LABOR OPTIMIZATION SYSTEM

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A Concept Paper submitted to the 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 well-equipped employees at disposal to the organization and yet not optimally utilized that is to say, the labor is either underutilized in respect to their abilities 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

We envision a labor market that is optimally utilized that is where organizations are able to get the best out of their employees to maximize their potential while at the same time not exploiting them.

Today organizations have employees who are well equipped to do available tasks but due to poor planning, sometimes there comes a mismatch between work available and the man power allocation to efficiently perform available duties.

We are therefore building a predictive model that will take in history data on tasks and labor inputs to come up with optimal allocation of tasks in organizations so that customers are well served and workers are not exploited.

4.0 Objectives

4.1 Main Objective

To build a predictive model that optimizes labor through efficient, effective and proper utilization of the workforce in an organization based on available workloads.

4.2 Other Objective

I. To study the background of inefficient utilization of labor in organizations.
II. To research about the available solutions to inefficient labor utilizations and see their strengths and weaknesses.
III. To come up with the requirement specifications for an improved solution that is, our predictive model.
IV. To design and develop a predictive model to solve the problem above.

5.0 Methodology

We are going to use the case study research method, questionnaire and the interview data collection method to obtain the data needed to acquire a deeper understanding of the problem and implement a solution. We are going to use existing organizational labor data to build a machine learning model that will automatically determine how labor should be allocated at a particular time depending on workforce and quantity of work available. We also intend to use the already existing data in the organization to train the predictive model. This model shall be incorporated into a fully-fledged system that will be deployed in organizations computer systems for easy interactions.

6.0 Outcomes

Workforce optimization results in operational benefits. Which include;

I. Increased Employee Productivity and Efficiency; eliminate unproductive practices from your business and implement new strategies for greater output [3].

II. 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].

III. 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].

IV. Improved Customer Service; eliminating process inefficiencies enables you to improve customer service practices.

V. 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

[1] Uganda Bureau of Standards , "2018 Statistical Abstracts," Kampala.

[2] S. Kavuma, "Increasing labour productivity for inclusive growth".

[3] "Organisational Design and Optimization," [Online]. Available: https://www.toptal.com/finance/business-model-consultants/organizational-design-and-optimization.

[4] "Workforce Optimisation Strategies," [Online]. Available: https://thewfcgroup.com/4-workforce-optimization-strategies-you-need-to-know/.