

# Headcount Reduction in a Microbiology Laboratory

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## Abstract

A headcount reduction of 20% in the Microbiology Laboratory of a manufacturing company is required. A time study was performed to determine the quantity of time each Microbiology Analyst requires to perform different tasks. The results obtained shows that 456.2 hours per month are required. This data was used to perform the capacity analysis which concludes that three analysts are required in the Laboratory. This result was compared with the present number of five analysts. A reduction of 40% was achieved during this project, which represents a positive accomplishment of the project goal.

## Introduction

A Microbiology Laboratory of a manufacturing company, is currently composed of five analysts divided in one shift only. Laboratory Supervisor requires a reduction of twenty percent (20%) of the headcount.

Each analyst is responsible to perform all microbiology testing related to environmental and manufacturing samples of all manufacturing lines and controlled areas, such as Transfer Area, Incoming Area, etc.

The testing process of the laboratory are divided in the following categories: Bioburden, Environmental, LAL, Product Audit, Special Test and Other Tasks

## Project Objectives

Headcount reduction or downsizing is a process which companies use to reduce the number of employees in the organization or in specific area of the organization. This reduction can be associated to manufacturing process decrease, drop in sales, automatization process or re-organization process, etc.

If the headcount reduction is managed in a positive form, the company can achieve positive results, such as decreased expenses and improved productivity [1]. All actions have their consequences and based on that, it is important that companies take care of employees after headcount reduction.

## Project Overview

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If the headcount reduction is managed in a positive form, the company can achieve positive results, such as decreased expenses and improved productivity [1]. All actions have their consequences and based on that, it is important that companies take care of employees after headcount reduction.

It is important to perform the headcount reduction using the right steps to avoid [2]:

- Employee demotivation
- Reduction of Trust in the organization
- Loss of employees with expertise and knowledge
- Company reputation which can cause it lose value in the market

## Methodology - DMAIC

Define	<ul style="list-style-type: none"> <li>• It was found that 65 different tasks were performed in the Microbiology Laboratory by the five analysts. These tests are divided into the following five categories: Bioburden, Environmental, LAL, Other Task and Special Task</li> </ul>
Measure	<ul style="list-style-type: none"> <li>• Based on the analysis, a total of 456.2 hours per month are required to perform all microbiology tasks.</li> </ul>
Analyze	<ul style="list-style-type: none"> <li>• Qty of Analyst = Qty of hours per testing * Qty of hours analyst work monthly.</li> <li>• Qty of Analyst = 456.2 hrs/month * (1 analyst / 160 hrs/month)</li> <li>• Result is that three (3) analysts are required in the Microbiology Laboratory.</li> </ul>
Improve	<ul style="list-style-type: none"> <li>• Tasks are distributed equitably between analysts determined in previous step (Analyze).</li> </ul>
Control	<ul style="list-style-type: none"> <li>• Implementation was monitored.</li> </ul>

## Results

For the analyst #1, the tasks are distributed as shown in Table 1. This task distribution for analyst #1 represents that the working period consists of 138.7 hours per month. This represents that an 86.7% of their time.

Task Distribution List		
Task	Time conversion per month (min)	Test Type
BB Monster SDA	120	Bioburden
GPT/Sterility	120	Bioburden
Media	120	Bioburden
Water Filtration	1200	Bioburden
BB Monster TSA	1920	Bioburden
Flexsafe BB	2880	Bioburden
Glove fingertip	240	Bioburden
FMTV Environmental TSA	120	Environmental
FTV Environmental	120	Environmental
FTNV Environmental	120	Environmental
FMTNV Environmental	360	Environmental
FMTV Environmental SDA	120	Environmental
FTV Environmental	120	Environmental
Excursions-Retest	120	Other Task
Graph Change	120	Other Task
Inventory	120	Other Task
Biowaste Management	160	Other Task
Material receiving	240	Other Task

Analyst #2 task distribution is presented in Table 2. A total of 140 hours per month are required by analyst #2 to perform LAL tasks. This quantity of time represents an 87.5% of their monthly time.

Task Distribution List		
Task	Time conversion per month (min)	Test Type
LAL pm	600	LAL
LAL/PC Monster	2400	LAL
Flexsafe PC,LAL	2880	LAL
LAL Product Audit	120	LAL
LAL am	600	LAL
Spores	360	LAL
Spore population determination	1440	LAL

Analyst #3 task distribution is presented in Table 3. A total of 138.5 hours per month are required by analyst #3 to perform LAL tasks. This quantity of time represents an 86.5% of their monthly time.

## Results (Cont.)

Task Distribution List		
Task	Time conversion per month (min)	Test Type
Product Audit	90	Product Audit
Integrity-Out of Box	180	Product Audit
BCT Flat Filters	180	Product Audit
Thermal Stability	425	Product Audit
Bacterial Challenge	660	Product Audit
Bayer	480	Product Audit
Glycerin	1200	Product Audit
Leak/Dart Test	25	Product Audit
Stock Cultures	120	Product Audit
Dose audit	270	Product Audit
Cleaning log review	20	Other Task
Equipment Disinfection	30	Other Task
Alcohol preparation	40	Other Task
Log Temperature	100	Other Task
Backup main Building	120	Other Task
Discard Sample Bags	240	Other Task
Membrane Release	720	Special Test
Weekly Roll Inspect	100	Special Test
Perform of I'M certificate	240	Special Test
Certificate of Biosart	180	Special Test
Certificate of ETO	30	Special Test
Solvent Results	80	Special Test
Flat filters Orders	80	Special Test
LAL Test:	2400	Special Test
Growth Promotion Test	120	Special Test
Sterility Test	180	Special Test

## Benefits

- Headcount reduction for the laboratory, which can also be represented as cost reduction due to two analysts will not be required.
- Less idle time from the analyst
- Cross functional training (backup)

## Conclusion and Recommendations

Based on the results obtained during this project, the objective was achieved and exceeded. The goal was to reduce the headcount in the Microbiology Laboratory by 20% and, based on the study and analysis, a 40% of the headcount was reduced. In order to assure that the laboratory have backup between their employees, the following recommendation was provided to management:

- Cross training between employees to assure they have the knowledge to perform all tests.
- Rotate analyst every three (3) months to maintain employees active with all testing procedures.

## References

- [1] Smith, B and Rutigliano, T, "Reducing Staff the Right Way", Gallup News Business Journal, October 8, 2001
- [2] Wyman, O, "Managing the Organization Dynamics of Downsizing", Oliver Wyman Insights, January 2011