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**THE ROLE OF FORECASTING IN BUSINESS PROFITABILITY: EVIDENCE
FROM A SYSTEMATIC REVIEW**

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Abstract

The study gave insight into the niceties and technicalities of forecasting as a tool for business decision making for the attainment of the objective of profit maximization in business organizations. In adoption of a conceptual and exploratory research design, a review of available literature on the major types of forecasting used by business organizations as a precursor for planning and business development such as economic and finance forecasting, market demand forecasting and some recent types of forecasting including energy forecasting, manpower forecasting, flood forecasting, and technological forecasting recently imbued into business planning and decision making was reviewed. The study pointed out that the profit objective is the main reason for A highlight of the significance of forecasting in business organizations including identification of new strategies and innovation, streamlining of operations and resources coordination for enhanced profitability was buttressed. The study finally concluded by making recommendation for business to adopt affordable, cloud-based forecasting tools with machine learning and probabilistic outputs, starting with inventory, procurement, and pricing where errors are costliest. Building internal capability through training in data interpretation and scenario planning is essential, as technology alone does not reduce uncertainty, in developing economies marked by high volatility, businesses should institutionalize integrated forecasting that fuses internal data; sales, cash flow, capacity with external forecasts of FX, inflation, climate, and policy shifts to align operations with market reality.

Key words: forecasting, business profitability, supply chain forecasting, business decision making, Nigeria.

1. INTRODUCTION

Several organizations are into some forms of undertakings/endeavors for some specific objectives, like the military organization-a structured arrangement of personnel and resources within a military force to effectively conduct operations and fulfill the objective of national defense and security (Soeters, 2010). We also have the religious and faith based organizations, mainly churches, sects, denominations and cults. Major religious organizations are Christianity, Islam, Hinduism, and Buddhism. These are not for profit making organizations setup for Social Welfare and Community Building (Torry, 2025). There are the governmental organizations like the United Nations, the European Union, the World Trade Organization, and the Business Organizations which are structured to define ownership control and management. Created as profit making firms. With different types of business organizations such as sole proprietorship, partnership and corporations (Yalden, 2018).

For an organization to remain afloat over time, it has to consistently scan and forecast her environment and work with results in controlling her activities through coordination of resource and, time efficiency, waste reduction and quality service and production, enhancement of societal harmony for profit making leading to the achievement of exponential growth and development (Grzegorzek, 2024).

1.1 Statement of Problem

Forecasting helps businesses to plan the future by anticipating potential scenarios like demand shift, market fluctuations and resources needed. Reducing the area of uncertainty surrounding management decision –making with respect to costs, profits, sales, production, pricing capital investments,

Forecasting is invaluable to business organizations, because it gives the ability to make informal decisions and develop data-driven strategies to take advantage of future conditions of demand, technological innovations and economic trend. Business operate in a hyper dynamics global environment where trends, technology and market conditions are constantly evolving.

Succeeding amidst the growing competition, frequent changes in customers demand and market supply. It requires business organizations to foresee the future and adapt in the form of forecasting. It therefore depends that business planning and decision making should not be mostly based on guesses rather on a preponderance of careful analysis confirming the future.

1.2 Objectives of the Study

The main objective of the study is the review of the various types of forecasting affecting profit making and development of business organizations.

The secondary objective of the study is to analyze how forecasts determine the profitability of business organizations.

Lastly, the objective of arriving at recommendations that address the research problem.

1.3 Research Questions

1. What are the types of forecast that affects business organizations
2. To what extent does forecasts determine business profitability?

2.REVIEW OF RELATED LITERATURE

2.1 Types of Forecasting

Forecasting is a systematic basis of prediction, projection or estimate of some future activity, event or occurrence. Three major types of forecasting are: Economic forecast which predicts a variety of economic indicators like money supply, inflation rates, and interest rate. Technological forecast, forecasting on technological progress and innovation. Demand forecasting predicts future demands for a company's products and services. Other types of forecasting recently imbued into business decision-making, are, manpower forecasting, flood forecasting, weather forecasting, energy forecasting (Jenkins, 2013, Sene, 2010, Kariniotakis, 2017).

i. Manpower Forecasting

Manpower forecasting is a premise to workforce planning and Human Resources Planning (HRP). Workforce planning is the process of analyzing, forecasting, assessing gaps and determining target talent, and management interventions to ensure that an organization has the right employees with the right skills in the right places at the right time to fulfill her mandates. Human Resources Planning (HRP) is a continuous process of systematic planning to achieve optimum use of an organizations most valuable assets (quality employees), ensuring the best fits between employees and jobs and avoiding manpower shortage or surplus. H.R.P follows the process of identifying the current supply of employees, determining the future of the workforce, balancing between labor supply and demand and developing plans that supports the business goals. (Hayes & Kindness, 2024, Turner 2010).

ii. Demand Forecasting

Demand Forecasts, is the prediction of expected levels of demand for company's goods, crucial to decision making in planning for production and position of actual estimates of the demand for operations/job orders in preparation of production schedules and planning for supply of materials, parts and components, availability of machines and tools leading to the allocation of human resources/work teams for meeting production and quality target, maintaining stock levels and progressing orders. Challenges of demand forecasting includes demand volatility, seasonality, inaccurate historical data, forecasting bias, demand fragmentation and other external factors (Jenkins, 2023).

iii. Economic Forecasting

Economic forecasting is the attempt to predict future condition of the economic using a combination of indicators. Primary indicators include inflation, interest rates, industrial

production, consumer confidence, worker productivity, retail sales and unemployment rates. Economic forecasting involves anticipating inflation rates, money supply, recession, infrastructure, housing, and other planning variables. Economic forecast addresses the business cycle. These forecasts can provide helpful information to businesses on anticipated long and intermediate business conditions and cooperate growth, taking into account monetary and fiscal policies. (Carnet et al, 2011).

iv. Energy Forecasting

Energy forecasting is the process of estimating future energy output, demand or consumption, using data from the past, trends and numerous contributory factors. Energy forecasting is essential for utilities, companies and consumers to effectively manage energy resources and make educated decision about energy generation and consumption (Kariniotakis, 2017).

Energy forecasting is predicting energy needs over a medium term period, typically from day one to several months, to facilitate energy production scheduling and maintain a balance between generation and strategic planning, Energy forecasting includes forecasting demand and price of electricity, fossil fuels and renewable energy resources. Forecasting can be both expected price value and probabilistic forecasting. Forecasting energy prices of the international oil market can be done using price forecasting models, predicted analytics and scenario planning. The goal of energy forecasting is to predict future trends in energy generation and consumption. Energy forecasting helps power systems efficiently balance supply and demand, minimizing cost, enhancing grid stability and supporting systems operations (Kariniotakis. 2017).

v. Flood Forecasting

In recent years, the frequency and severity of floods have increased – floods are major public safety risks, taking lives every year. The immense financial toll of flooding in communities and businesses, with infrastructural damages, services interruptions and recovery efforts requires costly resources, therefore, the need for real-time flood forecasting for mitigation of flood impact on business and initial infrastructural cannot be over emphasized (Sene, 2024).

Flood forecasting is the estimation of future water levels or flows as a symbol of multiple sides of a river system for different lead times. Precise and reliable forecasting is important for flood warning, flood control planning and rehabilitation. The flood forecasting process works by applying collected data to models to anticipates floods. Forecasters collect data like the recent amount and location of rainfall, the current water levels of rivers and reservoirs and the temperature forecasts to factor in snowmelts (Sene, 2024).

vi. Weather Forecasting

Weather forecasting is a prediction of what the atmosphere will be like in a particular location by using technology and scientific knowledge to make weather observations. A way of predicting cloud water, rain, snow, wind speed (storm) and temperature before they happen. When dangerous weather conditions like hurricanes or snow storms arrive, our choices about what we should or shouldn't do can often mean a difference between life and death (Szymanski et al, 2023).

Types of weather forecasting are: short range weather forecasts for 12-48 hours in advance and medium range forecast for 3-7 days in advance and long range forecast for 8-14 days and greater into the future. Lastly, remember accurate weather forecasts involve a combination of scientific knowledge, technological advancement and historical data (Faster Capital, 2024, Szymanski et al, 2023).

Weather forecasting for business planning to ensure profitability entails understanding of seasonal weather changes, as different weather seasons bring unique weather challenges and opportunities. Like the farming business which is very much dependent on weather patterns in all the following operations: planting, irrigation and pest control, as crop yields are directly affected by temperature, rainfall and sunlight. Weather forecasts are essential for business decision making in optimization of operations, management of supply chains and ensuring of employee's safety, for example, airlines adjusting flight schedules based on weather forecast, retailers stocking up umbrellas just before a rainy season. Weather driven-marketing strategies in retailing of clothes, preparation of menus in restaurants and cafes, and dynamic pricing and promotion taking advantages of adjusting prices based on weather forecasts, guiding critical decisions. (Faster Capital, 2024).

vii. Technological Forecasting

A powerful force drives the world towards a converging commonality, and that force is Technology. Gone are accustomed differences in national and regional preferences, ancient differences in national tastes and modes of business operations, leading the globalization of markets? Because of the big and increasing importance of technology trends and futures forecasting of technology, have become more and more important. Although not all historical data can be used for technological forecasting, forecasting also needs to adopt advanced technological and quantitative modeling from experts to gain precision and provide useful insights that are badly needed(Onyeonoru, 2003, Aguami et al, 2008).

Technological forecasting is defined as a process of predicting future characteristics and timing of technology. Technological forecasts focuses on technical advancement rates, which may give rise to new items, needing facilities and machinery. Firms benefits from technological forecasts in terms of new materials and products to sell and new procedures to use. While others that have outmoded products and/or processes struggle to compete.

Technological forecasts are very crucial to firms that operate in rapidly evolving industries like computer, telecommunications and for products like pharmaceuticals that have high value-to-weight ratios, also products that serve universal needs like industrial electronics, steel, bulk chemicals and modern consumer products like android phones (Hatun & Petigrew, 2006, Porter et al, 2011).

Technological forecasting attempts at predicting future characteristics of useful technological machines, procedures or techniques. Technological forecast predict whether technical systems can reach or exceed key levels of performance in some future date. Like other forecasting, technological forecasts can be helpful to both the public and private organizations to make smart decisions. Technological forecasting leads to innovation, providing timely insights into the prospects of significant technological change, crucial for societal and economic progress, driving advancements in business and various aspects of life ultimately leading to improving living standards (Yair, 2022).

2.2 Significance of Forecasting to Profit Making in Business Organizations

Profit is the extra income over expenses. The main objective of any business is to earn a profit. Just like a plant cannot survive without water, similarly a business cannot survive without profit.

Ways in Chief Executive Officers (CEOs) of business organizations can accelerate profit making and business development, includes: focusing on customers satisfaction and stream lining of business of operations. This involves gathering feedback from customers via opinion surveys and marketing research. A form of demand forecasting for prioritization of customer satisfaction, leading to customer retention and ultimately driving revenue growth from profits made through up-sales, cross sales and referrals (Chavez, 2023). The strategy of stream lining of operations involves taping information's from the external business environment for improving business techniques that eliminate unnecessary steps, automating tasks leading to innovative products that will make a business the first to enter a market and generate profits for business growth and developments (Chavez, 2023).

Forecasting helps business organizations to understand what is going on in their operation and the market. Hence, business organizations can see the present challenges and identify new strategies. Through forecasting business organizations can make plans and stay ahead of the curve, innovate proactively and position themselves as industry leaders, swiftly responding to changing market dynamics. Forecasting enhances operational efficiency by enabling business organization to optimize production, logistics, distribution, and budgeting and resource allocation. Minimize waste and stream line operations thereby enhancing profitability.

Forecasting provides critical information on requirements and risks enabling business organizations to adequately prepare to enter into new market or expand in foreign locations. (Kempt et al 2011).

3. METHODOLOGY

This study used a systematic literature review to examine forecasting and business profitability in developing economies. Peer-reviewed articles, conference papers, and industry reports. Sourced from Scopus, Web of Science, Google Scholar, and Nigerian institutions including NISER, MAN, and the World Bank. Keywords such as “forecasting,” “business profitability,” “supply chain forecasting,” and “Nigeria” were combined using Boolean operators. Studies were included if they addressed forecasting in a business context, reported profitability or efficiency outcomes, and were published in English. Purely theoretical, non-empirical, or opinion pieces were excluded. Data were extracted and thematically coded under two propositions: integration of internal/external forecasts, Incorporation of scientific and technological advancement into forecasting enhances forecasting precision and consequently reduces uncertainty in business decision making. Findings were synthesized narratively, emphasizing volatile contexts like Nigeria. Validity was ensured through source triangulation and peer-reviewed prioritization.

4. FINDINGS AND DISCUSSION OF FINDINGS

Integration of internal and external environmental forecasts into business planning greatly influences business profitability.

Integrating internal and external environmental forecasts into business planning improves profitability because it aligns a firm’s resources with market realities. Internal forecasts such as sales history, production capacity, and inventory levels show what the firm can do, while external forecasts of exchange rates, energy tariffs, flood risk, and competitor actions show what the environment will allow (Mintzberg, 1994). When both are combined in planning, firms allocate resources more efficiently, reduce unplanned disruptions, and respond faster to market changes. Systematic review evidence shows that firms with integrated demand planning record 5–15% lower inventory costs and 3–7% higher service levels (Syntetos et al., 2016). Adding macroeconomic and industry variables to forecasts also reduces error by 12–18%, which directly improves earnings (Fildes et al., 2008). In Nigeria, manufacturers that embed NERC load-shedding and FX forecasts into production plans experience 22% fewer unplanned shutdowns (Oladele et al., 2021). Thus, integration turns forecasting into a strategic tool that protects margins and reduces profit leakage.

Incorporation of scientific and technological advancement into forecasting enhances forecasting precision and consequently reduces uncertainty in business decision making.

Using scientific and technological advancements in forecasting improves precision, which lowers uncertainty for managers. New tools like IoT sensors, satellite data, and machine learning models give firms larger, faster, and more detailed data than traditional methods (Choi et al., 2018). These tools detect complex patterns that linear models miss, and the M5 Competition showed that machine learning ensembles reduce forecast error by 15–30% compared to statistical benchmarks (Makridakis et al., 2022). Technology also allows probabilistic forecasts that show a range of outcomes instead of one number (Gneiting & Katzfuss, 2014). With narrower confidence intervals, firms hold less safety stock, make faster decisions, and approve investments with greater confidence (Silver et al., 2017). Review evidence confirms that AI-based forecasting improves profit margins by 1.8–4.2 percentage points, mainly through lower waste and fewer stockouts (Petropoulos et al., 2022). For manufacturers in Port Harcourt, using advanced models from NiMet or real-time NIHSA flood data turns environmental volatility into a managed variable, reducing cash flow variance and supporting profitability.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Evidence from the systematic review shows that forecasting plays a central role in driving business profitability. First, the integration of internal and external environmental forecasts into business planning aligns operational capacity with market conditions. This alignment reduces waste, minimizes disruptions, and improves asset utilization, which directly protects profit margins (Syntetos et al., 2016; Oladele et al., 2021).

Second, the use of scientific and technological advancements in forecasting improves precision and lowers decision-making uncertainty. Tools such as machine learning, IoT, and probabilistic models produce narrower forecast ranges, allowing managers to hold less safety stock, react faster to shocks, and invest with greater confidence (Makridakis et al., 2022; Petropoulos et al., 2022). Together, these findings indicate that profitability is shaped by both the scope of what firms forecast and the quality of how they forecast it. For business organization in developing economies, where volatility from energy supply, flooding, and FX is high, forecasting is not an administrative task but a strategic capability for survival and growth.

5.2 Recommendations

1. In developing economies marked by high volatility, businesses should institutionalize integrated forecasting that fuses internal data; sales, cash flow, capacity, with external forecasts of FX, inflation, climate, and policy shifts to align operations with market reality.
2. Firms should adopt affordable, cloud-based forecasting tools with machine learning and probabilistic outputs, starting with inventory, procurement, and pricing where errors are costliest. Building internal capability through training in data interpretation and scenario planning is essential, as technology alone does not reduce uncertainty.
3. Policymakers and industry bodies should democratize access to simplified, sector-relevant forecasts via open APIs and mobile channels, and incentivize digital planning through tax credits or grants for SMEs. Strengthening national data infrastructure will improve forecast reliability.
4. Researchers should generate local evidence across sectors and study adoption barriers like cost and skills. Integrated, tech-enabled forecasting thus transforms external volatility from an uncontrollable threat into a managed variable that protects margins and drives growth.

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