PERFORMANCE IMPROVEMENT OF A SERVICE INDUSTRY USING SAP-LAP: A CASE STUDY

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Abstract
This research is an attempt to improve the performance of service industry “Agile Parking Solution Pvt. Ltd.” In this dynamic environment adaptation to Flexible System Management is the need of today’s service start-up. A Holistic framework is developed to implement Flexible System Management that contains basic entities and attributes. To accomplish this work data has been collected by observations made in the field, discussing with the members, interviewing the top management and with the help of questionnaire. The questionnaire consist of Situation, Learning, Action and Performance and it was filled by top management on the Likert scale of 10. Actor-process matrix has been generated by using Situation–Actor-Process (SAP) – Learning-Action-Performance (LAP) model. Different weightages have been assigned to each Situations, Learnings, Actions and Performances as mentioned in the questionnaire and a Quantified actor-process matrix considering weightages has been calculated. On the basis of this matrix SAP-LAP hill framework has been prepared. This hill framework will give the location of high and low peaks. The lower peaks suggests that there is need to change in the processes or management in such a situations with priority while there is no need to disturb the higher peaks.

Keywords: Flexible System Management, SAP – LAP Framework, Service Industry, Situation Analysis, Actor-Process Matrix.

1. INTRODUCTION
Start-up companies are newly funded companies or entrepreneurial ventures that are in the phase of development and market research. (Mao, 2012). Service Operation is to make sure that services are delivered effectively and efficiently. The service operation lifecycle stage includes the fulfilling of user request, resolving service failure, fixing problems, as well as carrying out routing operational task. Today you can search and book on demand cabs, movie, dinner date or even laundry service on your phone and yet you are forced to waste your time, fuel, and energy on parking problem. Agile Parking Solutions Pvt. Ltd. are committed to digitize the parking industry through mobile solution and empower motorists with a birds eye view of all parking relevant information. SAP-LAP is a well-developed instrument for measuring the flexibility of organizations (Thampi, 2016). SAP-LAP is a framework which facilitate an integration process for use and analysis by practitioner and researchers alike (Kumar, 2012). The aim of case study is to identify issues for each situation and to take out the suggested action for improvement in the performance. In any industrial environment, situation changes very fast, so actor must be flexible enough to change the process and bring out modified services or solution with new features at competitive rate. Otherwise, they will be out of market. In this paper, learning issues in each case have been described, possible actions have been suggested and expected performance has been taken.

2. LITERATURE REVIEW
The SAP-LAP model has gathered lot of attention over the years and has been utilized by number of researchers and Literature review reveals that SAP-LAP model has been used in variety of situations through case studies (Sushil 2001; Husain et al. 2002; Kak 2004; Ravi and Shankar 2006; Arshinder et al. 2007; Charan 2012). The SAP-LAP paradigm synthesizes the hard and soft system thinking (checkland 1981) by incorporating both learning and action in a symbolic manner coupled with the performance. Now a days the country is witnessing some strong growth in the startups because of the favorable conditions and schemes by the government and Parking industry is a one which has good potential and scope to achieve success. SAP-LAP analysis provides a framework that may be effectively applied to develop either generic or specific models for any case context (Sushil, 1997, 2000). Table 1 shows the findings from various research paper along with their titles and author names.

Table 1: Application of SAP-LAP in various industries.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Year</th>
<th>Title</th>
<th>Author</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2016</td>
<td>The Impact of market orientation levels on business performance result: The case of service industry</td>
<td>Sergie Kazakov</td>
<td>Market orientation delivers positive impact on the company’s overall performance.</td>
</tr>
<tr>
<td>2</td>
<td>2016</td>
<td>Creative leadership for workplace innovation: An applied SAP-LAP framework</td>
<td>Koustab Ghosh</td>
<td>SAP-LAP contributes in creative leadership development</td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td>Impact of start up support through guided preparation</td>
<td>Juita-Elena (wie) yusuf</td>
<td>Guided preparation contributes to a greater likelihood of achieving positive start-up outcome.</td>
</tr>
<tr>
<td>4</td>
<td>2014</td>
<td>Parking Management</td>
<td>Tom rye, Till koglin</td>
<td>Parking policy and Parking Management are key to urban mobility.</td>
</tr>
</tbody>
</table>
3. METHODOLOGY
Information regarding Agile Parking solution Pvt. Ltd. has been gathered by discussion with CEO and other team members. 10 important situation has been considered for analysis. All situation are studied carefully. With the help of above, personal, the actor and process involved in that situation is identified. Further analysis helped to evolve the learning issues in each situation. The actions are decided in view of learning issues. Finally, various performances of the organization are set, which are expected outcomes. Using these data, an actor-process matrix has been made. Next step is to quantify them. The response of 10 members ranging from CEO to Engineer level is carried out. It is quantified by giving score for each situation, learning, action and performance. Each score is then added to obtain the quantified actor process matrix considering weight ages. With the help of this matrix SAP-LAP Hills considering weight ages is obtain which gives result for analysis.

5. SAP – LAP FRAMEWORK FORMATION.
Situation occurs in unexpected way they are fluctuating in nature. Depend upon Situation, Actor is decided. Different Situation have different different actor. An interplay of Situation, Actor and Process (SAP) leads to Learning, Action and Performance (LAP).

SAP part is prepared based on these meetings which include 10 Situation, 11 Actors and 12 Processes. With the help of SAP part is completed by discussion with the head of departments and CEO of the company. Then a quantified actor process matrix is made with discussion with CEO. After the completion of actor-process metrics, the trial for quantification is carried out. It is quantified by giving score for each situation, learning, action and performance. Each score is then added to obtain the quantified actor process matrix considering weight ages. With the help of this matrix SAP-LAP Hills considering weight ages is obtain which gives result for analysis.

4. DATA COLLECTION & ANALYSIS
In order to collect data, regular visits were made to various parking lots in Delhi and many key meetings were made to various department of Agile Parking Solution Pvt. Ltd. and many key meetings were held with the head of these departments to understand the present status of the firm based on observed situation. An Interviewing technique is used when meetings were held with the different departmental heads to obtain relevant information regarding observed situation. Then

SAP part is prepared based on these meetings which include 10 Situation, 11 Actors and 12 Processes. With the help of SAP part is completed by discussion with the head of departments and CEO of the company. Then a quantified actor process matrix is made with discussion with CEO. After the completion of actor-process metrics, the trial for quantification is carried out. It is quantified by giving score for each situation, learning, action and performance. Each score is then added to obtain the quantified actor process matrix considering weight ages. With the help of this matrix SAP-LAP Hills considering weight ages is obtain which gives result for analysis.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Actor</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>System Installation on new parking area.</td>
<td>Ar1</td>
</tr>
<tr>
<td>S2</td>
<td>Appointment of new employee as deployment increases.</td>
<td>Ar2</td>
</tr>
<tr>
<td>S3</td>
<td>Providing training to company employee and contractor employee.</td>
<td>Ar3</td>
</tr>
<tr>
<td>S4</td>
<td>Expert leaving GMP</td>
<td>Ar4</td>
</tr>
<tr>
<td>S5</td>
<td>Service call by parking operator and supervisor.</td>
<td>Ar5</td>
</tr>
</tbody>
</table>
**LAP Formation** - Learning is framed from the SAP part of study as it is the knowledge gained by the SAP part. It is finalize by discussion with CEO and Operation Manager. Table 3 shows the learning activities, action ( action represents the activities carried out after Learning. It was finalized by discussion with CEO and Operation Manager.) and performance (Performance represents the expected outcome of the analysis. It was finalized by discussion with CEO and Operation Manager.)

<table>
<thead>
<tr>
<th>Learning</th>
<th>Action</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 Installation should be done in less traffic hours.</td>
<td>a1 Before deployment one day observation to be done by Field Engineer.</td>
<td>P1 Reduced deployment cancelation.</td>
</tr>
<tr>
<td>L2 Examination should have standard procedure for easy understanding.</td>
<td>a2 Hiring consultancy for selecting suitable candidates.</td>
<td>P2 Recruitment process ending with placement of suitable candidates.</td>
</tr>
<tr>
<td>L3 Prepare suitable training plan in schedule for easy understanding.</td>
<td>a3 Standardize training process and acquire suitable trainer to provide training.</td>
<td>P3 Enhancement of training quality.</td>
</tr>
<tr>
<td>L4 Identification of job opportunity in field of their expertise.</td>
<td>a4 Employee Engagement and Motivational programs to be done.</td>
<td>P4 Potential benefits envisaged.</td>
</tr>
<tr>
<td>L5 Attrition due to various reasons.</td>
<td>a5 Designing and preparation of Manuals &amp; E-Videos.</td>
<td>P5 Reduced service call as manual &amp; E-video are easy to understand.</td>
</tr>
<tr>
<td>L6 Manuals and E-video should be provided for normal issues.</td>
<td>a6 Creation of a job profile of a project manager.</td>
<td>P6 Operations goes on smoothly with higher performance.</td>
</tr>
<tr>
<td>L7 Project Manager should be hired for event parking.</td>
<td>a7 Taking customer feedback about quality, cost and compare with competitor.</td>
<td>P7 Increase the strength of company.</td>
</tr>
<tr>
<td>L8 Provide best quality to customers at specific time.</td>
<td>a8 Inventory Management software to be used.</td>
<td>P8 Improved and time saving in inventory allotment and tracking.</td>
</tr>
<tr>
<td>L9 Inventory management software should be used for allotment and tracking.</td>
<td>a9 Similar configuration product should be used which have better reliability.</td>
<td>P9 Enhancement of product quality.</td>
</tr>
<tr>
<td>L10 Faulty products should be replaced with tested products only for reducing issues.</td>
<td>a10 Questionnaire to be filed at the time of visit on the parking location.</td>
<td>P10 Reduced repetitive correction for one parking location.</td>
</tr>
<tr>
<td>L11 Keen observation required to avoid repetitive changes.</td>
<td>a11 Application version to be update by using software update tools from back handsise.</td>
<td>P11 Time and cost saving.</td>
</tr>
<tr>
<td>L12 Technology up-gradation should be based on operators feedback and on site observation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. QUANTIFIED ACTOR PROCESS MATRIX
This study includes survey, observation, interview, assumptions and judgement by CEO, Operation Manager, Training Manager, Team Leader, Service Engineer etc. After the compilation of Actor-Process matrix, the trial for quantification is carried out. It is quantified by giving score for each Situation, Learning, Action and Performance on their importance in 1-10 scale based on their importance. All the score are entered in Table 5. With the help of estimated weightages Table 6 is created which is the sum of values entered in Table 5.

Table 4: SAP – LAP Format of Agile Parking Solution Pvt. Ltd.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Actor</th>
<th>Process</th>
<th>Learning</th>
<th>Action</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Ar12</td>
<td>Pr1</td>
<td>L1</td>
<td>a1</td>
<td>P1</td>
</tr>
<tr>
<td>S2</td>
<td>Ar1</td>
<td>Pr2</td>
<td>L2</td>
<td>a2</td>
<td>P2</td>
</tr>
<tr>
<td>S3</td>
<td>Ar4</td>
<td>Pr3</td>
<td>L3</td>
<td>a3</td>
<td>P3</td>
</tr>
<tr>
<td>S4</td>
<td>Ar1</td>
<td>Pr4</td>
<td>L4</td>
<td>a4</td>
<td>P4</td>
</tr>
<tr>
<td>S5</td>
<td>Ar11</td>
<td>Pr5</td>
<td>L6</td>
<td>a5</td>
<td>P5</td>
</tr>
<tr>
<td>S6</td>
<td>Ar2</td>
<td>Pr6</td>
<td>L7</td>
<td>a6</td>
<td>P6</td>
</tr>
<tr>
<td>S7</td>
<td>Ar7</td>
<td>Pr8</td>
<td>L8</td>
<td>a7</td>
<td>P7</td>
</tr>
<tr>
<td>S8</td>
<td>Ar6</td>
<td>Pr9</td>
<td>L9</td>
<td>a8</td>
<td>P8</td>
</tr>
<tr>
<td>S9</td>
<td>Ar3</td>
<td>Pr10</td>
<td>L10</td>
<td>a9</td>
<td>P9</td>
</tr>
<tr>
<td>S10</td>
<td>Ar3</td>
<td>Pr12</td>
<td>L12</td>
<td>a11</td>
<td>P11</td>
</tr>
</tbody>
</table>

Table 5: Actor – Process Matrix with the estimated Weightages

<table>
<thead>
<tr>
<th>Process</th>
<th>Pr1</th>
<th>Pr2</th>
<th>Pr3</th>
<th>Pr4</th>
<th>Pr5</th>
<th>Pr6</th>
<th>Pr7</th>
<th>Pr8</th>
<th>Pr9</th>
<th>Pr10</th>
<th>Pr11</th>
<th>Pr12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ar1</td>
<td>S2=9</td>
<td></td>
<td>S4=9</td>
<td></td>
<td></td>
<td>S6=6</td>
<td></td>
<td>S9=4</td>
<td></td>
<td>S10=9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ar2</td>
<td>S2=9</td>
<td></td>
<td>S4=9</td>
<td></td>
<td></td>
<td>S6=6</td>
<td></td>
<td>S9=4</td>
<td></td>
<td>S10=9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ar3</td>
<td>S2=9</td>
<td></td>
<td>S4=9</td>
<td></td>
<td></td>
<td>S6=6</td>
<td></td>
<td>S9=4</td>
<td></td>
<td>S10=9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6: Quantified Actor-Process matrix considering weight-ages.

<table>
<thead>
<tr>
<th>Process</th>
<th>Pr1</th>
<th>Pr2</th>
<th>Pr3</th>
<th>Pr4</th>
<th>Pr5</th>
<th>Pr6</th>
<th>Pr7</th>
<th>Pr8</th>
<th>Pr9</th>
<th>Pr10</th>
<th>Pr11</th>
<th>Pr12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ar1</td>
<td>0</td>
<td>34</td>
<td>0</td>
<td>41</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ar2</td>
<td>0</td>
<td>34</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>27</td>
<td>27</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ar3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>44</td>
<td>44</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. RESULT AND DISCUSSION:
The result of SAP-LAP Hill framework is shown in figure 1. It shows the low and high hill by which it is easy to determine that whether a change is needed or not. By means of an advanced representation as an actor-process matrix, quantification and SAP-LAP hill construction gives the more clear and distinct result. This helped to locate excellent key result areas, instead of decisions taken by sixth sense and judgements. Table 4 shows the SAP-LAP format of Agile Parking solution Pvt. Ltd. Firstly the situation observed in the field and organization considered for the study. After completing the SAP part and LAP part, a table is formed which shows the involvement of Actor, Process, Learning, Action and Performance to specific situation. Table 5 shows the Actor-Process matrix with the estimated weightages. All the actors are requested to score each Situation, Learning, Action and Performance on the scale of 1-10 on their priority. If 1 is given then it means that it has highest priority. Then the sum of all the score is entered in the table 6. Table 6 shows the result of SAP-LAP analysis in which the lowest values shows that there is need to change in the management. As in Pr5 (Immediately resolve the issue on call or by nearest available service executive) score is very low which is 20. Which shows that service request coming from the customer are not resolved immediately so it is an alarming situation. The second lowest score is in process Pr9 (Extra effort taken by Inventory Manager to track and manage Inventory) is 20 which shows that company's valuable hardware are misplaced it is an alarming situation. The third lowest score in process Pr8 (Find out the strength and weakness of competitors) is 22 which shows that competitor are giving a tough competition which is also an alarming situation. So the score which is under 24 having extreme priority and score between 25 to 35 moderate priority and score above 35 do not required any attention.
8. CONCLUSION:
SAP-LAP is used effectively in this study to prioritize relevant processes of the case study organization.

### Table 7: SAP-LAP Index of change

<table>
<thead>
<tr>
<th>SAP-LAP Index of change</th>
<th>Score ranging between 20 to 26</th>
<th>Score ranging between 26 to 34</th>
<th>Score above 34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action recommended</td>
<td>Need major change</td>
<td>Need moderate change</td>
<td>No change</td>
</tr>
</tbody>
</table>

### Table 8: Process required changes

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Process which needs no change</th>
<th>Process needing moderate change</th>
<th>Process needing major changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pr4 (Recruitment of new employee)</td>
<td>Pr2 (Advertise vacancies in company and E-media)</td>
<td>Pr1 (For system installation - Assign deployment task to service engineer)</td>
</tr>
<tr>
<td>2</td>
<td>Pr10 (Product to be tested according to checklist)</td>
<td>Pr3 (For product training - Visiting the company and parking)</td>
<td>Pr5 (For service request - Immediate resolution of the issue)</td>
</tr>
<tr>
<td>3</td>
<td>Pr11 (Field research and analysis)</td>
<td>Pr6 (For event parking / special projects - RFP analysis and system arrangement)</td>
<td>Pr8 (New competitors - Find out strength and weakness of competitors)</td>
</tr>
<tr>
<td>4</td>
<td>Pr12 (Minimization of errors and new version to be tested for smoother performance)</td>
<td>Pr7 (Managing event parking / special projects - Hire people on contract basis)</td>
<td>Pr9 (For system tracking - Extra effort by inventory manager)</td>
</tr>
</tbody>
</table>

Prioritizing help in analyzing the key area on which special attention is required. As the quantified result shows in actor-process matrix the lower score required special attention from the management. These changes here are-

- Strong research and Development team.
- Strong software team.
- Better tracking of system by software.
- Standard procedure for the process adapted and regular updates to their mobile app.

The study shows that to have a good change management scheme, the organization should concentrate on customer as well as on the internal process to fulfill the service as a service industry. As a future scope, this “SAP-LAP hills” can be made for similar or different industrial sector. This will help to visualize the key result areas better and investment decision can be made accordingly. This research can be extended by doing case study in various service industry as well as manufacturing industry etc., that have different size and type of competitiveness.

REFERENCES


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