

Design of Enterprise Transformation System Based on Data Sharing under the Background of Digital Transformation

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Abstract. At present, the setting of enterprise reform system and mechanism is mostly single structure, and the coverage of reform is small, which leads to a sharp decline in enterprise competition index. Therefore, this paper puts forward the design and verification analysis of enterprise transformation system based on data sharing under the background of digital transformation. According to the current measurement requirements and standards, firstly, we should make clear the change indicators of digital transformation enterprises, adopt a multi-level approach, expand the scope of change, design a multi-level enterprise change mechanism, build a data sharing change system framework under the background of digital transformation, and adopt dynamic digital cross-domain processing to realize enterprise change. The final test results show that: for the six test cycles, combined with the five selected links of basic management, business, employee management, financial integration and future planning, the final enterprise competition index reached above 8.5 in the three test stages, indicating that with the assistance of digital transformation background and data sharing technology, the designed enterprise change system has better practical application effect, higher efficiency, strong pertinence and practical application value.

Keywords: Digital transformation; Data sharing; Enterprise reform; Change system; System design; Data conversion processing;

1 Introduction

At present, the development of enterprises in various fields is different, and the corresponding built-in management systems are also very different, which makes it difficult to control the future development direction and speed of enterprises, especially in data processing, and it will form various problems and defects [1]. In fact, most of the management control systems set by enterprises serve daily work, customers, management and control needs, etc. However, the unchangeable built-in structure cannot meet the current diversified and personalized social development trend, and it is necessary to carry out dynamic reform of the system and management framework[2]. The traditional design method of enterprise change system is generally goal-oriented. Now, according to the development direction and demand of enterprises, the matching links and goals are formulated, and finally they are connected in series to achieve the change goal [3]. Although this method can achieve the expected

enterprise operation tasks, it lacks pertinence and reliability, and it is difficult to achieve the set standards in different social environments. Coupled with the influence of external environment and specific factors, the built-in reform system of the final enterprise is in a panic, and the reform links are not closely overlapped, and the daily work efficiency is greatly reduced [4] . Therefore, this paper puts forward the design and verification analysis of enterprise transformation system based on data sharing under the background of digital transformation. The so-called data sharing technology mainly refers to the technology of exchanging or sharing data among multiple applications, services and devices according to the requirements and standards set by data processing [5] . To a certain extent, data sharing integrates the information and intelligent system with the internal reform system of the enterprise, which can easily realize the trans-regional transmission of enterprise data and meet the communication requirements of tasks, services and equipment [6] . At present, the traditional social development form is gradually replaced by digital transformation. Under this background, the coverage of enterprise change system is further expanded by combining data sharing technology, and daily application values are obtained, so as to design a more flexible and changeable enterprise change structure [7] . Strengthen the development path and coverage of enterprises from multiple angles, strengthen the control of system implementation, take the creation of customer value as the ultimate goal, and drive enterprises to make overall changes in sequence through digital sharing technology, continuously improve the core competitiveness of enterprises, help enterprises meet the development strategic requirements of new social forms, and push enterprises to buy a new development step [8] .

2 Design a digital transformation enterprise data sharing reform system

2.1 Clear digital transformation enterprise change indicators

In general, the enterprise transformation system is designed according to the actual enterprise development status and the subsequent transformation needs of the enterprise, and the corresponding development and transformation goals are specified in the process, and finally the results are obtained [9] . However, some change indicators and parameters are not fixed, but the final change effect can be ensured only if the trend and situation of social development change instantaneously [10] . Therefore, combined with the digital background and data sharing technology, the change indicators of digital transformation enterprises are clearly set. First, set the basic control indicators in multiple dimensions [11] . As shown in the following Table 1:

Table 1. Basic Digital Transformation Enterprise Change Indicators and Parameter Settings Table.

| Basic digital transformation enterprise transformation indicators | Controllable parameter reference value | Measured parameter reference value |
|---|--|------------------------------------|
| Basic data perception range fluctuation ratio | 3.21 | 2.82 |
| Instantaneous processing time/s | 0.25 | 0.17 |
| Controllable frequency/time of data sharing | 12 | 16 |

| | | |
|--|--|--|
| Equilibrium ratio of enterprise transformation | 19.82 | 20.72 |
| Transformation constant value | 4.11 | 5.28 |
| Dynamic Hierarchy | Enterprise situation layer+data layer+solution execution layer | basic research collection layer+multi-dimensional analysis layer+change comparison layer |

According to Table 1, complete the setting of the transformation indicators and parameters of the basic digital transformation enterprises [12]. Then, on this basis, in the digital background environment, combined with data sharing technology, the currently selected enterprise change content is clarified, and the corresponding change processing links are set, and the enterprise controllable coverage ratio [13] is calculated. Specifically as shown in the following Formula 1:

$$D = (1 - h) \times \frac{\sum_{i=1}^t hi + x}{c} + gt \quad (1)$$

In Formula 1: D indicate that controllable coverage ratio of the enterprise, h indicate that time of enterprise change, i represents a preset unit link, x represents the steering fluctuation ratio, c indicate that scope of enterprise change, g represents the level of transformation, t represents cell-level content [14]. Combined with the current setting, the controllable coverage ratio of enterprises is calculated, and according to this value, the basic conditions for the subsequent reform system are laid [15].

2.2 Design multi-level enterprise change mechanism

The traditional enterprise change mechanism is mostly one-way. Although it can achieve the expected change processing tasks and effects, it lacks flexibility and reliability. In different social development and market development background environment, it is difficult for enterprises to carry out stable reform and upgrading, and cannot achieve the expected development effect. Therefore, this time, combined with the actual development needs, a multi-level enterprise change mechanism is designed. With the help of the social background of digital transformation, we can first condense and summarize the management mechanism and structure of enterprises and give them a commercial development structure. Then, on the basis of the current reform mechanism, the auxiliary transformation model of utility is constructed, which is divided into two parts, namely, the ontology business model and the local GPT application management model. The specific structure is shown in Figure 1 below:

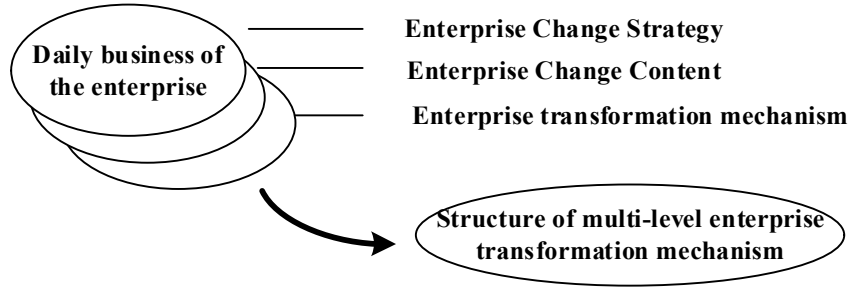


Fig. 1. Structural diagram of multi-level enterprise change mechanism.

According to Figure 1, the design and verification analysis of the multi-level enterprise change mechanism structure are completed. Ontology business model and local GPT application management model are in charge of different enterprise change areas, and establish corresponding relations among them, so as to strengthen the actual change coverage. Then, on this basis, using data sharing technology, a multi-dimensional dynamic data sharing change mechanism program is set in the intelligent management and control platform of the enterprise to monitor the daily development and subsequent strategic adjustment of the enterprise in real time. However, it should be noted that because the system platform has many application functions, a corresponding module can be set up separately in it, which can improve the overall reform efficiency and strengthen the reform effect by combining data sharing technology. Using this program, the tasks, objectives and links of the same type of enterprise change are matched to form a multi-level enterprise change mechanism, and the set change program is introduced to realize the construction of enterprise development environment.

2.3 Construction of data sharing reform system framework under the background of digital transformation

Under the background of digital transformation, combined with the strategy and development plan designed by the current enterprise, and based on data sharing technology, the enterprise reform system framework is constructed. At present, the advanced enterprise reform implementation plan, project library, investment settlement, content, objectives and task setting, combined with data sharing technology, first calculate the promotion ratio of enterprise reform, as shown in the following formula 2:

$$A = p - \sum_{m=1} km + s^2 \times m \quad (2)$$

In Formula 2: A indicates the promotion ratio of enterprise change, p represents the total amount of business, k represents the underlying shared scope, m indicate that number of data share, s indicate that difference value of region recognition enhancement, \mathbb{N} represents a cell value. Combined with the current measurement, realize the calculation of enterprise change promotion ratio, set it as the basic enterprise change standard restriction condition, and then, based on this, design the planning hierarchy under the background of digital transformation, as shown in Figure 2 below:

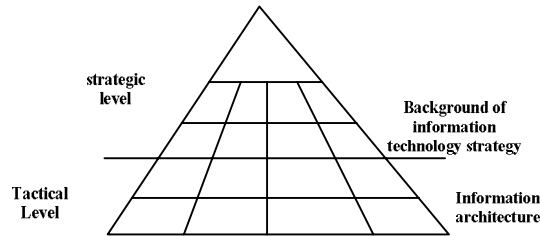


Fig. 2. Diagram of hierarchical structure of digital transformation planning.

According to Figure 2, the design and practical analysis of the hierarchical structure of digital transformation planning are completed. Next, based on data sharing technology, the mechanism and structure set in the current structure are transformed into a complete and concrete enterprise reform system structure to strengthen the future development ability.

2.4 Dynamic digital cross-domain processing to achieve enterprise change

The so-called dynamic digital cross-domain processing method is mainly aimed at the above-mentioned enterprise mechanism and structure, and makes link adjustments to ensure the smooth and stable development of the enterprise. First of all, it is necessary to design a dynamic enterprise change plan, and after defining the implementation objectives and tasks of each stage of the change, use the designed digital platform and combine data sharing technology to design a real-time monitoring cross-domain program, overlap with the platform, and adjust the control parameters and indicators, as shown in the following Table 2:

Table 2. Dynamic Digital Cross-domain Indicators and Parameter Settings Table.

| Dynamic digital cross domain indicator names | Benchmark value of cross domain control parameters in the first stage | Second stage cross domain control parameter reference value |
|--|---|--|
| Dynamic conversion ratio of enterprises | 3.2 | 4.6 |
| Cross domain difference | 0.72 | 0.51 |
| Enterprise Dynamic Integration Hierarchy | Data collection level+data processing summary level+enterprise dynamic adjustment level | Data collection level+data processing summary level+enterprise dynamic adjustment level+enterprise execution level |
| Cross domain processing of content | The business content, execution content, and management content of the enterprise | The business content, execution content, management content, development content, and adjustment content of the enterprise |
| Risk identification controllability rate/% | 96.37 | 98.37 |

According to Table 2, the cross-domain indicators and parameters of dynamic digital are set, and the data processing structure of enterprise management system is adjusted through data sharing technology in combination with the background environment of digital transformation,

so as to improve the framework of enterprise reform system and lay the foundation for subsequent development and enterprise upgrading.

3 Method test

This time, the practical application effect of enterprise change system based on data sharing under the background of digital transformation is analyzed and verified. Considering the authenticity and reliability of the final test results, G enterprise is selected as the main target of the test. According to the current test, under the guidance of more diversified enterprise development goals, we should build a cooperative enterprise development structure, combine the digital social background, and optimize the enterprise reform system by using data sharing technology. According to the changes of current measurement requirements and standards, the final test results are compared and studied. Next, the basic test environment is associated and built with data sharing technology.

3.1 Test preparation

Combined with the background of digital transformation, based on data sharing technology, the test environment of G enterprise's reform system is set up and laid out. At present, according to the development of the enterprise, five reform links are randomly selected for testing, namely, basic management link, business link, employee management link, financial integration link and future planning. Through the data sharing technology, we first set up the related independent enterprise transformation links, in which we set multi-level change processing targets or tasks, and make clear the actual test indicators, as shown in the following Table 3:

Table 3. Setting Table of Management and Control Indicators for Multi-level Change Tasks.

| Basic name for multi-level change task control indicators | Phase 1 Test Control Indicators | Phase 2 Test Control Indicators | Phase 3 Test Control Indicators |
|---|---------------------------------|---|---|
| Project Content | Basic management and business | Basic management, business, and employee management | Basic management, business, employee management, financial integration, future planning |
| Optimal improvement rate/% | 20.31 | 23.83 | 25.83 |
| Enterprise Optimization Elements | Management mechanism | Management mechanism and content | Management mechanism, management content, and change objectives |
| Marketization Service Index | +10.62 | +11.72 | +12.04 |
| Enterprise cohesion ratio | 3.1 | 4.2 | 4.8 |
| Directional evaluation mean | 11.82 | 14.72 | 16.21 |

Combined with Table 3, the adjustment of test indexes and parameters is completed. Next, based on the background of digital transformation, combined with data sharing technology and digital management and control structure, the basic test environment is built, and then, the specific test and verification analysis are carried out.

3.2 Test process and result analysis

In the above-mentioned test environment, combined with the equipment background of digital transformation and based on data sharing technology, specific tests and practical analysis are carried out. Aiming at the selected five enterprise reform links in the enterprise: basic management link, business link, employee management link, financial integration link and future planning. Set up six test cycles, each cycle is set to 30 days, and the content and standards of each cycle are different. This form can further strengthen the reform effect and improve the reform rate. With the assistance of data sharing technology, the monitoring of the change situation and the adjustment of the content, objectives and tasks of each link are carried out through the management and control platform, and finally the core competitiveness index of the enterprise is calculated, as shown in the following formula 3:

$$C = \int (1 + \mathfrak{R}\mu)^2 \times \kappa \quad (3)$$

In Formula 3: C represents the core competitive index of an enterprise, \mathfrak{R} represents the enterprise optimization limit value, μ represents the test cycle, κ represents a controllable coverage area. Combined with the current test, the final verification results can be obtained, as shown in the following Table 4:

Table 4. Comparative Analysis Table of Test Results.

| Directional testing cycle | Phase 1 Test Control | Phase 2 Test Control | Phase 3 Test Control |
|---------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | IndicatorsCore Competition Index | IndicatorsCore Competition Index | IndicatorsCore Competition Index |
| Test Cycle1 | 5.3 | 7.6 | 8.5 |
| Test Cycle2 | 6.3 | 8.2 | 9.3 |
| Test Cycle3 | 6.9 | 7.1 | 8.7 |
| Test Cycle4 | 7.2 | 7.4 | 9.2 |
| Test Cycle5 | 5.9 | 8.9 | 9.6 |
| Test Cycle6 | 6.8 | 8.3 | 8.6 |

According to Table 4, the analysis of the test results is completed: for the set six test cycles, combined with the selected five links of basic management, business, employee management, financial integration and future planning, in the three test stages, the enterprise competition index finally reached above 8.5, which shows that with the help of digital transformation background and data sharing technology, the designed enterprise transformation system has better practical application effect, higher efficiency, strong pertinence and practicality.

4 Conclusion

To sum up, it is the design and verification analysis of enterprise change system based on data sharing under the background of digital transformation. Compared with the original enterprise change structure, this time, under the background of digital transformation, the links and corresponding processes of enterprise change are designed from all angles, and the coverage of current social change is further expanded by combining data sharing technology. According to the actual requirements of enterprise development, a more flexible and changeable enterprise change system framework is designed to carry out enterprise change goals in a targeted manner. From the three aspects of "implementation steps, key technologies and digital transformation ability", we will continuously promote the upgrading and transformation of enterprises, better meet the actual needs of enterprise development, form a dynamic enterprise development program, and complete the digital transformation, providing reference and theoretical reference for the subsequent setting of related enterprises and development directions.

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