Managing a Software Consultancy Organization by Improving Traditional Management Techniques

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Abstract *— Private sector workforce has been lead by manufacturing companies, mainly pharmaceuticals. The recent growth of technology companies such as Google, Apple and Facebook has been followed by smaller organizations specialized in software consultancy in the island. As many of the managers in the technology field now come from a manufacturing background, a need of improving management techniques was identified. With the help of the 80/20 methodology, the main processes in Axon Puerto Rico were identified, based on employee's impact. Using techniques such as Value Stream Mapping and Root Cause Analysis the defects in those processes were caught an improved. The main processes were effectively improved by adapting to a consulting perspective.*

Key Terms *— Employee Satisfaction, Management Techniques, Process Improvement, Value Stream Mapping.*

INTRODUCTION

Labor panorama in Puerto Rico was carved by manufacturing organizations since early 1900's. 100 years later, the panorama has been shifted to a more technological one. A growing segment in specialized workforce is the software-consulting field. The existence of a Computer Engineering school in the west side of Puerto Rico adds to the ideal conditions to have software development companies in the zone.

Resources with manufacturing background manage many technology companies. This may not be surprising given that for more than 50 years, the managerial strategies were developed and applied to manufacturing organizations. Manufacturing companies are reducing their presence in the labor panorama of the island, an event that is causing the movement of those managers to technology specialized companies. The improvement of management techniques will be using of Six Sigma tools such as Value Stream Mapping, Root Cause Analysis and Benchmarking

The goal of this project is to create awareness of the differences of the previous managerial techniques. Technology companies not necessarily can be managed as manufacturing companies.

LITERATURE REVIEW

Managers are an indispensable piece in every organization. Through the years the main industry in Puerto Rico has been the manufacturing of goods. Companies such as GM, Ford and General Electric were in charge of carrying the image of our manufacturing economy. These companies besides of employing a considerable amount of employees also had managers for those employees. The last 20 years have marked a noticeable shift to service industry and a reduction in manufacturing jobs. Having more companies in the service and technology fields create a necessity to provide the correct tools and methodologies to the managers on those companies.

Improving management techniques and adapting them to a technology organization does not require to be an expert on software or computers. In fact, people are running many successful software companies without programming knowledge. The following tips were provided by a tech CEO that does not knows how to code: understand real motivations, over deliver your promises and understand how your code

affects the business [1]. Many problems are being approached the traditional way. Instead, problem solving in a software company should be treated as the sum of smaller problems, inspired by the divide and conquer method [2].

Traditional hiring processes focus on applicants GPA or SAT scores. Technology companies are changing that paradigm by including flexibility and innovation to the existing processes. For example, in Google, the hiring process is no longer focused on the scores, but instead focuses on people that are analytics and capable of solving problems [3]. From one of the top technology companies in the world it can be learned that managers should really know the product or service that its being worked on. Giving the power to innovate to the employees as well as treating them with respect has been a successful technique at Apple, a company that has proven the success of being run with a startup culture when clearly they are not [4].

Managers need to include risks into their day-to-day toolbox. Working on a software environment implies the need of dealing with risk by making decisions, facing a project, impacting a business process with a code change, risk of misunderstanding requirements or by even failing a test case. Companies such as Mosaic Inc, have included risks as a tool into their success factors. Peter B. Wilson from Mosaic Inc, recommends to communicate those risks, understand them and never ignoring them [5].

Not all changes are accepted the first time. Managers are humans that could resist changing, even more when they have spent the whole life using the same techniques.

ANALYSIS

The methodology consists in identifying the core processes in Axon Puerto Rico. A process is classified as core if it impacts directly the employee. Core processes were ranked by importance using as criteria the interaction from and to the employee. Six Sigma tools such as Root Cause Analysis and Value Stream Mapping were applied to the key core processes. Using Six Sigma methodology allows a structured execution of tools to improve the processes. Value Stream Mapping was utilized to create a map of the current state of each process. Optimization of the processes was achieved by benchmarking with other companies and by hiring external resources specialized in management techniques on consulting organizations. The steps that were discarded from the processes were classified as waste if they were unnecessary, repetitive or inefficient.

RESULTS AND FINDINGS

The results after applying the tools and methodologies are considered satisfactory. The processes analyzed were improved in terms of time and efficiency. A results overview for each process is presented below.

- **Hiring process:** This process can be considered as the first one to interact with an employee, as a candidate. Starting by the job posting and initial communication with the candidate. The improvements in this process were leaned towards the amount of resources allocated to it. Before the improvements, HR resources were always involved in the interview part of the process. The resulting process now involves the HR resources only if the candidate passes the technical interview. This represents an improvement since only around 40% of the candidates pass the technical interview. Another improvement in the process was to require the candidates to speak English since the first call. This step was added and works as a filter and agent to prevent rejections later in the process due to lack of English.
- **Evaluation process:** Considered the most important process, from the employee's point of view. There were improvements made on the feedback gathering and evaluation. For example, feedbacks are now planned to gather

on a periodic basis. Monthly feedback emails will be sent to delivery counterparts. This avoids the issue of getting to the employee's evaluation without all the feedback. Management and HR resources will review salary scales in order to accommodate then to the new Roles.

- **Role Assignment process:** Not as important as the previous two processes, but a sometimes-problematic one. Employees were assigned to roles that they were not hired to. The approach in this process was to review all the job descriptions and adapt them to the organization's business model. The organization now has a more robust job description guide, which improves the hiring and evaluation processes. 8By having clear job descriptions it is less complicated to evaluate employees

- **Seat Allocation process:** Normally employees were allocated by practice. The proposed model allocates employees based on customer. In cases where a customer has more than 2 employees the communication between teammates was ineffective. By seating teammates together the knowledge sharing is improved as well as the quality of the service.

DISCUSSION

The results of this project will be shared with key resources as well as managers. Peer employees can provide feedback and an additional point of view of the processes improved. Additional processes can be obtained and be included on future projects. Coworkers can provide valuable input as the scope of this project was limited due to time constrains.

Managers are a key part of this investigation. Sharing the results with management implies another level of commitment and scope of the project. Knowing that many times management have the final word on the decisions making process, it is crucial to include them. Management can also use the results of this project to improve the processes touched in this project as well as additional ones that may need attention.

CONCLUSIONS

The outcome of this project reflects an improvement of the four processes investigated. The initial scope of the project intended to impact more than these four processes. Due to time constrains, it was required to reduce the amount.

A visible improvement was achieved for the four processes. The methodology proposed worked as expected and was a vital part of the project. By using Value Stream Mapping as the main tool, it was possible to have a detailed description of the processes' current and future state.

Management resources were not initially engaged with the initiative presented by this project, but as the results were flowing, their skepticism was reduced. Many times management are not very supportive of initiatives to revamp their processes. This project was not the exception. As long as the project progressed their involvement was increasing as well as their support.

The main success of this project is the awareness that was raised in the management and employees. There is now a true desire to improve the processes as employees have seen the capability of improving the existing management techniques.

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