

## Barriers and Coping Strategies of Garment CAD Application and Popularization

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**Abstract:** The aim of study is to make the garment CAD get faster development and popularization in China. Garment CAD enhances enterprise's economic and social benefits, but it actually receives the hindrance in the domestic application and popularization. The domestic popularity rate is obviously lower than that in European and American developed countries. The main barriers which existing in the application and popularization process of garment CAD in China are analyzed and corresponding countermeasures are proposed.

**Keywords:** Application, coping strategy, garment CAD, popularization

### INTRODUCTION

Since the early 1970s the U.S. GERBER company pioneered CAD technology in the field of garment processing and formed a new technology industry, garment CAD has become an indispensable tool for modern clothing enterprise. It is an important means to ensure product quality, adapt to market changes quickly and improve the market competitiveness. At the same time, it also promoted the development and research of clothing CAD to a higher and deeper stage, so as to accommodate the different requirements of different enterprises. Clothing CAD technology is established on the product of modern science and technology, it's a direct influence on the modern fashion design way. Strengthening of clothing CAD technology application and innovation will make the modern fashion design system for overall improvement and development (Ya-Wen, 2012). Since the 21st century, the domestic garment CAD technology has begun to develop rapidly, many new systems have appeared. But the popularizing rate of garment CAD technology in China is significantly lower than that in developed countries. Survey statistics indicates about 1/3 of the enterprise which has introduced garment CAD technology in China lie idle (Li, 2012). It is clear that there are still many obstacles in the application and popularization process of garment CAD in China. In order to make the garment CAD get faster development and popularization in China, it was analyzed from several aspects and corresponding countermeasures was proposed hereinafter. The results can play a very good guidance to the introduction of garment CAD for the apparel enterprises.

### MATERIALS AND METHODS

Through investigation and analysis, the main barriers which existing in the application and popularization process of garment CAD in China are

analyzed and corresponding countermeasures are proposed.

### RESULTS AND DISCUSSION

**Barriers and coping strategies for selection of apparel CAD:** There is a wide variety of clothing CAD software at home and abroad, but it is difficult for company to choose which software can really adapt to the actual situation of their own production. The reasons are the following two points:

Apparel CAD companies are suspected of promoting falsely. From the marketing point of view, it should go without saying that the software companies advertise their products. However, to promote their products, the soft companies often belittle others to raise their own software, avoid their own weaknesses and thus mislead the clothing business. In the case of not entirely understanding software performance, it is easy for clothing companies to choose wrong CAD software which does not fit their business. As a result, the enterprise will lose confidence for all CAD softwares in the practical application, not only that he will not buy, but also affect the purchases of surrounding garment companies.

Decider of business purchasing is not familiar with the software. For enterprises to purchase apparel CAD software, generally finalized by the business owners after soliciting the opinions of the technicians. For business owners, they consider more about price, rather than the actual production demand. For technical staff concerned, even if having contacted with garment CAD, they can't be familiar with the performances of all CAD softwares, so the choice is also unrealistic.

In the choice of apparel CAD system, most clothing companies did not consider repair, maintenance, training and other services, based solely on one-sided presentation of salesman, fixed her eyes on the software's existing function and price. So the garment CAD system is not used after the company

bought it, which is a great strike to the garment enterprise. We should choose the garment CAD systems which is easy to understand and operate, according to the quality of enterprise personnel, choose equipment suppliers which service timely in order to enable enterprises to get the greatest return on investment (Su-Qin and Qiang, 2005). Domestic and foreign apparel CAD systems have both advantages and disadvantages. Generally, domestic garment CAD systems, having better adaptability and compatibility of hardware, higher price-performance ratio than the foreign systems, are suitable for small and medium garment enterprises with a flexible and short production cycle. The foreign apparel CAD systems, having higher reliability and stability of software, better advancement of hardware, are suitable for large garment enterprises, especially foreign trade processing enterprises. The introduction of clothing CAD can't be the best, only the most suitable. It is the best to fit the operator and play its due role in the production.

**Barriers and coping strategies for garment CAD software itself.** As there are differences in various aspects of Chinese and Western, such as developing history and cultural background, operational mode, operation habit and language and so on, foreign systems are difficult to meet the needs of domestic business production. Domestic systems, although the functional design of which is more practical than foreign systems, still lack certain strength competed with the older foreign system. So the garment CAD software has a shortage of its own.

Style design module can't meet the needs of traditional fashion design. The current apparel CAD systems generally own style design module, but this module is not very mature. Even if it is good, it only copied partial function of general drawing software (such as Photoshop, etc.). Clothing designers can not draw fashion illustrations freely. And many of the existing style design module is a combination of a large number of parts libraries, but this approach is inconsistent with the laws of fashion design. After all, fashion design focus on the overall effect, not simply a pile of parts. These clothing style design modules are far from the general drawing software in the image processing function.

To solve this problem, software developers should improve the automation of drawing, combined with the advantages of common graphics software and launch out mature design module which meets the needs of professional design.

Pattern making module can't make use of advantages. In all garment CAD software modules, pattern-making module is the most difficult to operate.

In many apparel CAD systems, especially the foreign garment CAD systems, there are too many tools and menu of pattern-making modules. If the user is not familiar with the system, it is difficult to find the corresponding functions. And a computer monitor is different from the real pattern, both college students in the school and an experienced master craftsmen are used to seeing the true pattern of 1:1, even if they mastered the CAD operation, they have not much real feeling to screen display. Whether the silhouette is appropriate depends on experience and feeling rather than figure. The silhouette must be modified in the case of the whole board visible and the computer cannot do this due to size restrictions of screen. Even if the whole clothing pattern is displayed on the screen, it is reduced many times and some minor errors have been hidden. All this often makes the user feel that making pattern with CAD is not as fast and accurate as by hand, thus exclude the use of garment CAD system (Lao and Wang, 2005).

To solve this problem, software developers should set about from two aspects. On the one hand, the menu button should be simplified as far as possible, so the operator can be familiar with the operation in a short time and can easily accomplish specific tasks. On the other hand, the automation of pattern making module should be improved through the three-dimensional simulation. That is, simulating pattern amendment process of three-dimensional draping, displaying unfitting part and its deviation, the pattern size are free to modify and reflected in three-dimensional human body and two-dimensional pattern.

Compatibility of garment CAD system needs to be strengthened. Out of commercial interests, each CAD system has its own file format, which can protect garment trade secrets to some extent, but also affect technological exchanges between the production business and buyers. A lot of CAD software is not compatible with general document processing software, which brings great inconvenience to apparel manufacturers. In addition, CAD software alone cannot meet the needs of garment production, must have the corresponding input and output devices (plotters, cutting machine, digital input device, etc.) Although almost all of the software companies are equipped with hardware to match with their software, but many hardware are not optional. Especially some foreign softwares must be matched with imported hardware equipment; it increases the economic burden for enterprise to buy the CAD systems. And much foreign equipment is operated in all English; it is difficult for many of the clothing enterprise workers in China.

To solve this problem, garment CAD software and hardware companies should combine strengths and work together to form a strong talent and financial strength to develop more compatible products.

Training and after-sales service of developers is not in place. At present some clothing CAD dealers value immediate interests and do not really put the interests of consumers in the first place, it is difficult to provide customers with best possible service. More confusions may occur in some business management. Software was sold with product promise, but when the customer really required after-sales service the salesman had disappeared. Garment CAD market is still relatively confused, strength and professional degree of developer and distributor of apparel CAD to a large extent influence the popularity and application of CAD product.

To solve this problem, software vendors must do a good job in training and after-sales service. Profit-maximization is the common goal of any business, but everyone will choose survival between the interests and survival. Supplier of apparel CAD must be willing to spend capital to do good service because the quality of the service will directly affect the evaluation of user to the product; the higher the customer satisfaction rate is, the greater the potential market of the software is. In addition, any software has a process of becoming better and approaching perfection day by day, which requires not only the efforts of developers, but also needs the support of users. Users will find the lack of software in using process, so service work not only benefits users, but is also helpful for the improvement of the software itself. Therefore, vendors should pay attention to services such as regular visits to customers, listening to the views of users, providing new versions of software and so on.

**Barriers and coping strategies for garment CAD talents.** Garment CAD technology is high-tech and emerging industries, high-quality personnel manage high-tech while traditional clothing enterprises lack such high-quality personnel. Today, in the domestic garment enterprises experienced technical staffs generally know little of computers; it is not an easy task to master CAD software. The younger college graduates, although having some computer basis, lack practical experience. And this kind of practical experience requires a long time to accumulate, no way owned in a short period. Extreme lack of qualified staff who has practical experience and can use computers flexibly has become a major obstacle to the introduction of garment CAD technology for garment business.

Garment enterprises should have a plan of high-quality talent training. According to information, some clothing enterprises have no cultivation and training plans of design and technology personnel. Some companies cultivated novice who may soon leave the company so that the company's owner is very sad and no longer train new people. But in this way, the fate of the enterprise is in the hands of the existing masters, for some reason they refuse to learn and use new

technology. If this continues, companies must fall behind in the fierce market competition. Therefore, enterprises must cultivate practical talent who can operate the garment CAD technology expertly to make CAD play its due role (Zhang, 2005).

Garment CAD software should enter into the teaching place actively. Garment CAD software as advanced tools for the apparel industry, have already attracted the attention of clothing professional school. Therefore, many colleges have managed to open the garment CAD course. In this way fashion schools can train professionals to meet current development needs of the apparel industry. Conversely, if any software left a good impression on students in the learning stage, these students will be its potential users. This is obviously a good business opportunity worthy of every software vendor's fighting for.

## CONCLUSION

Since the birth of garment CAD, it played an irreplaceable role in enhancing economic and social benefits of apparel companies, but it was hampered in the domestic promotion and applications.

Frustration of garment CAD development in China is related to software companies, clothing companies and professional schools. In order to promote CAD applications in the apparel textile industry, software companies, clothing companies and professional schools must work together to solve the problems in popularizations, so as to realize a smooth transition of China's apparel industry from an industrial economy to a knowledge economy.

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