

New Maintenance and Engineering Division to improve growth and profits of the Matrix Company

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Abstract — *Purification of water has been an important activity for beverage companies. There are plenty of different ways adopted to purify the water and chemical is an essence in each way. In this project, the highlighted issues in purification of water using chemicals are being dealt with proper development of new systems. There are some flaws identified in the existing system of company which caused to seek a new development in this processing. A new Engineering Division would be developed in this project which is aiming to address the highlighted issues in current system of water purification through the use of chemicals. The development of new system would be based on the idea to automate the processing of water purification. It would not only purify the water automatically, but there will be deployment of a system which would program the chemicals itself as well. This system will also be responsible for controlling the process of water purification.*

Key Terms — *Automated Control System, Chemical Programming, Instrumentation, Process Control.*

INTRODUCTION

During the last years GEM Manufacture has been leader in manufacture and sale of chemicals for potable water treatment. The accomplishments have been achieved by the quality of the products and services. Using this as a basis, the GEM Engineering team proposes to create a division of the current business to bring services and construction works tied to the products that the company offers. Although there are plenty of methods available to be used for water purification by people and companies, but the most commonly

used method is known as chemical based purification. Since the 20th century, water purification through chemical is more commonly based on the use of Chlorine, Iodine and Oxidizers. These methods have been proven quite helpful and more widely appreciated because these are simple and easily implemented by people. But as soon the time started to pass, new systems are introduced to make this purification process more reliable and efficient. The development of a new system is thoroughly based on a new engineering division which would add value to the current process of the company. The purpose is to make a new division which would confront the additional needs that are developed by customers.

In order to comply with these needs, it will also be ensured that the new system is able to fully control the processes so that it is manageable in cases where change is required. The objective is that with this division would have the features to company with additional needs and basic purpose behind this development is to control the processes because existing processes are not much under control and therefore leading to an inefficient deployment.

LITERATURE REVIEW

It has been outlined that surveys would be conducted about Puerto Rico customers who need the chemicals products to purify the water as well as top suppliers of those chemicals. There are multiple regions that are highlighted as expected customers and their needs are also been highlighted in final deployment and this is why it becomes an essential element of this project to have an automated system to be used because manual

system might take much time than available. Therefore, a survey is planned for this development which is not only taking one region but all the regions are planned in this survey which includes current customers and new customers as well. The purpose of this survey is to collect information from customer needs and their current active processes which will be evaluated in order to understand if further improvement is required in company's operations. The survey will seek needs of new customers as well so that their needs are also targeted by the company in order to expand its reach and increase the customer base which is a sign of success.

As discussed there have been plenty of discussion made during planning phase of this new development and there has been a main area which was Survey for this project development. Puerto Rico is a very populated area and it has been taken as a whole for survey which can be seen from the Table 1, where cities are listed with respect to their regions so that more and more customers are targeted for this cause. These regions and their cities are targeted for surveys and active surveys are conducted on these regions which have been very productive because it gave the complete idea about intended growth and needs.

Table 1
Potential Customers per Puerto Rico City Regions

North Region	South Region	East Region	West Region	Metro Region
Arecibo	Ponce	San Lorenzo	Hormigueros	Bayamón
Hatillo	Juana Diaz	Caguas	Peñuelas	Guaynabo
Lares	Salinas	Gurabo	Lajas	Trujillo Alto
Utuaado	Coamo	Cidra	San German	Canóvanas
Jayuya	Guayama	Aguas Buenas	Cabo Rojo	Carolina
Ciales	Patillas	Juncos	Mayaguez	San Juan
San Sebastian	Orocovis	Cayey	Añasco	Cataño
Quebradillas	Villalba	Comerio	Las Marias	Toa Baja
Barceloneta	Santa Isabel	Aibonito	Maricao	Loiza

Figures 1 and 2 are designed to expressing the needs of customers in Puerto Rico and there are some opportunities also highlighted which are used for the planning to expand. According to the SWOT analysis, opportunities are always meant to be grabbing in such a way that expansion of company is ensured. Figure 1 and 2 were designed based on the surveys.

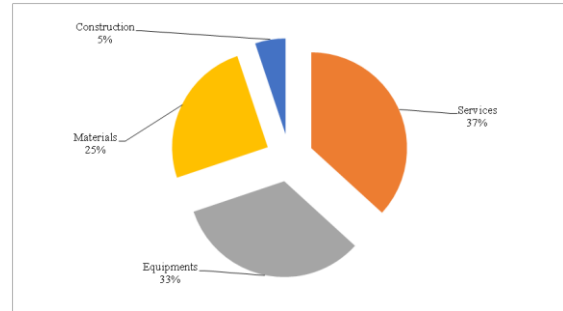


Figure 1
Needs by Categories

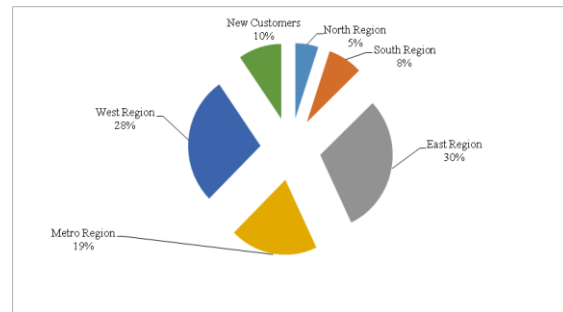


Figure 2
Opportunities by Regions

Most of the activities as per planning have been conducted and few of the activities are left which are to be conducted like SWOT analysis in detail along with some customer profiles and some contractors' profiles. The purposes of such activities are to plan the competitive advantage and seek similar activities to sustain that competitive advantage which is an essential element for a managerial level success.

ANALYSIS

The success of any system cannot be possible unless a pure struggle is backing this development and this is not about the company only, but there

are plenty of set examples in the past which are appealing to be an inspiration to work for the company as well. There are some serious planning undertaken in order to make this development successful and plenty of activities are deployed in order to make a lasting impact on the company with this development. One of the most important activities which are undertaken for this project is Survey. Puerto Rico is a state where plenty of different regions are actively seeking such services and being a leading company in this sector, it becomes inevitable to have customers in all regions of Puerto Rico.

There are few expectations that are already attached with this new system development and these are also objectives of this project. These expectation are: Automated System, Chemical Storage, Chemical Programming, Management and Application of Portable Water Purification System and Development of new designs, Develop and prepare process design drawings, specifications, calculations, plans, models and other technical deliverables for drinking water projects along with provision of consultancy in some specialized areas. These objectives are quite clearly reflecting the importance of this project for the company.

RESULTS

Process Controls is an important activity that is conducted in any organization and it is defined as a way in which organizations manage to make a strict control over most of their components. This seems a very important aspect of management because controlling operations sometimes becomes a necessary element when deviation in system is identified. This element enables organization to save time in assessing the processes from scratch because it gives the complete information to company as it is progressed because this is an advantage of a tight control. These are some dominant benefits of a control process activity that is undertaken by companies and this is why it is considered as an important part of this project as well. The development of a new division would be

very helpful for management to understand all the operations and manage it more effectively because each. This would be very helpful in the upcoming stages of this project because conducting surveys about vendors would definitely require some managing of this project because every new feedback might ask for a little change and when the proper control is established, then it would be an easy aspect to manage these activities according to need of stakeholders.

DISCUSSION

This new division strengthening the position of company because it would give it a position to become the regional leader as well because there is a complete survey conducted about Puerto Rico and the customers who need chemicals and service regarding the water purification. So this is likely to expand the customer reach as well because regional targets are also to be set in order to attract customers based on services designed to cater their needs. Some customers are likely to buy chemicals and some are expected to see consultancy related their issues. So this will set an expert picture of company all around Puerto Rico.

CONCLUSION

There are multiple regions that are highlighted as expected customers and their needs are also been highlighted in final deployment and this is why it becomes an essential element of this project to have an automated system to be used because manual system might take much time than available. This is a competitive state for the company because this company has been a top manufacturer of this chemical in the past and as these new issues is identified, it would be very important to cater these needs immediately to stay on top. Manual handling of these operations would be threaten the market edge of company because system in companies are now developing from new to latest and therefore the idea of this new development is created. It clearly shows that new system would be more likely to fit the needs of customers and it would

also portray the right image of the company to customers which is about its leading position in market.

REFERENCE

- [1] Graduated School, Polytechnic University, “Article Template”, *Guidelines- Project-Article-WI-09(2).doc*, May 10, 2015.