

Supporting Processes

4. Equipment operating time⁸

Measurement criteria

- Technical equipment availability (Kext).

$$1. K_{ext} = \frac{Tf}{Tf + Tpm + Tpm + Tpoc} \quad (13)$$

Tf: operating time

This indicator should tend to one

2. Expenses per selling weight

Measurement criteria

- Material expenses by sales weight.

$$GM_p = \frac{M}{V} \quad (14)$$

Tp: stop time, includes time of shutdown by maintenance (Tpm) and time by other stops such as technological (Tpt), by raw materials (Tpmp) and other causes (Tpoc).

M: material expenditure
V: value of sales.

- Wage expenditure by sales weight.

$$GS_p = \frac{S}{V} \quad (15)$$

S: wage expenditure

For these two indicators should be calculated for planned and actual levels.

Specific indicators⁹: for these indicators, the planned reference level is the planned level and, if it does not exist, it must be determined according to the planned primary indicators of the organization. They are analyzed from the perspective of efficiency and effectiveness.

3.2. Calculation of the business efficacy index (IEE)¹⁰: once the effectiveness indicators have been determined, they are calculated or measured. With this information the following table 2 is formed.

Table 2. Fragmentary indicators (Ind)

| Periods | Indicator 1 | | ... | Indicator n | |
|---------------|-------------|------|-----|-------------|------|
| | Reference | Real | | Reference | Real |
| 1 | | | | | |
| | | | | | |
| n | | | | | |
| Average (Pij) | | | | | |

Source: Adapted from Lores Rodríguez and Perdomo Rojas (2010)

Since all the measured indicators do not have to have the same weight or importance for the variable to which they respond, it is necessary to apply a method of experts that allows determining the weight of each indicator. The expert group should be between seven and 15 to maintain a high level of confidence and qualification (INC 49: 1981 C. Quality, Expert Methods).

$$M = \frac{P(1 - P)K}{i^2} \quad (16)$$

M: number of experts

i: desired level of precision

K: constant whose value is associated with the chosen confidence level.

P: estimated proportion of errors of the experts

The values of K are listed in Table 3.

⁸ Taken of Cora (2013).

⁹ They are settle down for the indicators of effectiveness and efficiency.

¹⁰ Taken of Lores Rodríguez and Perdomo Rojas (2010).

Table 3. Values of the constant K

| Confidence Level (%) | K |
|----------------------|--------|
| 99 | 6,6564 |
| 95 | 3,8416 |
| 90 | 2,6896 |

Source: Ibarra Mirón (2003)

To make the table that includes the standardized ranges (Rstij) (table 4) for the indicators of business efficiency, the weight that each represents in the efficiency and the IEE the following calculations must be performed:

$$Rstij = \frac{Vij}{Pi} \quad (17)$$

Rstij: standardized range of indicator i in period j

Vij: value of indicator i in period j

Pi: average of the indicator i (always working with the reference average).

IEEj: business efficiency index in period j..

pi: indicator weight i.

IEE Calculation

$$IEEj = \frac{\sum_{i=1}^n pi * Rstij}{\sum pi} \quad (18)$$

Table 4. Business Effectiveness Index (IEE)

| Periods | Rstindicator 1 | | ... | Rstindicator n | | IEE | |
|---------|----------------|------|-----|----------------|------|-----------|------|
| | Reference | Real | | Reference | Real | Reference | Real |
| 1 | | | | | | | |
| | | | | | | | |
| n | | | | | | | |
| Weigth | | | | | | | |

Source: Adapted from Lores Rodríguez and Perdomo Rojas (2010)

3.3. Calculation of the business efficiency index (IE_{fE})¹¹: this is done in a similar way to the calculation of the IEE. In this case the analysis will be oriented to the indicators of business efficiency.

Stage 4: Analysis of the causes

Objective: To determine the causes by process and perspectives.

As a result of the previous stage, the association of each deficiency with the process (s) in which it is manifested is obtained. By explicitly establishing existing relationships, hierarchical dependence is evidenced and solution priorities are established.

Phase III: Projecting Solutions

Objective: to establish the corrective actions and the plan of action.

Stage 5: Establish corrective actions

Objective: to define corrective actions in an orderly manner.

Corrective actions should be determined for the improvement of business management.

Stage 6: Elaboration of the action plan

Objective: to prepare the action plan

In the elaboration of the action plan, it is part of declaring: tasks, involved, responsible, resources and the date of control and compliance.

Techniques: method of weighted and standardized indicators, weighted voting, multicriteria modeling, group work, Goldratt reality tree, cause-effect diagram (Ishikawa).

Phase IV: Implementation and Adjustment

Objective: to elaborate the implementation schedule, its correction and adjustment.

¹¹Taken of Lores Rodríguez and Perdomo Rojas (2010).

Stage 7: Implementation of the action plan

Objective: to execute the corrective actions of the action plan and to control its development. Implementation will be achieved through the implementation of the action plan.

Stage 8: Evaluation and adjustment

Objective: to monitor the proposed change, adjusting if necessary.

The evaluation of the measures is carried out and according to the results (effective or not) the procedure is repeated from the Diagnosis phase, to guarantee the control and the feedback.

Techniques: teamwork, brainstorming, results analysis.

Results

Phase I. Preparation

Stage 1. Involvement

Step 1. Presentation: a meeting was held where the essence and importance of the study was reported and the need to collaborate in obtaining accurate results.

Step 2. Selection of staff and allocation of resources the working group was formed taking into account the experience of the experts in the subject. In addition, the activities to be carried out at each stage of the procedure, as well as the dates for their control and compliance were defined.

Stage 2. Systemic analysis of the company

Step 3. Characterization of the entity: the installation is essentially responsible for providing accommodation, gastronomy and recreation services to national and international tourism. It provides for the assurance of both material, financial, technological and human resources.

Step 4. Description of the main characteristics of the area under study

4. 1. Determination of the scope of the investigation: to give a comprehensive assessment of business management, the study was carried out in the complete installation.

4.2. Definition of the main characteristics of the area under study. Not applicable.

Step 5. Analysis of the processes

5. 1. Identification of the processes: these are identified, however the totality of the activities developed in the hotel installation are not included in the processes, such is the case of Environmental Management..

5. 2. Classification of processes: hereinafter they are characterized briefly.

Strategic processes: strategic planning encompasses quality and environmental management and economic-financial management.

Operative processes: Provision of the service includes the activities of Accommodation, Gastronomy and Recreation and Commercial Management.

Support Processes: Purchase Management, Technical Services and Human Capital Management.

5. 3. Confection or redesign of the process map: the process map is not contextualized for the installation, so a proposal was made.

5.4. Elaboration and (or) improvement of the general files of the processes: the files of the processes were perfected.

5. 5. Creation or refinement of the process flowcharts: in the same way, the flowcharts of the processes were elaborated.

Phase II. System diagnostics

Stage 3. Determination of the evaluation index

3.1. Proposal and selection of indicators: it was taken into account that the indicators corresponded to the interests of the company.

Efficacy indicators

Strategic processes

1. Fulfillment of Vision

Measurement criteria

Vision Design: The vision of the company meets the established requirements.

2. Compliance with the strategic objectives: the analysis was carried out through the consultation of the annual balance sheets issued by the Head Office for the period 2015-2016. As a result, the Strategic Objectives (OEs) were achieved by each Key Result Area (ARC).

ARC 1. Assurance to the Plan of the Economy: the results of the income and profits are not satisfactory in the analyzed period. This result influences the quality of service.

OE 1.1 Replacement of imports: by data offered by the organization this objective behaved 100% in both periods.

ARC 2. Effectiveness in business management

OE 2.1 Investments: they were not culminated by delays in the supply of the required equipment due to difficulties with the suppliers.

OE 2.2 Logistic management: this objective analyzes the behavior of the company's inventory. There is a high value (105.5%) of slow moving resources.

OE 2.3 Internal control: for information provided it is known that in 2015 this objective was fulfilled 100%, since satisfactory evaluations were issued in all actions. For the analysis of the year 2016 was obtained the information of the evaluations carried out: Special Audit (Acceptable), Categorization of the Central Warehouse (regular). It can be argued that this objective was fulfilled to 90% since it was only obtained regular in an evaluation.

Taking into account the strategic exercise for this period and despite the fact that deficiencies were detected in strategic management, it can be said that the company is in a position to achieve its vision. To integrate the analysis of the measurement criteria, formula 1 was applied to determine the real value. Likewise, the reference value was determined from the multiplication of the comparison patterns of each measurement criterion. In the case of the indicator Compliance of the vision behaved in 91.76% in 2015 and 85% in 2016, values that exceed 70% of reference.

3. Environmental management

Measurement criterion

✓ Management commitment for the implementation of policies and programs: the hotel has implemented an Environmental Management System based on values and principles. Among the supporting documents are policy, objectives and environmental strategy. When analyzing compliance with this measurement criterion, 80% were obtained in 2015, a value that does not meet the 82% reference because the treatment to nonconformities presented deficiencies, which were eradicated in 2016, where it was obtained 100%.

✓ Results in external evaluations: the organization shows satisfactory results in terms of external evaluations, so that 100% is met, a value that exceeds 85% of reference. No evaluation was conducted in 2015.

4. Quality management

Measurement criterion

✓ Policy design: it has the quality policy, which reflects in a clear, logical and achievable way that customer satisfaction comes first, in close correspondence with the mission and vision for the current period. The workers are not identified with the policy outlined since 64% raises not knowing it, although it is graphically disclosed.

✓ Design of quality objectives: the quality objectives set for the period are considered measurable, achievable and framed in time. They are closely related to politics.

✓ Implementation of policies and programs: information obtained through direct observation (graphic disclosure) and document review (Resolution No. 61/2008: Quality Policy) was taken into account. It was verified that the entity has the documents and records related to the Quality Management System. It was verified the presence of results of audits and evaluations carried out, besides the plans of corrective and preventive actions to eradicate the nonconformities. In general this element behaved to 50% in 2015 and 2016, a value that is below the 54% of reference.

Operating processes

5. Level of service

Measurement criteria

It was started with the NSd analysis, which was worked with a value of 85% according to previous studies. In order to determine NSpr, an interview was conducted with the waitresses and administrative staff, showing results that are available to satisfy the demand. As for the NSpe also an interview was applied to the clients. The result showed that 75.2% of the respondents expressed dissatisfaction with the quality of the service by:

- ✓ Comfort: faults in the area of the rooms, by the presence of cats and insects; existence of some defective items such as: TV controls, switches, outlets, etc., which could not be repaired or repaired for lack of resources to perform the maintenance.
- ✓ Cleanliness: negative criteria of rooms and gastronomic services given by the presence of animals
- ✓ Information: complaints from the reception area and telephone, there is only one worker in this area and cannot attend to all customers simultaneously, also has influenced the technical status of the phone.
- ✓ Courtesy: the faults in the accommodation and gastronomic services sub-process are identified, affecting the reception, telephone and room phases.
- ✓ In the rapidity affects the attention to the telephone, originated by the same causes referred in the previous indicator.

Supporting Processes

6. Analysis of the quantities supplied and the equipment: from the analysis of the indicators of supply management, it was obtained that 98.22% of the overall compliance of the supply plan was reached; with respect to the assortments only 97.33% is achieved, mainly for the utensils for repair and maintenance, parts, pieces and accessories. This result influenced the deficit of these resources by the fundamental provider, preventing maintenance in the area of the established tasks. Overall, it was favorable, except for the whiteboard because of its technical status.

7. Satisfaction of human capital (concrete motivation): it was determined that about 81% of workers are dissatisfied (information obtained from applying a job satisfaction interview to workers) influencing the particular motivator stimulation to effort and individual outcome because they state that wages do not correspond to the task they perform and there is no coherence between the results of the workers and the stimuli they receive, problems were identified with the welfare and working conditions because the conditions of transportation do not fit the needs of the worker and the tools and work tools are not enough to perform the tasks satisfactorily.

Efficiency Indicators

Strategic Processes

1. Compliance with the plan of the economy: For reasons of reliability of the information related to investments in fixed assets, economic profitability could not be calculated.

Operating processes

2. Continuity:

Continuity of service (Ks) and force (Kf)

For the calculation of these indicators it was necessary the application of the individual photograph, the results are presented in table 5.

Tabla 5. Results of service continuity and labor force

| Areas | Continuity of service | Continuity of the workforce |
|-------|-----------------------|-----------------------------|
|-------|-----------------------|-----------------------------|

| | | TE (min) | TTS (min) | Ks | TE (min/LD) | Ft (min/LD) | Kf |
|-------------|--------------------|-------------|--------------|-------|----------------|----------------|-------|
| Reception | Hotel Receptionist | 610 | 720 | 84.72 | 627.67 | 720 | 87.18 |
| Maintenance | Operator 1 | 390 | 480 | 81.25 | 415 | 480 | 86.46 |
| | Operator 2 | | | | 412.34 | | |

The results show that there are factors that affected the continuity of the service because the level is not reached 85%. At the reception was due to the lack of models to perform the customer reception, electrical damage and interruptions in the blackboard also because the hotel receptionist has to answer the phone in addition to performing other functions of the activity and this causes delays in giving response to customer requirements. In maintenance, was significant the lack of spare parts for minor maintenance and maintenance that were not scheduled for the day. With respect to the Kf, the values reached allow to affirm that there is a correct use of the work force. Supporting Processes

3. Equipment operating time: the analysis could not be performed due to lack of availability of information.

3.2. Calculation of the business efficiency index (IEE): a database was prepared with the fragmentary indicators that included the values resulting from the diagnosis for each period and later the standardized ranges were calculated for each indicator. With these data the IEE was calculated, where 83.33% was obtained in 2015 and 85.58% in 2016. Although the values show a tendency to increase, there are reserves that must be exploited.

3.3. Calculation of the business efficiency index (IEfE): the same procedure was followed as the previous analysis. The IEfE was then determined, which resulted in 87.61% in 2015 and 87.9% in 2016. These values are favorable when experiencing a slight increase, despite not being 100%.

In order to analyze the general behavior of business management, the authors determined the value of a generalizing indicator that, through average, integrated efficiency and efficiency indices. In 2015, 85.47% and 86.74% were obtained in 2015, which shows a favorable increase for the hotel..

Stage 4. Analysis of the causes: during the diagnosis, symptoms were detected that limit a better functioning of the organization. The current Reality Tree technique was applied with the objective of finding the root problems so that by eliminating them they contribute to the gradual solution of the rest of the negative consequences that they provoke.

Stage 5. Establishment of corrective actions: corrective measures are proposed to the deficiencies detected in each process, materializing in the next stage.

Stage 6. Preparation of the action plan: An action plan (table 6) was drawn up with the elements required for its implementation.

2.4 Phase IV. Implementation and adjustment

Stage 7. Implementation of the action plan: the proposed action plan was assessed to the management of the company to assess its implementation.

Stage 8. Evaluation and adjustment: it was explained that the changes must be followed up and, if necessary, adjustments must be made. The management of the company was promised to evaluate the results and if not favorable, to repeat the procedure from the diagnostic phase. This ensures satisfactory business management.

Table 6. Proposal for improvement actions

| Nu. | Improvement Actions | Responsible | Date of Compliance | Resources |
|----------------------------|---|-----------------------------|--------------------|-------------------|
| Operating processes | | | | |
| 1 | Coordinate with the company Execution of the maintenance on the telephone | Chief of technical services | Short | Term Time, humans |

| | | | | |
|-----------------------------|---|--|------------------|-----------------------------|
| | blackboard | | | |
| 2 | Perform internal call of the place of operator to equipment and tourist facilities | Human Resources Specialist | Short | Term Time, humans |
| 3 | Ensure the maintenance of the maintenance tasks to the rooms | Chief of technical services | Short | Term Time, humans |
| Strategic processes | | | | |
| 4 | Conduct monthly emulation checks | Director of the entity and general secretary | Short | Term Time, human |
| 5 | Raise the results of the analysis of the stimulation system to the direction of the company | Director of the entity and specialist of Human Resources | Medium Term Time | human, financial |
| 6 | Update the proposed technical services activity plan | Chief of technical services | Short | Term Time, humans |
| 7 | Monthly update the report of the deficit inputs and send it to the company | Purchasing Manager | Short | Term Time, human, financial |
| 8 | Managing the purchase of parts for the maintenance of the rooms | Head of Purchasing Management | Short | material, financial, human |
| Supporting Processes | | | | |
| 9 | Perform an objective work with the reserve of cadres (define the labor competencies for each of the positions) | Specialist B HR | Short | Term Time, human |
| 10 | Development of the reserve week of leaders | Leaders of each area | Medium term Time | Term Time, human |
| 11 | Comply with the master strategy of preparation and development of the cadres, professionals and reserves of leaders | HR Specialist B | Medium term Time | Term Time, human |
| 12 | Ensure compliance with training actions of leaders and reserves | HR Specialist B | Medium term Time | Term Time, human |
| 13 | Submit proposals for mission, vision and process map of the facility for approval | Director of the complex | Short | Term Time, human |

Conclusions

A methodology was developed that allows an integrated evaluation of business management by processes through efficiency and effectiveness indicators. The application of the procedure in the entity under study shows that the performance evaluation is not favorable. When evaluating the performance indicators for each of the processes it is evident that there are difficulties in these, the most representative are related to the operational and support processes. Solutions and an action plan were proposed to eradicate identified deficiencies.

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