LABOR OPTIMIZATION SYSTEM

BY

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MACHINE LEARNING

DEPARTMENT OF NETWORKS

SCHOOL OF COMPUTING AND INFORMATICS TECHNOLOGY

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# 1.0 Introduction

Labor as a resource in various organizations has been either over utilized or underutilized hence affecting the organization performance over time.

# 2.0 Background to the Problem

Utilization of labor as resource in organizations has over the years become a problem with equiped employees at the exposure of the organization and yet not optimally utilized that is to say, the labor is either underutilized to their ability or over utilized hence less or no efficiency. The 2018 Statistical Abstract published by The Uganda Bureau of Statistics states that the total rate of labor underutilization in both the private and public sector is 38.1% and also states the growth in labor productivity as a direct factor of the social economic growth hence posing a need to improve the labor productivity in Uganda and the world at large [1].

Various determinants of the labor productivity have been suggested among which is the use of technology [2]. Currently, organizations are using the concept of specialization that is the use of individuals who are specialized in a given field to provide the services, the use of clock in systems and many more and though these would help in monitoring and utilization of the labor in the organization, they cannot be used to allocate the right amount of work to the employees, and so at most times, there might be a problem of labor over utilization on the days where the work is a lot or labor underutilization on the days where there is less or no work to do for a specific group of people. We therefore intend to make more research in this field and use the data collected to create a model that can be used to predict the labor needed for a specific day and time as in relation to the work load available. This in a way will bring about labor optimization and hence an improvement in the efficiency of the labor therefore an increase in the organization profits.

# 3.0 Problem Statement

The problem this project will address is labor underutilization and over utilization in organizations. In this project we are creating a predictive model that will predict the labor needed by the organization at a specific point in time basing on the work load available.

# 4.0 Objectives

## 4.1 Main Objective

To optimize labor through efficient, effective and proper utilization of the workforce in an organization.

## 4.2 Other Objective

1. To structure workforce / labor development.
2. To improve role clarity in the organization.
3. To allow process redesign

# 5.0 Methodology

We are going to use the case study research method and the interview data collection method to obtain the data need to implement the project. We also intend to use the already existing data in the organization to train the predictive model.

# 6.0 Outcomes

Workforce optimization results in operational benefits. Which include;

1. Increased Employee Productivity and Efficiency; eliminate unproductive practices from your business and implement new strategies for greater output [3].
2. More Cost-Effective Operations; automated processes increase the efficiency of manual day-to-day tasks and eliminate process related costs like scheduling and time-punching [4].
3. Increased Return on Investment (ROI); optimizing the workforce leads to greater customer retention, minimized compliance risks and more cost-efficient operations resulting in more revenue and increased ROI [3].
4. Improved Customer Service; eliminating process inefficiencies enables you to improve customer service practices.
5. Mitigated Compliance Risks; real-time information provides comprehensive information to ensure that you stay up-to-date on government and federal regulations [4].

# 7.0 References

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