

# Characteristics, problems and suggestions of cloud ERP application mode

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**Abstract.** In recent years, cloud ERP has aroused extensive concern from all walks of life in China. Cloud ERP not only reduces the application threshold but also greatly enhances the convenience of ERP use, which has brought about big change to enterprise's informatization construction. In this study, by analyzing the characteristics of cloud ERP, the related problems were examined and the corresponding suggestions were proposed for the practical application.

## 1 Introduction

The important role of traditional ERP, as a core system of enterprise informatization, is beyond doubt for manufacturing enterprises. In recent years, with the constant improvement of information technology and accelerated extension of cloud services, more and more large and medium-size enterprises have deployed the business systems on cloud servers [1]. Cloud ERP has brought about new development opportunities to traditional ERP and now become a main development direction in future.

Panorama Consulting, a global well-known ERP consulting research company, has pointed out that 61% of enterprises all over the world have employed ERP on cloud servers. It can be predicted that the global market share of cloud ERP still shows the potential of continuous extension.

The market scale of cloud ERP has occupied 43% of the global ERP market in 2019. Cloud ERP businesses are of strategic importance for multiple large ERP manufactures. For example, as a long-term leader in ERP field, SAP makes timely layout and firmly moves towards cloud service. SAP Business cloud is a SaaS level ERP system suitable for enterprises of all sizes, with a complex and complete set of functions, which is a better choice for large enterprises. Oracle ERP cloud is a mature and flexible product, which is very suitable for small and medium-sized enterprises, and also very friendly for large enterprises.

For the past several years, Chinese ERP manufactures have finished the cloudification and upgrade of ERP in succession, launched and promoted new generation of cloud-based new products. Chinese manufacturers are looking forward to utilizing the opportunity of system function transformation brought by cloud computing so as to surpass foreign ERP Giants on domestic high-end ERP market. For example, Kingdee cloud ERP has been

upgraded officially to "Kingdee cloud", and has successively developed a number of cloud ERP products. Moreover, the proportion of cloud business income of Kingdee company has reached 40%.

It is well known that a set of perfect ERP system is extremely important for manufacturing enterprises. Adopting new technologies and complex improvement plans ultimately aims to realize core functions of enterprise's business flows including purchasing, production, sales and financing. Both traditional or cloud ERP have similar functions and show no distinct difference in the essence of resource planning. Therefore, users feel no significant difference in practical use [2]. Why can cloud ERP replace traditional ERP to become a development trend? What are the differences between local and cloud ERP?

In this study, based on the analysis of the characteristics of cloud ERP, the problems faced by cloud ERP in practical use were further analyzed so as to propose the corresponding countermeasures.

## 2 Characteristics of cloud ERP

By contrast with traditional ERP, cloud ERP mode shows a distinct feature of providing ERP application services on the Internet cloud so as to realize the enterprise's informatization management and service in new ways.

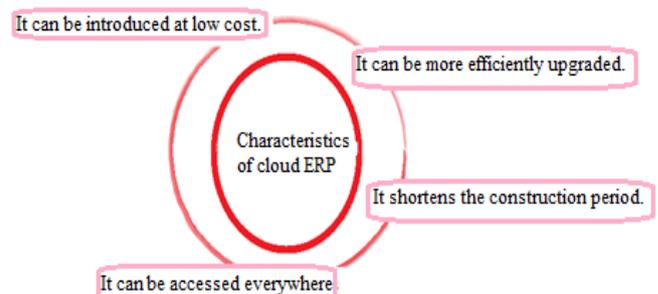


Figure 1 . Characteristics of Cloud ERP.

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Overall, cloud ERP shows the following characteristics (as shown in Figure 1).

Firstly, cloud ERP can be introduced at low cost, thereby greatly reducing the development cost.

The development of traditional ERP is a large-scale project with long time and high cost, which even requires the demand analysis and implementation process for hundreds of days. Cloud ERP system adopts Internet-based remote management mode and can work without the implementation of special hardware or software. Only with Internet and computer, cloud ERP can be introduced at a quite low initial cost so as to transfer a lot of hardware cost to ERP supplier. Moreover, enterprises can communicate on system development and participate in the implementation without a lot of professionals. Therefore, the use of cloud ERP can save the operating costs in constructing machine rooms and employing managers, thereby effectively reducing the enterprise's investment on information construction and administrative staffs. Enterprise can use the application functions of cloud ERP only with service renting cost.

For enterprises with insufficient budget and low emphasis on informatization, they no longer need to worry about various expenses and management. So cloud ERP is the best choice. But at this stage, the use of cloud ERP needs to pay various fees, such as rental fees, special line network fees, upgrade fees, annual maintenance fees, etc. In the long run, the cost reduction is not significant

Secondly, cloud ERP can be accessed everywhere at any moment, with great improvement of convenience.

Traditional ERP software should be installed on the client's local machines. All functions of ERP should be implemented on the local machines. This inevitably brings about great inconvenience for modern organizations in mobile officing.

Cloud ERP can successfully overcome this problem. Users can access cloud ERP everywhere at any time only with Internet connection, and use various functions of ERP, which can significantly enhance the convenience in working and satisfy the organization's demands on mobile officing. Meanwhile, cloud ERP products can support various devices. In addition to personal computer (PC), users can be connected to Internet, access cloud servers and obtain the application services of cloud ERP via other terminal units such as smart phones and tablet PCs.

Thirdly, system can be more efficiently upgraded without systematic operation and management.

Traditional ERP software should be pre-installed and needs professional operation and maintenance in service. Cloud ERP is totally different and should be deployed on cloud servers and operated by suppliers. Therefore, enterprise users get rid of the system upgrade since the system only need to be upgraded on cloud server. Enterprise users need no download and installation of upgrade programs on local machines and can always use the latest version with Internet connection, thereby reducing the operation and maintenance cost and enhancing the upgrading efficiency. For small and medium-sized enterprises with relatively weak technology and personnel, this helps enterprises reduce the relevant pressure, which is more important.

Fourthly, the system's construction period can be

shortened.

Traditional ERP is deployed on local computers. Enterprise requires a lot of complex and trivial procedures including computer room construction, equipment and software purchasing, personnel engagement, data organization and input, with large cost consumption and management difficulty. These all easily affect the implementation scheduling. After the adoption of cloud ERP, enterprise can save previous construction steps and a lot of hardware purchasing cost and no longer need professional technical team. Enterprise just needs to provide the business blueprint and the related data to cloud ERP supplier so as to complete the overall configuration and implementation, accompanied with the great shortening of construction period.

### 3 Existing problems in the application of cloud ERP

Cloud ERP has already played increasingly important role in enhancing the management standardization and efficiency of multiple modern enterprise but is also confronted with a lot of thorny problems (as shown in Figure 2).

How to make out the measures to solve the problems has become the priority among priorities in future development of cloud ERP.

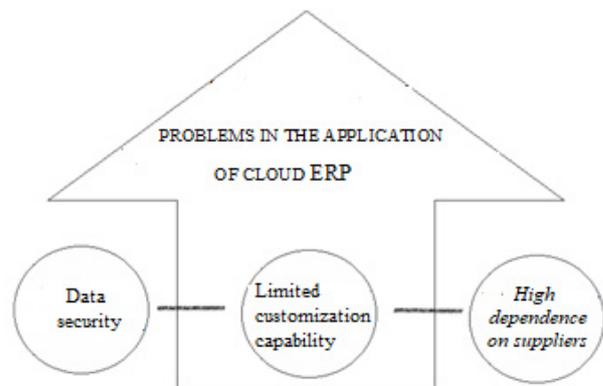


Figure 2 . Problems in the application of Cloud ERP.

#### 3.1 Data security

Firstly, the data in cloud ERP can mainly be transmitted via Internet. Enterprises always think that cloud ERP more easily suffer from safety flaws and hacker attacks than traditional ERP system. Therefore, enterprise really has high demands on network safety. Safety is the factor with the top priority in ERP selection. However, the safety of cloud ERP now has been significantly enhanced by adopting additional safety measures [3, 4]. Secondly, multi-tenant public services set extremely high demands on data management. Fire broke out in a France's big-data center owned by OVH (the greatest cloud service operator in Europe) on March 10th, 2021, which led to the failure of approximately 3.6 million websites and affected the data of over 10000 clients, inevitably causing heavy losses.

The accident is an important warning for all cloud ERP suppliers. All suppliers should adopt many backups and disaster recovery protocols to protect the data of many clients. Finally, for all cloud ERP suppliers, users' key data such as company financial information, the related client information and trade secrets are all transparent [5]. This is also quite demanding for the supplier's reputation and reliability.

### 3.2 Limited customization capability

Cloud ERP is provided on the supplier's server with low import and customization cost and fast speed. Therefore, cloud ERP can satisfy the popular demand but is heavily restricted in customization. Traditional ERP can be independently customized in accordance with own characteristics and generally featured by strong customizability. Cloud ERP now cannot give comprehensive solution for some customized requirements beyond original system framework.

For large and medium-sized manufacturing enterprises, ERP system is really different from other business systems. It is the core business system. Stability, safety, reliability and customization are its eternal topics. Limited customization ability will make enterprises dare not try cloud ERP products easily.

### 3.3 High dependence on suppliers

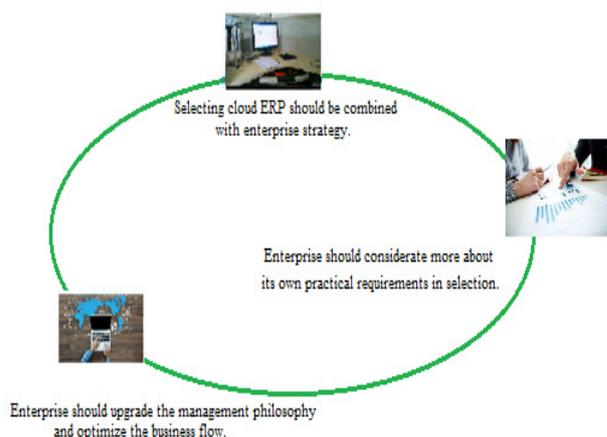
As the most central data management system, ERP is the enterprise's informatization control center and involve the enterprise's various businesses including production, purchasing and sales. ERP should take concentrated distribution and management on the enterprise's all kinds of resources and adopt reasonable plan for achieving the optimal utilization of enterprise resources so as to provide comprehensive information supports for decision-making. Since the development of cloud ERP market is not long, enterprise may be dissatisfactory on some aspects in use. However, enterprise may highly depend on the cloud ERP supplier once selection since data migration is extremely difficult and replacing the supplier is quite costly in view of data safety and importance.

The existing cloud ERP system can be upgraded in case of a new version. The upgrade is generally frequent at an interval or a month or a week. The upgrade can help enterprise constantly adapt to newest industry regulations and laws. However, the shortcomings are still obvious. For example, enterprise cannot select the upgrading scale and time, thereby poor in the flexibility of customization. Additionally, the problematic new version may bring about serious risks for the enterprise's business development.

## 4 Suggestions for the existing problems of cloud ERP

In spite of increasingly extensive supports and attention during the informatization development, enterprise inevitably faces many problems during the application of cloud ERP. Based on above analysis, the following suggestions can be proposed for enterprises (as shown in

Figure 3).



**Figure 3.** Suggestions in the application of Cloud ERP.

Firstly, selecting cloud ERP should be combined with enterprise strategy.

Cloud ERP is a quite complex management system project with large investment. Only scientific planning of cloud ERP in accordance with the enterprise's strategy can reduce the blindness and enhance the system's integrity and adaptivity. Therefore, aiming at successful implementation, the first task is to determine a comprehensive enterprise strategy in accordance with the goal so as to indicate the correct and effective directions.

Next, the programs of cloud ERP can be formulated according to enterprise strategy for strengthening the strategic advantages.

Secondly, enterprise should considerate more about its own practical requirements in selection.

At present, a lot of enterprises have been entering the field of digital manufacturing in succession. Cloud ERP has aroused extensive concern and approval. Enterprise has a variety of reasons in selecting cloud ERP; however, cost is a universal factor without doubt. Enterprise needs not to invest excess manpower, capital and time when deploying cloud ERP so that it can poor energy into other businesses. However, the manufacturing enterprises generally require specific and complex customization and cloud ERP products are actually not as perfect as promised by the supplier.

Accordingly, it is suggested that enterprise should not get into blind pursuit of new technologies and take technical transformation that do not match with the business requirements in ERP selection. Enterprise should fully evaluate advantages/disadvantages of various ERP schemes and strengths/weakness of various suppliers, and select the ERP software (either local ERP or cloud ERP) that matches with actual business requirements.

Thirdly, enterprise should upgrade the management philosophy and optimize the business flow.

Cloud ERP system can not only be an online management platform but also provide scientific management philosophy and management scheme [6].

Many domestic enterprises are still backward in management mode. In particular, for middle and small-sized enterprises, there is a large gap from advanced management philosophy provided by cloud ERP system.

Enterprise should seize the opportunity of using cloud ERP, understand the gap between own management and industry standards and constantly enhance own management capability. Moreover, enterprise should also optimize the internal business flow, pursue the normalization, clarification and clearness of overall enterprise flow and establish the optimal solution to business flow.

## 5 Conclusions

Under the background of informatization, cloud ERP has received increasing attention. By summarizing the performance in actual work, this article analyzes the advantages and problems of ERP based on cloud technology. Then put forward several suggestions in order to help enterprises to achieve the best effect. As long as the existing problems are solved more effectively, the cloud ERP application mode can be an ideal online management software.

By contrast with traditional ERP, cloud ERP shows a lot of advantages such as good flexibility and great convenience, which represents the future development trend of ERP under the current big data background. Because of low cost, an increasing number of enterprises will select cloud ERP. Although cloud ERP has successfully overcome some shortcomings of traditional software, it still faces many difficulties and challenges during the development [7]. Therefore, enterprise should fully consider own businesses and software functions and clearly judge which kind of informatization management tool is more applicable to the enterprise's development requirements. It is believed that cloud ERP will have great development space with constant improvement of technologies and opening of user consciousness.

Enterprises that want to successfully implement the cloud ERP application mode must realize one point. The cloud ERP application mode is not a simple mixture of traditional ERP and online technology, but organically integrates various management thoughts and elements in the two modes. By better understanding and implementing the management ideas in cloud ERP, enterprises can make better use of the software.

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