applications, is breaking the industry's restrictive barriers, in recent years, with a large number of traditional manufacturing enterprises into the field of additive manufacturing, the 3D printing industry ushered in a big change.

At present, the traditional furniture process is mass manufacturing, consuming a lot of materials. However, the use of 3D printing technology can simplify mold making and other processes, thereby improving the efficiency of furniture production while having the advantages of one-piece molding and no assembly. Traditionally, making parts can take five times as much material, but with methods such as laser scanning, we can melt a precise amount of material. 3D printed furniture generally achieves relevant graphic construction through environmentally friendly materials. For example, in the creation of high-end furniture, the relevant solid wood materials are powdered and assembled using less polluting adhesives. Through this technology, indoor pollution can be effectively reduced [4].

2.4. Restoration Customization Function of 3D Printed Furniture

3D printing technology can repair missing parts of furniture, such as some traditional furniture of precious wood that has been damaged to varying degrees due to perennial storage, and the cost of manual repair is high. 3D printing technology can record furniture data through infrared light, and compile it into a model within 3D software, to systematically and accurately repair and restore the entity. The use of 3D printing technology to repair furniture has a precedent abroad, and IKEA has carried out pilot projects in physical stores in France and Belgium. Customers take old furniture to physical stores for resale, which meets the needs of consumers who do not want to discard furniture and allows unusable furniture to be repaired and resold, whether it is economical and environmental protection or art collection has a high practical value. 3D printing technology has great practical significance for the restoration of traditional furniture, the innovation of modern furniture, and the inheritance of culture.

3. Technical Application of Network Marketing Websites

3.1. PaaS Digital Cloud Platform

The 5G information age provides rapid development for big data application technology, focusing on industrial production, extensive data value mining and intelligent manufacturing technology innovation, developing with innovative

industrial PaaS cloud platform model, applied to 3D printing furniture production, and realizing the transformation of traditional furniture factories into Internet + digital factories.

The PaaS cloud platform can coordinate the furniture material supply chain, realize the flexible allocation of production capacity, use data to optimize the furniture industry chain, and interconnect the market and production, thereby promoting the flexible manufacturing process of the furniture industry. The production management system can carry out PaaS digital factory transformation, which can realize the real-time data collection and monitoring of each production process, each order, each material, and each employee of the furniture factory, help to make real-time and rapid decision-making and quality management in production management, improve the production efficiency and quality level of enterprises and reduce costs, to realize the intelligent interconnection of the entire 3D furniture industry.

3.2. Personalized Recommendations

During the user registration process, the characteristics of 3D printed furniture attributes and apartment types that are collected by users are collected, and algorithms are applied to cluster users to provide personalized recommendations to users. According to the customer's product order requirements, the use of a vast computer system at any time for data exchange set up suppliers to produce personalized 3D printing furniture industrialization customization, for furniture companies to provide innovative, civilian price, personalized and exclusive goods.

The website will load a large number of front-end consumer demand information into the database, accurate consumer portraits, match analysis with the designer's personal information, generate a rapid response; the designer team will combine today's fashion trends, integrate personalized original design, and then transmit to the back-end outsourcing factory manufacturing, accelerate the 3D printing furniture products to promote the market. Customers communicate with designers in a timely and sufficient manner through the network platform and timely feedback on the modifications after each round of experience to realize the personalized recommendation function for the complex needs of different customers.

4. The Basic Method Of Designing a 3D Printed Furniture Marketing Website

4.1. Page Layout Design for 3D Printed Furniture Marketing Websites

A good page layout on a website can attract customers to browse the product, which in turn promotes the sale of the product. First of all, the module needs to be designed; secondly, the dynamic picture and the static picture need to be combined; finally, the links of each functional module need to be designed to the corresponding module [5]. To make the graphic design of an e-commerce website both commercial and artistic, visual language is critical. From the perspective of visual communication, text, graphics, and color are the key elements that affect the visual effect of e-commerce website graphic design, the text is the most direct visual communication element, graphics are the most core elements, and the color is the most aesthetic element.

The website needs to avoid complex page navigation, concentrate the user's attention, improve the work efficiency of the website, and at the same time reduce the number of system queries so that the system can run more smoothly, the usability and

ease of use of the website are highlighted, in the design of a large number of interactive design effects closely related to each furniture product itself, there are clear and clear operation tips, and easy to understand, while changing the previous pure graphic website information complexity and uninteresting, to meet the user's needs for fun and interactivity.

4.2. Color Design of 3D Printed Furniture Marketing Website

The color tendencies of 3D printed furniture marketing websites represent the style of the furniture sold and the characteristics of the target group. The website adopts black and white gray, cyan blue, purple, and other cool colors and colorless tendency color matching, tending to high-end, mature, stable furniture; The website adopts bright colors, and the light colors tend to be fresh, lively, and young furniture; The website uses high saturation colors, brown, gold, etc. to favor warm, high-end, personalized furniture. Based on the positioning of the printed furniture sold, it is an indispensable step to determine the color tendency of the website.

At the same time, the color of the website greatly affects the user's mood. Network sales websites can not use a large number of cool colors, or colorless colors should not break the overall color tendency of the website under the premise of adding enthusiasm, excitement, interest, the pleasure of high saturation color, thereby improving the customer's desire to buy. Using a more robust color on the customer's order page can be an excellent way to emotionally urge customers to consume, thereby improving the sales order data of the website.

4.3. Functional Design of 3D Printed Furniture Marketing Website

3D printing furniture marketing website will be built into a complete and convenient online mall system; Enhances the effects on the perceived value of four important aspects of commerce website design: information quality, service quality, rewards and recognition, and customization [6]. The website's home page has the function of satisfying customers to browse goods, query goods, and purchase goods. The website classifies the furniture sold into 9 modules: tables, chairs, sideboards, sofas, coffee tables, hall cabinets, beds, bedroom cabinets, bathroom cabinets, and accessories. The icons are simple and easy to understand, high-level luxury, in line with the modern aesthetics of 3D printing furniture customers. Featuring streamlined navigation and a responsive design for both desktop and mobile users, the layout of the new website has been completely revamped, and Inspiration has been added so users can easily find exactly what they need [7]. The website has a background management function, which effectively helps administrators manage goods, orders, users, designers, etc.

The website builds a sub-platform for designers and forms open cooperation with designer firms, 3D printing furniture designers with high market recognition, and outstanding students of design colleges and universities as backup resources, with flexible working hours. A large number of front-end consumer demand information is loaded into the database, accurate consumer portraits, matching analysis with designers' personal information, generating a rapid response, and the designer team combines today's fashion trends and integrates original personalized designs. The website charges platform intermediary fees and design service fees.

4.4. Interactive Design of 3D Printed Furniture Marketing Websites

Website design also needs to pay attention to interface interaction and enhance the user's sense of experience under the combination of graphics, text, audio, and video aspects. Focusing on creating the dynamic effect of the page, smooth text picture sliding can add a sense of premium to the furniture sales website, in line with the positioning of high-end manufacturing of 3D printed furniture. Creating a sense of freshness is the only way to bring a new shopping experience, according to the development and change of the times, quickly update the visual communication design, combined with different pages of different product pushes, to attract users to visit the website many times [8].

The home page of the website has the epitome of each module, which is convenient for users to quickly browse the information and find the content they need faster, which greatly saves time and also facilitates users to quickly understand the information of the site. When the mouse is moved over the simple icon, the icon will be converted into real furniture, increasing the interactivity between the website and the user and also giving the simple icon a precise meaning [9].

4.5. Marketing Strategies for 3D Printed Furniture Websites

Focus on the personalization of 3D-printed furniture. The website gives full play to the unique design advantages of 3D printing, uses online and offline marketing strategies, and carries out relevant marketing through its self-media construction and online platforms such as industry websites and forums, to improve the scope of influence and influence of 3D printing furniture products and services. If you want to gain a corner in the fierce market competition, relying solely on commodity push shows that the website itself lacks content background; if you want to tap more potential users, the system needs to add target collocation and product performance explanation sections according to the user's shopping preferences [10].

Create a 3D printed furniture brand. The advantages of 3D printed furniture are obvious, lighter weight, low material cost, low transportation cost, its bionic structure makes comfort better, more attractive to furniture manufacturer users, and can attract more raw material suppliers, designers, and capitalists to join. After the marketing website achieves stable operation, the platform will optimize the original marketing strategy, improve the loyalty of existing users through the connection between the platform enterprises, create a brand image with popularity and reputation, and strengthen the brand image construction of furniture. At the same time, expand the website enterprise relationship network, use the production and supply of the enterprise relationship network, and through the 3D printing furniture price concession strategy, to achieve the full promotion of the platform.

5. Conclusions

3D printing furniture with unique personalized innovation and price advantages, to meet the current market for furniture differences of special needs, network marketing platform can provide service support for 3D printing furniture intelligent applications, to create a set of industrial Internet of Things, extensive data analysis, service management, and another cloud operating system. 3D printing furniture has been pushed to the height of development in the new economic era, ushering in a new development opportunity in the fierce furniture network market.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

This work was supported by the 2020 Wuhan University of Technology Independent Innovation Research Fund Project “Research on User Experience-based New Retail Commercial Space Project”, grant number 206816012.

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