

# *Development Strategy of Shandong Mountain Huatian Software Company*

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**Abstract:** The article discusses the development strategy of Shandong Mountain Huatian Software Company, a leading industrial software company in China. The company specializes in providing software development and IT services for enterprises and organizations, with its products and solutions widely used in various fields such as aerospace, military, transportation, energy, and chemical industries. The article explores Huatian Software's strategies for creating successful industrial design software solutions, such as developing cloud-based industrial software solutions, user-friendly interfaces, and subscription pricing models. The article also discusses the importance of industrial software and the significance of cloud-based solutions in improving the quality of research and development, collaborative work, and data management. Finally, the article highlights the unique features of Huatian CrownCAD, the first fully independent and cloud-based 3D CAD platform in China.

## **1. Introduction**

In modern times, advances in computing technology have enabled industrial designers to create complex products and designs with a high degree of efficiency and speed. Therefore, industrial design software companies seek to develop their own solutions to help designers create and iterate on various designs.

The field of industrial design has undergone a profound transformation in recent years, thanks to the rapid advancements in computing technology. This transformation has been driven by the need for industrial designers to create increasingly complex products while maintaining efficiency and speed in the design process. Industrial design software companies, like Huatian Software, have risen to the challenge of providing innovative solutions to meet these demands.

Huatian Software, established in 1993, has emerged as a key player in the industrial design software industry. With its headquarters in Jinan, the capital of Shandong province, the company has a workforce of over 1,000 employees. Its specialization lies in providing software development and IT services for various enterprises and organizations. Over the years, Huatian Software has diversified its product and service offerings, becoming a trusted partner for industries such as aerospace and military, transportation, nuclear power, energy, chemical, automotive manufacturing, electronics, and industrial equipment.

This article discusses some of the strategies adopted by Huatian Software Company to create successful industrial design software solutions. This paper aims to explore the development strategy of Huatian Software using a combination of literature research, theory and practice. For example, developing cloud-based industrial software solutions, user-friendly interfaces, and subscription pricing models. Furthermore, this article will discuss how industrial design software companies can continue to achieve success by leveraging emerging technologies and creating user-centric solutions.

## 2. The development strategy of Huatian Software

Huatian Software's development strategy revolves around its core expertise in industrial software. Recognizing the critical role of industrial software in enhancing industrial research and development, business management, production scheduling, and process control, the company has dedicated its efforts to providing comprehensive solutions for manufacturing excellence. By doing so, Huatian Software aligns with the broader goal of advancing the manufacturing industry and contributing to the realization of China's strategy to become a manufacturing powerhouse and a digital leader.

Huatian Software has positioned itself as a pioneer and leader in the domestic industrial software landscape. With a focus on intelligent manufacturing services and 3D technology as its core strengths, the company has consistently pushed the boundaries of innovation in the industry. This strategy enables Huatian Software to stay ahead of the curve and lead the way in developing and promoting cutting-edge industrial software solutions.

A key pillar of Huatian Software's development strategy is continuous innovation. The company recognizes that the future of manufacturing depends on the ability to innovate, adapt, and stay at the forefront of technological advancements. By fostering a culture of innovation, Huatian Software ensures that its solutions remain relevant and meet the evolving needs of manufacturing enterprises. This core competence in innovation is what propels the company forward in the fast-paced industrial software arena[1].

Huatian Software's strategy is built on offering complete solutions for comprehensive digital transformation. In the four major fields of innovative design, excellent manufacturing, intelligent supply chain, and digital services, the company has developed over 20 sets of complete solutions. These solutions cover the entire spectrum of a manufacturing enterprise's needs, from conceptual design to production and beyond. This holistic approach enables Huatian Software to be a one-stop destination for companies looking to embark on their digital transformation journey.

Huatian Software has leveraged nearly three decades of experience to build three major competitive advantages:

### 1) Stable Customer Base

The company has cultivated a stable and loyal customer base over the years. This customer base serves as a foundation for ongoing partnerships and provides valuable feedback for product improvement. This stable relationship with customers fosters trust and long-term collaboration.

### 2) Complete Product Line

Huatian Software boasts a comprehensive product line that addresses diverse industrial needs. This product diversity allows the company to cater to a wide range of industries and applications, making it a versatile and reliable partner for its clients.

### 3) Independent and Controllable Cloud Architecture

Huatian Software's innovative approach includes the development of an independent and controllable cloud architecture for its industrial software solutions. CrownCAD, as the first 3D CAD platform based on cloud architecture in China, represents a significant breakthrough. This technology not only enhances the security and accessibility of the software but also contributes to breaking the overseas monopoly of 3D CAD core technology.

### 3. Development of cloud-based solutions

The adoption of cloud-based solutions in the industrial software sector represents a significant shift in how businesses approach research, development, and operational processes. The development of cloud-based industrial software solutions offers several noteworthy advantages and has become a focal point for both domestic and international software companies[2].

#### 1) Enhanced Scalability

One of the primary benefits of cloud-based industrial software is the enhanced scalability it offers. Traditional on-premises software systems often face limitations in terms of resources and capacity. In contrast, cloud solutions can dynamically scale up or down based on the specific needs of the user, allowing for more efficient resource allocation. This scalability is particularly valuable in industries where demand can fluctuate significantly.

#### 2) Cost Savings

Cloud-based solutions can lead to substantial cost savings for industrial enterprises. By shifting from capital-intensive infrastructure investments to a subscription-based model, companies can reduce upfront expenses. Additionally, they can avoid the costs associated with maintaining and upgrading on-premises servers and software, as these responsibilities are typically handled by the cloud service provider.

#### 3) Accessibility and Flexibility

Cloud-based industrial software offers improved accessibility and flexibility. Users can access their tools and data from virtually anywhere with an internet connection, enabling remote work, collaboration across geographies, and access to critical information in real-time. This flexibility is particularly valuable for industries with distributed teams and global operations.

#### 4) Security and Data Management

Cloud service providers often invest heavily in security measures and data management protocols. As a result, cloud-based industrial software can offer robust security features, including encryption, authentication, and regular security updates. Additionally, data backup and recovery processes are typically more reliable in the cloud, reducing the risk of data loss.

#### 5) Seamless Updates and Maintenance

Cloud-based software solutions eliminate the burden of manual updates and maintenance for end-users. Updates are typically performed seamlessly by the service provider, ensuring that users always have access to the latest features and security enhancements. This eliminates the need for IT staff to manage software updates, reducing operational overhead.

#### 6) Collaboration and Real-Time Sharing

One of the key advantages of cloud-based industrial software is its ability to facilitate collaboration and real-time data sharing. Multiple users can work on the same project simultaneously, enabling faster decision-making and reducing the risk of version control issues. This collaborative aspect is essential for industries where teamwork and coordination are critical.

#### 7) The Significance of Collaboration

The significance of cloud-based industrial software extends beyond efficiency and cost savings. Collaboration is at the core of this technology. The cloud's real-time data sharing and collaborative features enable teams to work together seamlessly, whether they are located in the same office or spread across the globe. This collaboration fosters innovation, accelerates development cycles, and enhances overall productivity.

#### 8) Huatian CrownCAD as an Example

Huatian Software's CrownCAD 2023, as a pioneering cloud-based CAD platform, exemplifies the potential of this technology. Its online collaborative design and communication functions enable enterprises to streamline processes from initial design to production line management. The use of

self-developed 3D geometric modeling and constraint-solving engines underscores the software's commitment to technological innovation[3-4].

#### 4. User-friendly interface

The development of user-friendly interfaces in industrial software is a crucial aspect of ensuring the efficiency and effectiveness of design processes. Designers, often under time constraints, require intuitive tools that enable them to swiftly create and modify designs without the burden of a steep learning curve. Huatian Software recognizes the significance of user-friendly interfaces and has integrated several strategies into its products to enhance the user experience and satisfaction.

##### 1) Accelerating Design Workflow

In today's fast-paced industrial design landscape, speed is of the essence. Designers need to complete projects swiftly to meet deadlines and remain competitive. User-friendly interfaces developed by Huatian Software streamline the design workflow, allowing designers to focus on the creative aspects of their work rather than struggling with complex software. By simplifying tasks such as creating and modifying designs, these interfaces empower designers to work more efficiently.

##### 2) Accessibility for Novice Designers

Not all users of industrial software are seasoned professionals. Many are novice designers who may not have extensive experience with complex design tools. Huatian Software's commitment to user-friendly interfaces extends to ensuring that even beginners can navigate the software with ease. This inclusivity broadens the user base and enables individuals with varying skill levels to harness the power of the software effectively.

##### 3) Customizability for Enhanced Productivity

Customizable user interfaces are a hallmark of user-friendly industrial software. Huatian Software recognizes that each designer may have unique preferences and requirements. By allowing users to tailor their workspaces and settings to their specific needs, the software enhances productivity. Customizability enables designers to create an environment that suits their workflow, ultimately improving their overall experience and efficiency.

##### 4) Improved Customer Satisfaction

User-friendly interfaces not only make software more accessible but also contribute to higher customer satisfaction. When designers find it easy to use a software product and achieve their goals efficiently, they are more likely to have a positive perception of the software and the company behind it. Satisfied customers are more likely to remain loyal and recommend the software to others, contributing to Huatian Software's long-term success.

##### 5) Example: SVMAN-A Upgrade

The example of Huatian's 3D assembly process planning system, SVMAN-A, highlights the company's dedication to improving user interfaces. By enhancing the interface, performance, and overall ease of use, Huatian Software has made it more intuitive for designers to perform assembly process design. This upgrade directly impacts the efficiency of interactive operations in the design process, helping users work more effectively and quickly.

#### 5. Subscribe to the pricing model

The subscription pricing model for industrial software has many features and advantages, such as cost-effectiveness, predictable fees, flexibility, the latest software, enhanced support, and access to additional services that make the subscription pricing model a compelling choice for many companies.

Therefore, in addition to providing a user-friendly interface and cloud-based solutions, Huatian Software is seeking to try to develop subscription pricing models to make its solutions more accessible to users. The upfront cost of purchasing the software is reduced by providing a

subscription-based plan for which users can pay for access when needed. Furthermore, these models give users the flexibility to choose an upgrade or downgrade plan as needed. Therefore, the subscription-based pricing model enables Huatian Software Company to reach more customers and increase its customer base.

Huatian SView APP is a mobile terminal software for machinery manufacturing, engineering and construction industries, which quickly browse two / 3 D CAD lightweight drawings. It is affectionately called "engineering wechat" by nearly five million users. For example, Shandong Yidi Professional Design Co., Ltd. is a loyal user of SView APP, and it has deeply used—SView APP Enterprise Edition, a professional collaborative software tailored for manufacturing enterprises.

## 6. Using emerging technologies

The integration of emerging technologies into industrial software is a transformative shift that offers a multitude of benefits, ranging from enhanced efficiency and optimization to gaining competitive advantages. The rapid pace of technological advancement provides industrial software companies like Huatian Software with opportunities to innovate and deliver more value to their customers.

### 1) Internet of Things (IoT)

IoT technology enables the connection of physical devices and sensors to the internet, facilitating real-time data collection and analysis. In industrial design software, IoT can be harnessed to monitor and gather data from manufacturing processes, equipment, and products. This data can be used for predictive maintenance, quality control, and continuous improvement, ultimately enhancing efficiency and reducing downtime.

### 2) Artificial Intelligence (AI)

AI is revolutionizing industrial software by enabling automation, predictive analytics, and decision-making based on data-driven insights. Machine learning algorithms can automate routine design tasks, optimize material selection, and even suggest design improvements based on historical data. AI-powered solutions improve productivity and assist designers in making informed decisions throughout the design process.

### 3) Cloud Computing

Cloud computing has become the backbone of modern industrial software solutions. It provides scalability, accessibility, and collaborative capabilities that are essential for industrial design. Designers can access their work from anywhere, collaborate with team members in real-time, and leverage cloud-based resources for intensive computational tasks, such as simulations and rendering.

### 4) Virtual and Augmented Reality (VR/AR)

VR and AR technologies are invaluable for industrial design. VR allows designers to immerse themselves in 3D environments, providing a deeper understanding of their designs. AR, on the other hand, overlays digital information onto the physical world, enabling designers to visualize their creations in real-world settings. These technologies enhance the design review process, reduce errors, and improve the overall design quality.

### 5) Blockchain

Blockchain technology can be applied to enhance the security and traceability of digital assets in industrial software. It can be used to verify the authenticity of design files, track changes, and maintain an immutable record of design revisions. This ensures data integrity and protects intellectual property in collaborative design environments.

### 6) Edge Computing

Edge computing complements cloud computing by bringing processing power closer to the data source. In industrial design, this technology can be applied to real-time data analysis and decision-

making on the factory floor, reducing latency and enabling faster responses to critical events.

### **7) Collaborative Design and the Industrial Universe**

The concept of the "industrial universe," as exemplified by China Day Software's SView for the "One Hundred Tang Car," represents a holistic approach to industrial design. It involves the integration of diverse technologies, including 3D digital models, microservices, and real-time collaboration. This approach facilitates data sharing, interactive applications, visual guidance, and marketing displays, ushering in a new era of intelligent and collaborative design.

## **7. Conclusion**

In short, Huatian Software has adopted a series of strategies to develop successful solutions to help designers create and iterate their designs. You can reach customers faster and more efficiently by developing cloud-based solutions, creating user-friendly interfaces, and providing subscription-based pricing models. In addition, further success can be achieved by leveraging emerging technologies and creating innovative solutions that meet user needs. By following these strategies, Huatian Software can continue to build successful solutions in the next few years.

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