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## HUMAN RESOURCE FORECASTING AND EFFECTIVENESS OF MANUFACTURING FIRMS IN RIVERS STATE

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### ABSTRACT

The aim of this study was to examine the influence of human resource forecasting on organizational effectiveness of manufacturing firms in Rivers State. The study adopted a survey research design and used a structured questionnaire to obtain primary data from respondents. The data collected was analyzed using regression analysis and the Pearson Product Moment Correlation, with the aid of the Statistical package for social sciences (SPSS) version 23.0. The study found that human resource forecasting significantly influence organizational effectiveness of manufacturing firms in Rivers State. The study found that human resource forecasting influences, and relates to organizational effectiveness. This means that the absence of human resource forecasting can negatively impact organizational effectiveness. The study thus concludes that human resource forecasting is essential to organizational effectiveness of manufacturing firms in Rivers State; and recommends that manufacturing firms in Rivers State that desire to achieve organizational effectiveness through talents and skills of personnel should incorporate human resource forecasting as component of their human resource management; as well as overall corporate strategy to ensure constant supply of required workforce.

**Keywords:** Human resource demand, human resource supply, human resource forecasting, organization, organizational effectiveness

### INTRODUCTION

The effectiveness of an organization depends on the availability of active work force. To achieve business objectives, every company needs a staff-mix that is appropriate for its activities. Human resource forecasting models are used to get insight into the quality and quantity of workers required in the future. Organizations work in a constantly changing environment. The effect of new technology, changing consumer needs, political circumstances, and a variety of other reasons force enterprises to continuously adapt their goods, services, and internal processes. These shifting rules necessitate new modes of working, new job responsibilities, and additional credentials to carry out the organization's activities (Evers et al., 1993; Pettigrew & Whipp, 1991). A long-term policy is required for an organization to exist in these unpredictable

circumstances. It is interesting however, to note that most firms focus mostly on their goods or services when developing long-term strategies; without giving commensurate attention to the workforce's implications or the assignment of employees to future tasks within the organization.

Human resource managers frequently make decisions that have long-term implications for their organizations. These choices are mostly fuelled by the desire to have the appropriate staff-mix required to accomplish tasks in the organization. This necessitates a commitment to human resource forecasting, which is the process of examining personnel needs and planning how to meet them in a way that best fits the goal, objectives, and strategies of the business. This provides a framework for anticipating human resource demands and labor supply both within and outside the company (Crosby, 2000).

Today's managers desire to have a foreknowledge of future occurrences so they can prepare ahead of time and take required action. The precision with which future occurrences are predicted often contribute substantially to success of firms. Regardless, whether or not future events are precisely understood, every organization plans; indicating organization, as much as they can, seek to foresee and compute future occurrences (Armstrong, 1985). Forecasts are used to make almost all management decisions. Managers estimate revenues, working capital requirements, employee size, inventory levels, production run scheduling, facility location, quantity of advertising and sales promotion, and the need to modify pricing, among other things (Armstrong, 1985).

Furthermore, effective workforce forecasting entails determining which actions are required to meet business objectives, identifying the types and quantities of skills required to complete those actions, determining how those skills differ from those currently available and developing strategies to bridge the gap between today's workforce and the workforce required to meet business objectives (Ward, 1996). Hence, when preparing an organizational objectives and current material and personnel inventory, managers estimate how much, current material and human resources will be able to do in the future, as well as how many more human and material resources the organization will need to hire to meet its objectives (Needle, 2014). Any business without a forecasting component is likened to a car driven by a blindfolded man.

Forecasting is essential to the successful and efficient operations of today's firms. (Fildes & Makridakis, 1995); and increasingly being used by firms (David, 2013). Forecasting serves as a catalyst for planning and future businesses operations. Accurate projections assist businesses in preparing for short- and long-term changes in market circumstances, as well as improving operational performance (Bechet et al., 1987). Judgments based on poor forecasting lead to operational blunders (2003, Aviv). The availability of required skills and talents is critical to organizational success (Evers et al., 1993, Rahman bin idris, A. & Eldridge, 1998). Therefore, it is critical for an organization to understand its staff-mix as well as the consequences of policy changes on that workforce. Khoong (1996) and Zeffane and Mayo (1994) pointed out that strategic human resource planning encompasses all efforts aimed at providing the correct amount of personnel with the right capabilities at the right time, based on the organization's human resource policies and strategies.

Human resource forecasting is essential to downsizing and resizing decisions; and a firm's performance largely depends on its workforce (Rabiu, 2012). A firm that is unable to hire and

retain competent employees will be unable to perform required tasks and duties effectively. Thus inadequate human resource may be a reason organizations sometimes perform poorly. A major challenge for organizations thus, is matching human resources with present and planned organizational activities. The absence of effective scientific forecasting may cause of human resource shortages or surpluses, resulting in unsustainable and costly imbalances in the quantity and quality of personnel required to meet organizational objectives and plans.

Several studies have been conducted to ascertain the impact of human resource forecasting on organizations. Rosenfeld and Warszawski (1993) developed a systematic methodology for forecasting personnel demand for construction firms; while Cooper (1995) developed a model to forecast supply and demand of physicians in the United States. Brent et al. (2013) investigated human resource forecasting tools used by Belgian production companies. Kolb and Stekler (1992) evaluated the long-term forecast of employment in various industries. Edward and Patrick (2008) evaluated human resource forecasting and organizational performance and found that, a positive relationship between human resource forecasting and organizational performance. These are studies are however foreign, hence, do not offer sufficient explanatory power to firms in Nigeria with human resource forecasting challenges. Therefore, the present study seek to contribute to literature by examining the extent to which human resource forecasting influences organizational success among manufacturing firms in Rivers State. The specific objectives are to examine the effect of human resource demand forecast and human resource supply forecast on organizational effectiveness of manufacturing firm in Rivers State. The study is guided by the following hypotheses:

Ho<sub>1</sub>: Human resource demand forecast has no significant effect on organizational effectiveness of manufacturing firm in Rivers State.

Ho<sub>2</sub>: Human resource supply forecast has no significant relationship with organizational effectiveness of manufacturing firm in Rivers State.

## LITERATURE REVIEW

### Theoretical Frame Work

This study is based on the theory of economic rhythm (1965). The theory holds that economic phenomena behave in a rhythmic manner and cycles of nearly the same intensity and duration tend to recur. According to this theory, available historical data have to be analyzed into their components, i.e. trend, seasonal, cyclical and irregular variations. The secular trend obtained from the historical data is projected a number of years into the future on a graph or with the help of mathematical equations. If the phenomena are cyclical in behavior, the trend should be adjusted for cyclical movements. When a year's projection is broken down into months or quarters, the forecaster should use seasonal indices to modify the estimated statistics for seasonal fluctuations. Regular variations are difficult to foresee, thus the rhythm approach should be used in conjunction with other methods to prevent prediction error. However, it is important to realize that economic cycles are not always exactly periodic, and the assumptions behind this theory may not hold true because history does not always repeat itself. This study however, adopts economic rhythm theory because of its assumptions on economic cycles.

### Concept of Human Resource Forecast

Human resource forecasting involves predicting labor demand and supply; and their consequences on a company. The human resource department estimates both short- and long-term employment requirements based on predicted sales, office growth, attrition, and other

factors that influence a company's labor requirements (Needle, 2014). Human resource planning include examining different expenditures and administrative tasks that come with adding or decreasing staff, in addition to estimating the number and type of workers required by the firm (Yelsey, 1982). Managers rely on forecasting to identify staffing needs, review current workforce, and decide what additions and/or replacements needed to fulfill future demands. Companies must foresee and plan for future demand in order to respond quickly to operational requirements. Human resource forecasting is dimensionalized differently by different scholars. The current study dimensionalized it as human resource demand forecasting and human resource supply forecasting.

### **Human resource demand forecasting**

Forecasting human resource demand, according to Armstrong (2012), is the practice of anticipating future workforce numbers as well as the skills and competences they will require. The conventional method of measuring demand is defined by the use of ratios to design a strategy for dealing with external opportunities and threats (Pradeesh, 2011). Increased use of technology aids in the analysis of competitive factors that may indicate an increase or decrease in staff numbers. Forecasting human resource demand entails determining the size of the workforce and the types of people that the organization will require in the future. The demand for the company's product is an important aspect of the optimization process. As a result, it is critical to forecast markets and sales numbers. This will determine the personnel needed to serve the projected capacity.

Budget constraints, resignations, contract terminations, transfers and relocations, retirement, new technology, choices to increase the quality of service offered, and minor hiring targets are all elements that impact projecting demand for staff (Noe, 2012). Failure to predict future human resource demands results in managers making last-minute decisions, which is not always appropriate. Managers should take the time to estimate future human resource demands, as this will help them save money and time in the future.

### **Human resource supply forecasting**

Human resource supply forecasting is the next phase in human resource planning, after human resource management has predicted the organization's human resource demands. Forecasting supply ensures an appropriate supply of human resources in terms of quantity and quality of employees available to fill expected vacancies (Jackson & Schuler, 1990). Forecasts for supply can be obtained from both internal and external sources of data. Creating an inventory of present supply of personnel in the firm is generally the first step in human resources supply forecasting (the number of people and their skills and abilities). The second phase entails examining external sources of human resources (Lunenborg, 2012). Both steps are dependent on an accurate assessment of current workforce situation, but most organizations start with internal candidates.

### **Organizational Effectiveness**

The process of ensuring that a firm's resources are correctly employed in pursuit of its objectives is known as organizational effectiveness (George, 2017). It is one of the most important indicators in assessing an organization's actions and their surroundings (Abdel-Maksoud et al., 2008). It was defined by Bescos and Cauvin (2004) as an actual output or outcome of a company as compared to its expected outputs. Organizational effectiveness, according to Richard et al. (2009), focuses on three primary areas: shareholder expectations and economic value, financial effectiveness and investment, and production capabilities. Bibhuti (2008, as cited in Salau et al.,

2014) suggests that organizational effectiveness is a firm's strength and ability to achieve its goals through employee retention, a diverse management style, increased commitment, job satisfaction, and career opportunities, all of which have significant effect on company success.

## METHODOLOGY

A cross-sectional survey research design was adopted in this study because it supports the use of a questionnaire to collect data from participants within a short period of time (Ahiauzu & Asawo, 2016). The population of the study comprise manufacturing firm in Rivers state, Nigeria. The accessible population consist 25 manufacturing firms that are registered with the Manufacturing Association of Nigeria (MAN) in Port Harcourt. The study took a census. A self-developed close-ended questionnaire was used to collect primary data from managers, supervisors and employees. One hundred and five (105) copies of questionnaire were distributed. However, ninety (90) copies were filled correctly and hence used for analysis. The variables used in the study were measured on a 4-item scale for each of the variables on a 5-point Likert scale ranging from strongly agrees (5) to strongly disagree (1). Descriptive statistics were used to analyze participants' demographic characteristics while regression analysis was used to analyze the hypotheses with the aid of statistical package for social sciences (SPSS) version 22.0.

## RESULT AND DISCUSSION OF FINDINGS

**Table 1: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.442 <sup>a</sup>	.195	.192	4.40559

a. Predictors: (Constant), Demand forecast

Source: Computation from field survey (2022).

**Table 2: Analysis of Variance**

### ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1027.231	1	1027.231	52.925	.000 <sup>b</sup>
	Residual	4231.205	218	19.409		
	Total	5258.436	219			

a. Dependent Variable: Organizational effectiveness  
b. Predictors: (Constant), Demand forecast

Source: Computation from field survey (2022).

**Table 3: Analysis of influence of Human resource demand forecasting on organizational effectiveness**

**Table 3: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.631	1.278		3.624	.000
	Demand forecast	.799	.110	.442	7.275	.000

a. Dependent Variable: Organizational effectiveness

Source: Computation from field survey (2022).

Tables 1, 2 and 3 display the results of regression analysis on the influence of human resource forecasting on organizational effectiveness. The analysis revealed that human resource demand forecasting has a significant effect on organizational effectiveness with ( $R=0.442$ ,  $R^2= 0.195$ ,  $P=0.000$ ). This indicates that human resource demand forecasting accounts for 19% variation in organizational effectiveness in the studied manufacturing firms. Also, the F-values statistics (52.925) shows that the overall equation is significant at (Sig. level=0.000;  $P< 0.05$ ). Therefore, the null hypothesis is hereby rejected.

The focus of this hypothesis is to examine the effect of human resource demand forecasting on organizational effectiveness of manufacturing firm in Rivers State. The result reveals that human resource demand forecasting has significant effect on organizational effectiveness. This implies that human resource demand forecasting can be leveraged to increase the effectiveness of firms. This finding aligns with the findings of Patrick (2008) that a positive relationship exists between human resource forecasting and organizational effectiveness. Human resource forecasting enables organization to influence and control the productivity level of employees and make up for deficits.

**Table 4: Correlation between Human resource supply forecasting and organizational effectiveness**

		<b>Correlations</b>	
		HR Supply Forecasting	Organizational Effectiveness
HR Supply Forecasting	Pearson Correlation	1	.474**
	Sig. (2-tailed)		.000
	N	90	90
Organizational Effectiveness	Pearson Correlation	.474**	1
	Sig. (2-tailed)	.000	
	N	90	90
**. Correlation is significant at the 0.05 level (2-tailed).			

Source: Computation from field survey (2022).

Table shows the results of test of correlation between human resource supply forecasting and organizational effectiveness. The results revealed a Pearson correlation value of 0.474 (47.4%) on the relationship between human resource supply forecasting and organizational effectiveness. This value implies a moderate positive relationship between the variable. The test also produced a p value of 0.000 which is less than 0.05; meaning that the correlation between human resource supply forecasting and organizational effectiveness is statistically significant. Therefore, the null hypothesis is rejected.

## DISCUSSION OF FINDINGS

The focus of this study was to examine the connection between human resource forecasting and organizational effectiveness of manufacturing firm in Rivers State. The results of the statistical analyses revealed a positive relationship between the variables. This implies that when organizations accurately predict their human resource, taking the analysis of current human resource inventory and future availability of human resource into consideration, higher levels of organizational effectiveness will be achieved. This result is similar to the findings of Kolb and Stekler (1992) that human resource forecasting enhances organizational sustainability.

Organization can achieve increased productivity by relying on effective forecasting that gauges against manpower surplus or deficit.

### CONCLUSION AND RECOMMENDATIONS

Organizations currently face a challenge of projecting future human resource requirements. This challenge is manifested in their continuous struggle to implement forecasting strategies; in lieu of the costs of human resource acquisition. Human resource forecasting predicts what might happen in the future under certain conditions and circumstances. Reports have it that human resource forecasting cause significant changes in global business practice, and its implementation is argued to secure organizational longevity. This study investigates the effect of human resource forecasting and organizational effectiveness. The study found that human resource forecasting influences, and relates to organizational effectiveness. This means that absence of human resource forecasting can negatively impact organizational effectiveness. The study thus concludes that human resource forecasting is essential to organizational effectiveness of manufacturing firms in Rivers State; and recommends that manufacturing firms in Rivers State that desire to achieve improved organizational effectiveness through talents and skills of workers should incorporate human resource forecasting as a component of their human resource management; as well as overall corporate strategy to ensure constant supply of required workforce.

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