Research & Application the LIQUN Productivity System Based on Integrated AHP/QFD

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Abstract. Through the implementation of "Liqun brand productivity system exploration and research" project, in the era of today's fast changing customer requirements, follow and lead the customer demand, forming Liqun has its own characteristics of management system and mode.

Background

Liqun industry has become two kinds of cigarette sales scale first, a kind of cigarette sales scale of sixth big brands. At present, Hangzhou cigarette factory is facing one of the challenges is how to further the manufacturing plant and the nature of the process for the ability to focus Liqun brand, construct Liqun brand productivity system based on, to open up the production lay the foundation for the full support of security Liqun product quality and brand development.

QFD: (quality function deployment), it is with multi-level deductive analysis, customer requirements into product development, design and production of a series of technical characteristics, to the market as the guidance, to the customer demand as the basis, the early stage in the design and development on the applicability of the product implementation to ensure the full range of system technology. QFD can be used as the main method of brand productivity system construction.

The advanced international management concept and the domestic actual situation of integration, at the same time, pays close attention to the quality technical service solution implementation and execution of the feasibility and at different levels of management for the enterprise provides support services, to help enterprises overcome to implement all kinds of obstacles in the process. Through enterprise jointly set up an open and interactive service platform, team work and education and training system, to enterprise teach to discover problems, analyze and solve problems of management methods and tools to enhance the enterprise's own management and operation level.

Project Meaning

Through the implementation of "Liqun brand productivity system exploration and research" project, in the era of today's fast changing customer requirements, follow and lead the customer demand, forming Liqun has its own characteristics of management system and mode. The project in cooperation with Zhejiang University, using the quality management research center, Zhejiang University research strength, QFD is applied to brand the productivity system, and strive to walk out of a with management mode of its own characteristics, so as to build Liqun brand core competitiveness.

Framework of the Project

The overall project to customer demand and brand analysis as the starting point, from the top down to the management requirements of the customer demand. The overall framework is as follows:
Theoretical Basis

Kano model, Kano model): the traditional cognition of customer demand is single dimensional that meet the quality characteristics of a product, the customer will satisfaction, product quality meet, the customer will be satisfied; and Dr. Kano on a questionnaire on the basis of analysis found single dimension quality cognitive methods can not fully reveal customer preferences and behavior, further through a lot of theoretical and empirical research, set up of the quality characteristics of fulfillment and satisfaction degree of two dimension cognitive. As shown in the following figure:

The Kano model attractive quality theory foresee product characteristics are dynamic, is said for
some time, a quality property will be evolved into indifference quality characteristics and charm quality characteristics, one-dimensional quality or characteristic of course quality characteristics.

QFD (Quality Function Deployment): quality function deployment of Quality Function Deployment (QFD): quality deployment and quality function deployment collectively, produced in the 60s of the 20th century in Japan, and in 1991 by returned to Japan to study the professor Xiong will be the introduction of the Chinese. QFD is customer demand will be converted into substitute quality characteristics, and to determine the product design quality, and then the design quality system to expand to the quality of parts and the quality of various functional components of quality and service projects, and manufacturing process the elements or the service process of the various elements of the relationship, so that product or service in advance will be able to complete a quality assurance, in line with the requirements of the customer. It is a systematic technical method. Typical QFD quality housing model.

![Diagram of QFD process](image)

**Figure 3.**

AHP (analytic hierarchy process): American T.L. Satty well-known operational research experts put forward the analytic hierarchy process (AHP), the method combines the two kinds of qualitative and quantitative methods, do the level and system of the can actually achieve semi qualitative and semi quantitative to quantitative transformation of the effective method, so that people's thinking process of hierarchical. The application of the method, the decision makers take method of decomposing complex problems into processing on a number of factors and levels, so as to realize the calculation and comparison, corresponding to the weight of the plan, to choose the best program evidence-based.

The principle of the method is: the hierarchical structure of the constraints, objectives and sub objectives as the basis, on issues related to the evaluation, judgment matrix is determined mainly choose analogy method, coefficients are determined for judgment matrix with the largest eigenvalue eigenvector component value, according to the content of the finally get corresponding weight. So, it is widely used in the fields of computing, resource allocation, planning, policy analysis, ranking, conflict resolution, military management and so on.

AHP's analysis ideas are as follows:
The Application of the Method

Collection and Analysis of Demand

Combing through customer demand for data collection and brand, market and other multiple departments in-depth interviews and questionnaire design and data analysis, customer demand for tobacco products, and the elements, which influences their brand needs concise, structured by the affinity graph.

Brand Influencing Factors and the Establishment of Quality House

Through the use of QFD and AHP method, the customer demand and the internal technical indicators directly to establish the matrix type of association, the internal management parameters and demand directly linked to the internal logic of the relationship between the two.

Using AHP Method, the Quantitative Evaluation of Management Elements

According to the function of "management excellence" module, the evaluation of the importance of the AHP method has formed the relative weight of the internal elements of the "management excellence".

Using AHP software to assist analysis, the relationship between the internal elements can be carried out in detail.

On the Expansion of the Productive Elements in the Service Sector

AHP analysis of the weight of the data as input, the establishment of "management excellence" and the expansion of the functions of the various elements, and then get the internal logic between elements and functions. Take the office department as an example, the "management excellence" elements and the key issues in the Department to establish quality housing, the elements and the Department of internal affairs of the logic of the logic of the relationship between the two iteration.

Evaluation of Productivity Factors

The evaluation method of internal affairs of the Department is studied, and the evaluation system of productivity elements is formed:
### Table 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Weight</th>
<th>Evaluation factors (qualitative and quantitative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The introduction of advanced management methods</td>
<td>0.09</td>
<td>give an example: 1 methods for plant suitability; 2 methods to promote the scope of; 3 methods to promote the stage, the degree of participation; improve the situation; 4 departments with the situation, and the company's overall goal of the degree of fit.</td>
</tr>
<tr>
<td>2</td>
<td>Management innovation achievement</td>
<td>0.07</td>
<td>1 the number of management achievements; quality; 2 international, national, provincial and ministerial level, industry; 3 economic benefit, management benefit.</td>
</tr>
<tr>
<td>3</td>
<td>To carry out scientific and technological innovation projects</td>
<td>0.11</td>
<td>1 the number of management achievements; quality; 2 international, national, provincial and ministerial level, industry; 3 economic benefit, management benefit; 4 employee involvement; employee promotion certificate. (certificate of rank: black belt, senior technician)</td>
</tr>
<tr>
<td>4</td>
<td>Target management</td>
<td>0.08</td>
<td>1 objectives of the strategic development of the support; 2 objectives are consistent with the SMART principle? 3 target is there a process monitoring? 4 whether the target is adjusted according to the actual situation.</td>
</tr>
<tr>
<td>5</td>
<td>performance appraisal</td>
<td>0.11</td>
<td>1 assessment of the district division? - classification hierarchy; pertinence 2 whether there is performance follow-up, whether there is improvement 3 performance evaluation and job matching degree; 4 performance appraisal to honor the degree; the implementation of reward punishment.</td>
</tr>
<tr>
<td>6</td>
<td>Propaganda and management</td>
<td>0.05</td>
<td>1 the quantity and quality of the publicity work (influence); 2 timeliness of publicity; 3 publicity media is diverse? The scope of the audience? And targeted 4 propaganda work participation degree; team construction</td>
</tr>
<tr>
<td>7</td>
<td>Team building</td>
<td>0.05</td>
<td>Five star team building: benefit type, safety type, innovation type, harmony type, learning type.</td>
</tr>
<tr>
<td>8</td>
<td>Integration of the new system</td>
<td>0.09</td>
<td>1 whether to identify the new system? 2 whether the new system has been systematically combed; 3 whether the new system management requirements are integrated into the existing system; (standard)</td>
</tr>
<tr>
<td>9</td>
<td>Management review</td>
<td>0.05</td>
<td>1 is to conduct regular management review? 2 management review elements are comprehensive? 3 tube evaluation output is closed loop?</td>
</tr>
<tr>
<td>10</td>
<td>Human resource planning</td>
<td>0.03</td>
<td>1 is the planning of human resource requirements ahead of schedule? 2 job standards, responsibilities are regularly revised and updated? 3 personnel setting is in compliance with the requirements of the development of the enterprise?</td>
</tr>
</tbody>
</table>

**Test Run Feedback of System Evaluation**

The evaluation system in the company to carry out a test run assessment, the current
comprehensive score, and the scoring criteria and rules for further refinement. Use FMEA method to carry out the risk prevention.

Summary and Prospect

After half a year of advanced management methods and the use of internal management, exploratory methods and the actual management of the combination, summed up the experience and experience, mainly the following points:

1. To quantify the fuzzy management, the need for a scientific approach to maturity as the core;
2. Method itself has certain applicability and limitations, where and how to use is in constant attempts to gain experience and optimization;
3. By experimenting with the use of various methods of integrated, the formation of Liqun productivity system requires continuous improvement of the mechanism for the formation, through the practice of continuous feedback and correction, allowing the system to obtain the self-evolution function, further guide enterprises to the actual work.

Believe that through Liqun productivity system of continuous exploration, research and practice, will form a Liqun unique characteristics of the management model, and make a modest contribution to the industry management innovation and practice.

Author Introduction

Ni Xiongjun, Han nationality, senior economist, a postgraduate degree, the 1970 October 24, was born in Zhejiang Yongkang, the current post in Zhejiang Tobacco Industry Co., limited liability company production management department, mainly engaged in manufacturing enterprise production management.

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References


