

Exploration on the Construction of New Information Construction in Discrete Manufacturing Industry

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Abstract

With the development of a new round of information technology such as Internet of Things, large data and mobile applications, a series of policies such as Industry 4.0, China Manufacturing 2025 Strategy, Internet + Action Plan, Global Industrial Revolution began to put on the agenda, traditional manufacturing ushered in an important opportunity for transformation and upgrading, industrial restructuring began to enter the substantive stage. How to quickly and low-cost to build discrete manufacturing enterprise information technology ability to become the key.

Keywords

Discrete manufacturing, SOA, Integration Platform.

1. Overview

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2. System construction ideas analysis

Traditional enterprises in the realization of integrated collaborative management of the transformation and upgrading objectives, is a completely in accordance with the professional division, the formation of the functional departments as the main vertical structure, departmental objectives scattered, it is difficult to form a real customer-oriented, end to end Process management, it is difficult to achieve the overall value chain-driven management model. Such enterprises, in the business process level, it is easy to form sector coordination barriers, and in the software system level, it is easy to form information, data island. Faced with this problem, companies need to promote the business model of innovation, the need to speed up the process of optimization, the need to further enhance the standardization of management, must also adopt a service-oriented integration platform for integrated development program. Only in this way can enterprises effectively solve the management bottlenecks,

information silos, process control weakness, data acquisition and processing difficulties and data consistency and other management issues, to achieve the basic goal of accelerating intelligent manufacturing.

Therefore, the discrete manufacturing information construction cannot habitually adopt the traditional, conservative development and implementation ideas, but should adopt a new system technology. In this regard, the author put forward the following several ideas (management model construction is not reflected here), and its advantages and disadvantages of comparative analysis.

2.1 To build a professional system in stages, and then carry out integrated integration (conservative thinking)

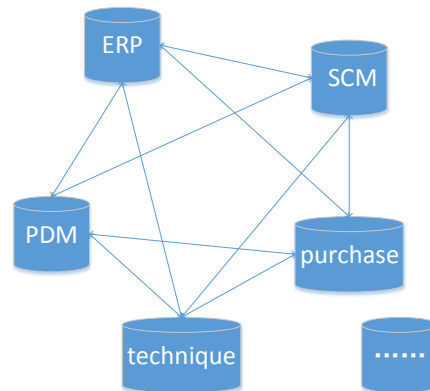


Fig. 1 Traditional architecture and integration

This kind of construction idea is the idea adopted by most enterprises so far. It is proved that this kind of construction idea has the system function mature and complete, but because they adopt the method of designing and implementing separately according to different business modules, it will naturally form the operation bottleneck of cross-platform service flow and data flow processing. Moreover, because these single system is not in accordance with the actual development stage of the enterprise and the actual business needs of the design, it must be re-custom development of the trouble, as well as the actual application of the process of indigestion and so on. Moreover, there are many problems that cause business problems in terms of platform costs, implementation costs, and implementation cycles. Some of the large and medium-sized manufacturing enterprises have experienced this painful stage, most of them have entered a large-scale integration and integration, and even reconstruction of the information system stage. For most small and medium enterprises, due to professional and technical personnel, lack of funds and other reasons, still in the infrastructure, demonstration, overthrow, and then build the stage of wandering, the lack of systematic planning, the effect is very satisfactory, far and large enterprises cannot Than it is difficult to adopt and promote the same ideas as the big business.

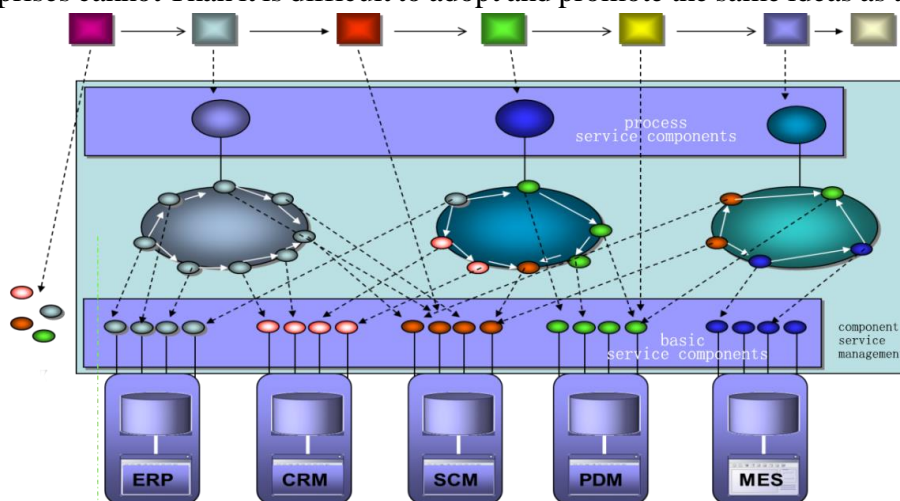


Figure 2: Integrated architecture based on the soa architecture

2.2 One-time independent development and deployment of integrated enterprise collaboration platform (radical thinking)

Recently, many well-known domestic and foreign companies (such as IBM, BuKe, PuYuan, JianYi, etc.) in order to respond to the development trend of industry 4.0, have proposed a code-free development tool system, and according to the actual needs of enterprises, flexible configuration integration Platform to promote the idea of intelligence, it can be said that this is the traditional discrete manufacturing enterprises to the inevitable choice of industry 4.0. It is gratifying that Chongqing's software companies have a first step in this area, ahead of the advantages of the actual application of the scene. For example, Chongqing Jianyi Information Technology Corporation developed the BSA code development tool platform, has been successfully implemented cases; Pu Yuan platform tool EOS also help Chongqing Union News Electronics Co., Ltd. to build its information integration platform.

However, to take such a propulsion ideas, there are also the following need to be fully concerned about the implementation of the risk:

- 1) To take such an implementation of ideas, must be invested enough resources to ensure that business blueprint design and system function design of the professional level. Moreover, if this design can not be cured in time, there is also the implementation cycle can effectively control the problem.
- 2) If there is no code development tool platform configuration system, there is such a system architecture without complex application system running, the existence of stable and reliable problem. To this end, we must strengthen the early functional testing and debugging.

In view of the above analysis, I believe that this relatively radical approach to the development of ideas although there is a certain risk, but this risk is accompanied by an important breakthrough opportunities may be more worth the wait.

2.3 Through the packaging of professional systems to build integrated collaborative platform ideas (robust thinking)

This idea is the radical thinking and conservative thinking of the compromise, the basic driving ideas is: first to ensure that the integration of collaborative platform design requirements of the integrity of the program, and at the same time to ensure that the basic data structure level of unified planning. On this basis, some of the functional part of the professional system can be used mature module, but in the integration, should be through the ESB service bus, complete loosely coupled integrated platform package. The other functional modules, as long as they can accurately grasp the business needs, it should use the BSA tool platform, and according to the actual development of the enterprise needs of the deployment. In short, in order to ensure the stability of the progress and the main function, we can take such a robust compromise, and the formation of the actual integration of the collaborative platform design to achieve the system architecture level of vertical integration standards to ensure that the entire system design still With industry-leading design level. The framework of the program is as follows:

This kind of advancing ideas, for some already have information assets of enterprises, for those who have their own clear information technology companies, it is also appropriate to the program. But many enterprises, due to personnel, funds and other issues, only with a small number of specialized systems to solve some of the management issues. But in the face of intelligent manufacturing and other new development needs, but also need to use loosely coupled system integration ideas, and in accordance with the integrated design of the system platform. Therefore, if the above "radical program" cannot be assessed, you can choose the program, on the grounds that: the implementation of short cycle, cost control, but also take into account the status of enterprise information, and to meet future needs for further development. In short, this forward thinking, both to ensure that the flexibility

of the system architecture and scalability, but also to absorb the application of mature software products module, to achieve their own strengths, balanced control of the propulsion effect.

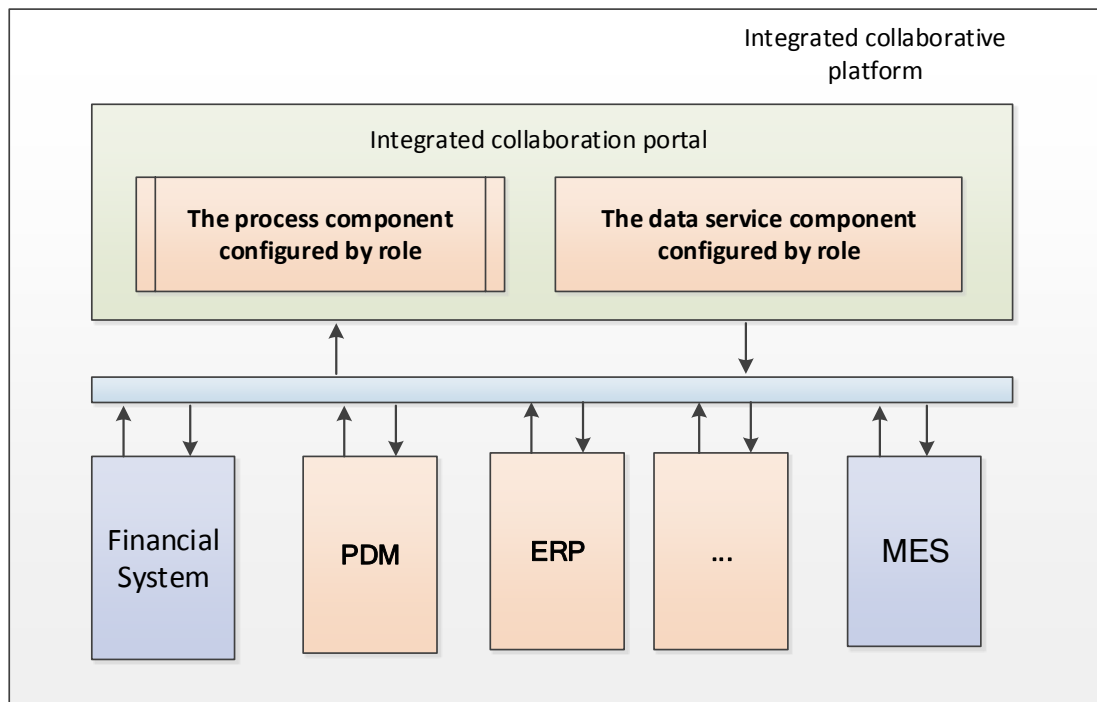


Figure 3. Integrated collaboration platform

3. Reflections on the Integration of Discrete Manufacturing Industry in Chongqing Enterprises

At present, the CASIC, Nari Relays, Shanghai Baoxin and other enterprises in the promotion of its information technology overall program, but its nature is still high cost custom development, the structure itself is not advanced, basically do not have industry transplantation Sex, the cost is still high, the cycle will be very long, but also a big company to Fun ideas.

Chongqing as a manufacturing base, with the most complex discrete manufacturing process, with the practical application of the advantages of the scene; Chongqing enterprises to create an integrated platform for discrete manufacturing to help Chongqing, the external traditional discrete manufacturing enterprises to upgrade, can play a huge role in promoting The This self-developed by the state-owned enterprises in Chongqing has the following advantages:

- 1) The biggest advantage of this idea is that enterprises can have a corporate brand with the integration of collaborative platform products, which for the rapid formation of enterprises for the entire Chongqing enterprises to promote the ability to create a significant significance.
- 2) This platform product has the characteristics of service-oriented system architecture, system development and flexible changes, to achieve the actual needs of enterprises tailored to the target.
- 3) Although the first development need to consider the cost of business blueprint design, but from the entire Chongqing enterprise information technology projects, certainly with low cost, short cycle and easy to implement the characteristics of success.

Therefore, I suggest that the platform-type units to take the lead, play a regional platform role in the local manufacturing-related IT solutions provider to carry out long-term stable cooperation, the formation of related industry alliance. Such as the successful implementation of such a platform construction strategy, will be China's traditional manufacturing enterprises to upgrade the smart upgrade to find a faster, more economical way forward.

References

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