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## Basic organization cycle unit: exploratory case study of a cement manufacturing enterprises

Zhao Zhiqiang<sup>1\*</sup>, TIAN Yezhuang<sup>1</sup>, LI Tuoying<sup>1</sup><sup>1</sup>School of Management, Harbin Institute of Technology, 150001, (P.R. CHINA)

Email:zzq\_hit@163.com; Email:lituoying@163.com

### ABSTRACT

Based on the organization cycle perspective, this paper analyzes cycle activities in production and operation of the domestic famous cement manufacturing and reveals 12 basic characteristics of organization cycle activities by using single exploratory case study and grounded theory, then summarizes three basic organization cycle units, which are named evolution cycle, exchange cycle, processing cycle, and it further builds content about the basic cycle unit organization theory, the conclusion of the study has been identified by part of managers. The conclusion of this research made a new breakthrough on the theory of organization cycle, at the same time it provided theoretical guidance to deeply analysis the characteristics of organization cycle activities, to further strengthen the control key point of the circulation unit, and to improve the efficiency of organization cycle activities for managers.

### KEYWORDS

Evolution cycle; Exchange cycle; Preceding cycle; Exploratory case study.



## INTRODUCTION

With the rapid development of economic globalization and the growing uncertainty of market competition, enterprises are under increasing pressure and the high failure rate of enterprises risk will increase<sup>[1]</sup>. Arie DE Geus thinks the high failure rate of companies is blamed for the managers who only focused on profit and financial conditions, and neglected of corporate internal and external interaction<sup>[2]</sup>. Joel E. Ross and Michael J. Kamis summarized ten factors of enterprise decline and nine of them is about the enterprise internal and external elements cycle<sup>[3]</sup>. Ignoring these cycle that causes the enterprise organization and coordination run not smoothly, and the cycle is the main reason for the decline of enterprise<sup>[4]</sup>. Thus, the sustainable development of the enterprise is a systematic project, involving many factors<sup>[1]</sup>, and there is need to reveal the cycle rule between various factors and open "black box" of the organization cycle theory.

The history of management theory which is the history of organization theory, can be divided into four stages: classical organization theory, behavioral science, organization theory, modern management theory and modern organization theory. Classical organization theory, behalf of Taylor and Fayol, Weber, Eritrea, etc., they use scientific methods to organize systematic and theoretical problem for the first time and summarize and abstract a set of principles and methods of the organization and management, promoting the improvement of the efficiency of organization. Organization behavior science theory, with Mayo, Barnard representative, mainly absorbs the achievements of psychology, sociology and other disciplines. It overcomes the classical organization theory that man is a point of view of "economic man", from "social person" point of view, it discusses of organization, group norms and habits which was viewed as an act of helping form and an important factor of productivity. Modern management theory to Barnard, Simon, Custer and Rosen's representative, Wacker overcomes the former two periods from the Angle of static, closed point of view that research the lack of organization, and study management organization with an open and systemic view.

The new development of contemporary management theory research in-depth with the change of economic environment, social environment and the enterprise management after the 1970s, gradually appeared in the organizational culture theory, enterprise reengineering theory, learning organization theory and organization ecology theory, etc<sup>[5,6]</sup>. In the development of the above four stages of organization theory, there are a lot of far-reaching theories which have made great contributions in the history of organization theory, but they have the same problem, the problem is that it ignores the systemic feature of the organization based on the simple hypothesis or single perspective.

The word of organization cycle first appeared in the Analysis of Organization Cycle Stability which is published in the Journal of Management Engineering in 2004. Professor Tian who puts forward the organization cycle concept thinks organization cycle exists in the circulatory system and circulation system refers to the organization "organized by autocatalytic or self-replicating unit of super cycle system". They also think that "this super circulation organization system maintained and accumulated genetic information because of being able to replicate, at the same time under the condition of appropriate external mutated, extend to a more senior level of organization evolution"<sup>[7,8]</sup>. Since then, Yang Yang reveals the - between external interaction in the organization and coordination and control by combining hypercycle theory and loop ideas in Chinese ancient philosophy, through the research of the life characteristics of organization cycle, internal relations of organization cycle interference, diffraction phenomena and mechanism, But none of the above theories researches the basic model of organization cycle<sup>[9-13]</sup>.

Based on the domestic famous cement manufacturing company, this paper uses grounded theory to analyze and research basic circulation mode of in the process of circular movement, paying close attention to its influence on the running state of the organization, aiming at ultimately achieving management improvement by organizing ability of the cycle.

## RESEARCH DESIGN

This paper uses exploratory single case study method. Single case study method is applied to explore the existing theory which has not been effective explanatory phenomenon and can effectively build theory<sup>[14-16]</sup>. The purpose of this paper is to research organization cycle theory which has not effectively explained the basic model of organization cycle. According to the comparative analysis from multiple data sources, the paper constructs three kinds of organization cycle unit and reveals the characteristics of different cycle unit.

At the same time, in practice, this paper adopted the grounded theory which emphasizes "default" and "natural representation" as a tool dealing with qualitative material<sup>[14][17]</sup>. In terms of encoding process, the paper uses qualitative data analysis tool NVIVO7.0 to encode the original materials analysis.

### Case selection

This paper choose domestic famous listed cement enterprises (name A in the following) as the case study object. A enterprise is listed on the domestic famous cement manufacturing enterprises, engaged in cement clinker, cement, cement products production and sale, and is one of the earlier domestic enterprises that introduce foreign advanced technology of cement manufacturing. A enterprises started in the 1970s, now has total assets of 5.5 billion yuan, more than 2000 employees, with an annual output of 9 million tons of cement clinker, cement 2 million tons, production value 2.1 billion yuan. Since 2008, companies use A listed companies financing advantage, scale advantage and technological advantages, has acquired the surrounding provinces and regions more than home small cement enterprises, the rapid growth of the development now has two strategic areas, four major production bases.

Choosing A business enterprise mainly as A case mainly considers the following four aspects: (1) the availability of data. A enterprise base, has the rich query information, and the author once worked in A corporate consulting project, its internal data can be obtained. (2) the representation of the case. A enterprise in manufacturing industry, it has A long history and is A large cross-regional cement group, which has been successfully listed in China. Case company has more than 30 years of reforming and opening up in China and the profound changes of the industry, and is suitable for as a comparative study on time. (3) the match of situation. A business can satisfy the requirement of sampling in this paper through asset

restructuring, listing, organization adjustment and new dry process cement manufacturing method of the model and information construction system of organization and management activities, through the organization system of organic component of the virtuous cycle of profound impact on the running state.

**The data origin**

This study data mainly comes from four aspects: (1) the enterprise internal and external system files, including the company's annual report, industry reports, business plans, technical innovation information, calendar year annual meeting documents, enterprise major policy, management system, etc. (2) the field survey and the interview material, the authors through management consulting services in the process of investigation and interview. (3) enterprise external propaganda in reports, including news, leader's speech, the company's website information, etc. (4) the relevant scientific research data, including journal articles, books and industry research, etc.

**Data selection**

The author strictly accordance with the Yin and Eisenhardt scholars normative requirements for data acquisition in the process of data collection and collects data information through various channels to ensure the data information follow the triangle validation rules and to enhance the reliability of the data collection and research on the validity<sup>[17][19]</sup>. The paper mainly adopts direct observation method, interview method, open YanTaoFa, enterprise history analysis and information gathering methods such as literature analysis from multiple channels to collect information. There is a research team with cases in the enterprise personnel, a team led by 2 graduate students in PhD, 3 assistant researchers, two of the research assistants is responsible for collecting data as required, and cope with the collected information by classification, sorting, analysis, establish information database; Another research assistant is responsible for data encoding, the other two graduate students are responsible for the auxiliary doctoral student to carry on the analytical research and demonstration.

In addition to the collected internal and external text data, the research team starts to carry out the interview work from top, middle, base on three levels, a total of 9 interview with top managers, middle managers 11, grass-roots staff of 24. It will take about an hour on average each interview and it will have three or more members to participate in and the process is needed to record and will be formed after finishing the interview minutes after classification and information database is established. Respectively from the macro, meso and micro three levels, general management activities in the selected database are analyzed, It finally extracts the cycle activities of 206 cycles.

**RESEARCH PROCESS**

**Open coding**

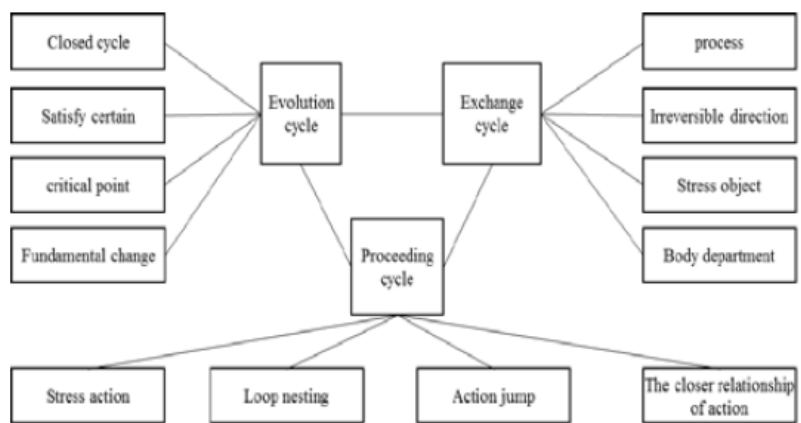
The early period of the open coding data analysis aimed at identifying phenomenon, defining the scope of concepts, finding the category and tackling the problem of convergent, at the same time its key is a data analyzer start without any implementation set to fully open<sup>[19]</sup>. In order to avoid the subjectivity of the research process, the arranged documents are imported the material source of Nvivo, the key statements of describing 107 cycle activity in the 325 documents.

**Axial coding**

Axial coding is contained nature and dimension of enrichment data based on open coding. Therefore, on the basis of open coding, we further inductive and abstract concept formed 12 characteristics, As shown in TABLE 1.

**Selective coding**

Selective coding is based on the axial coding to continue to develop more abstract categories. The author on the basis of previous studies by comparative analysis and demonstration, will be concluded 12 characteristic concept integration for three main concepts, namely the evolution cycle, exchange cycle, proceeding cycle, using NVivo software tree node analysis between the three main concepts and main between the concept and characteristics, as well as the relationship between the characteristics of the concept, are shown in Figure 1.



**Figure 1 : The tree diagram of each main component between concepts**

**TABLE 1 : Case analysis of organization cycle unit**

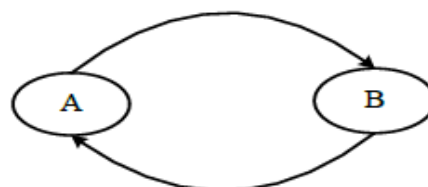
No.	Cycle activityname	Open coding	axial coding
		Organize activities of circulation	Character encoding
A	Procurement-production-sales cycle	Through the purchasing raw materials such as limestone, sandstone, and through the production workshop to carry on the processing of raw materials, production of cement products, finally by the sales department to sell, thus realize the production from raw material to the production process of products to achieve profits. Completing a profit must go through three stages, each cycle stage after the meet certain conditions, realize the fundamental change of physical form, and the evolution cycle in the direction of a single, irreversible, or lose the meaning of the existence of the loop.	Closed cycle Fundamental change satisfy certain conditions The critical point
B	The supply cycle	Raw material purchase cycle activities through the following five steps: management (procurement plan) - purchasing department (purchase order) - warehousing logistics department (delivery confirmation) raw materials, quality testing department (quality inspection report), the financial department (payment). Every link of the circulation activities for object flow, irreversible and direction, only in the last part, after the completion of farewell to the next link.	The irreversible direction Process characteristics The cycle body is department or position
C	Sales cycle	Sales of cement products through the following five steps: management (marketing plan) - market department (price), sales (sales contract), warehousing logistics department (bill of lading and transport), quality testing department (quality inspection report), the financial department (payment). Every link of the circulation activities for object flow, irreversible and direction, only in the last part, after the completion of farewell to the next link.	The Irreversible direction b Emphasizes the object c Process characteristics d The cycle body is department or position
D	Business planning - implementation - fix - in the execution cycle	A business every year in December, according to this year's case study under the annual business plan, business plan after discussion to determine by the subordinate departments cooperate execution, the execution of A specialized management team for inspection of the implementation of the leading group, and put forward A timely correction plan, and will correct strategies used in business activities.	stress the action itself The close relationship between action Action jump circulation nesting

**RESULTS AND DISCUSSION**

**Evolution cycle**

In procurement - production - sales cycle of production and operation, take enterprise A for example. The cycle realized the conversion of raw materials, cement products, profits, and fundamental changes have taken place in the process of the material form., This changes happened to meet certain conditions, and there are strict tipping points. The material must go through the process of production and processing to meet the technical conditions, and then it can become the finished cement. The cycle constitutes a complete closed cycle and cycle subject in this cycle all plays an irreplaceable role, in the completion of this evolution cycle means that the organization implements the replication, adaptive evolution and function.

As shown in Figure 3, evolution cycle refers to the organization starts from a certain state, after a series of changes transforms into another state which has essential differences or directly into another organization; another organization state or another organization transform into the original state or the original tissue after a series of changes.

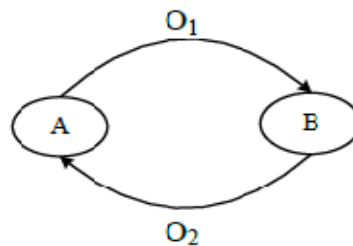


**Figure 2 : The basic form of evolution cycle**

Through study, evolution cycle has the following four aspects:(1) closed cycle. The evolution cycle is a relatively closed process, in the process of the transformation of closed cycle, organization itself completes the work and realize the process of the effects increase or decrease.(2) conditions. Subject evolution cycle only occur in a specific condition, satisfying these conditions need a variety of factors and index, mainly environmental conditions, the constraint conditions, the expected goal. (3) The critical point. Put the organization transformation cycle into space measurement system, and evolution cycle is a boundar. From the longitudinal perspective, the level of the organization transformation cycle is limited; From the horizontal perspective, the organization of the conversion cycle process and the scope is limited, segments can be measured.(4) fundamental change. Evolution cycle achieves fundamental change of physical form or state, it is a qualitative change from quantity accumulation.

**Exchange cycle**

In enterprise production and operation of A supply cycle, involved in the exchange cycle management, procurement department, logistics department, finance department, the cycle body will eventually get to department, each position, these jobs staff business skills and mutual cooperation and collaboration will largely determine the efficiency of the cycle. Each circulation link, at the same time have passed object, such as from management to the purchasing department, which is a purchase plan after a detailed analysis and research, and the plan of maturity will also has important effect on the circulation, and plan of maturity depends on the ability of management. This exchange cycle process has strict limitations, it means if no activities with purchasing start in the purchasing department, logistics department is unable to transportation and storage of goods, this is not from the previous process directly jump to the next process, also can't change the direction of exchange cycle.



**Figure 3 : The basic form of exchange cycle**

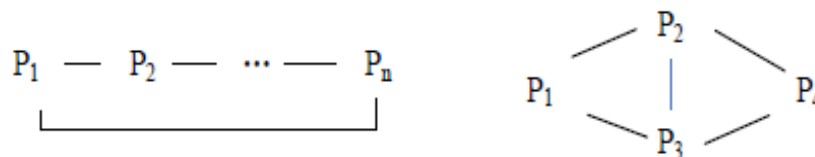
Exchange cycle refers to the existence of two or more independent entities form a cycle movement process by passing objects between them. Exchange cycle can be broken down into three parts: entity, object, passing process, pictured above Fig3. Entity of A and B is the core of the exchange cycle and is the executor of the delivery cycle, completed by the transfer object of action; Object O<sub>1</sub> and O<sub>2</sub> is a physical action of bearing, propagation; Exchange process has direction and order, a single object transfers significantly in the process of input and output sequence.

Exchange cycle has four major characteristics: (1) process. In the exchange cycle, the cycle is carried out in accordance with the certain steps or link, after a step or the link, the next step or link starts. (2) direction. The exchange cycle movement process is linear and is a single directional<sup>[20-22]</sup>, it means the direction of transfer cycle is not reversible.(3) objective. Exchange cycle more emphasis on object, the object directly or indirectly reflect the value of the loopin the whole process of exchange cycle.(4) subjectivity. Exchange cycle demands the cycle body should have a clear position, which is the key node of Exchange cycle.

**Proceeding cycle**

In the cycle of A corporate business planning activities, the process cycle moreemphasis on formulation, execution, check, action in four itself close relationship between theeffectiveness of four and action, because the action itself and the cooperation between activities will directly affect the cycle effect. And making an action can be decomposed into discussion-draft-inquiry-fixed-execute such as small circulation, the processalso confirmed the nested feature of the process itself. Sometimes do not need to check andcorrect, so jumpdegeneration characteristics of action cycle itself determines the complexity of the circulation activities.

Proceeding cycle means the action P<sub>1</sub> from beginning, to P<sub>2</sub>, P<sub>3</sub>... P<sub>n</sub>, then back to P<sub>1</sub>, which is an order, direction, a periodic cycle. As shown in Figure 4, P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>... P<sub>n</sub> is every action of Proceeding cycle, the occurrence of these actions one by one, and the process continues. Proceeding cycle emphasizes the action with the switch between relations, namely the previous actions and the cohesion of the next action.



**Figure 4 : The basic form of proceeding cycle**

Proceeding cycle has four major characteristics: (1) emphasizes the action itself: Proceeding cycle itself does not emphasize the subject or object, but pays more attention to the action itself, the action is considered necessary, such as seminars, execution, supervision and inspection, planning, consultation and so on, which are common action in the

organization. (2) Emphasis on the relationship between actions: Proceeding cycle emphasizes the action itself, at the same time, it also focuses on cooperation between action, every action appears to be independent process, but the every action is mutually restrict and influence each other. (3) Action jump: In Proceeding cycle, the action is decomposable and disappears along with the change of certain conditions, therefore in the proceeding of circulation, the action is usually characterized by a "jump" characteristics, are shown in Figure 4. It should be pointed out that, if the action of jump presents no rule changes, the regularity of the proceeding cycle will be broken<sup>[23,24]</sup>. (4) nested loop: Proceeding cycle can be nested cycle, the big cycle nest a small cycle.

## CONCLUSION

Taking the domestic famous cement manufacturing company as a case study, the paper analyzes cycle activities in production and operation of the domestic famous cement manufacturing and identified different cycle characteristics in production and business operation activities of A enterprise, accordingly, sums up three basic unit organization cycle as a basic form of organization cycle activity, evolution cycle, exchange cycle and proceeding cycle, At the same time, the study in the process found that any cycle activities in the organization are formed by the three basic cycle unit and the complex form of a variety of cycle unit. Managers can strengthen the ability of the key points of control or the cycle unit through identifying in the organization of the different types of circulation unit, understanding the characteristics of this kind of loop activity, and it is advantageous for the enterprise to improve management level.

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