
**THE IMPACT OF EFFECTIVE FORECASTING ON BUSINESS
GROWTH, A CASE OF BUSINESSES IN JUBA MARKET**

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Abstract

This paper addresses the impact of effective forecasting in relation to business growth in South Sudan. The main aim of this study is to examine the scientific application of forecasting techniques in modern business and to prove its effectiveness on business growth. Different forecasting techniques are applied in this study to determine the correlation in this respect. The multiple methodologies (combination of face to face interviews and structured questionnaires) to collect relevant data are used and Statistical Package for Social Sciences (SSPS) for data analysis is applied. A sample size of 61 sixty one business were taken to measure the impact of forecasting on them in relation to business growth. The cross data statistics suggest that there is strong correlation between forecasting and business growth in a given market and most business forecasting are based on the length of experience and subjective manager's judgments.

Keywords: Forecasting, Business Growth, Impact, Techniques, Market

1. Introduction:

Forecasting is required in many situations. Deciding whether to build another power plant in the next five years requires forecast of future demand. Scheduling staff in a call centre requires forecast of call volumes. Stocking an inventory requires forecast to stock requirements. Telecommunication routing requires traffic forecasts a few minutes ahead. Entering new market require market forecasting. So, whatever the circumstances or time horizons involved forecasting is an important aid in an effective and efficient planning. (Hyndman. D. Rand A. George 2013)

1. To make an effective decision, managers rely on answers to relevant and important questions such as the following
2. In which direction do current trend points?
3. Is the current situation and outlier or a sign of rising instability?
4. Is their crisis under way?

Well grounded/established forecasts answers such questions and help business organization compete in the dynamic, short and long term live economy. In addition, they expand the leeway

of a business, since forecast help them avert adverse trends in times or reinforce beneficial one. (KMPG 2017)

An effective business forecast affects business growth positively, but ineffective use of an appropriate method of forecasting may affect business growth negatively, because it is assumed that non satisfaction of consumers taste will lead to negative or low demand for the goods and services offered to the consumers. This is one way of determining effective business growth forecasting and its usefulness.

All forecast whether financial forecast per se or about specifics of business, like sales growth or projection of economy in totality, are just informed guesses. Generally most forecast falls under two overarching approaches though there are many of them and they are Qualitative and quantitative. Qualitative method is mainly use for forecasting short-range predication and it can be sought of as expert driven where as quantitative methods are concerned with data and avoid the fickleness of people underlying the numbers. They predicts variables like sales, gross domestic product and housing prices to mentioned only few and are normally long rang in nature and are measured in month or years

However sound predication of demands and trends are very essential items if managers are to cope up with seasonality, sudden changes in business levels, and price- cutting maneuvers of competition, strikes and large swings of economy. To handle the increasing variety and complexity of managerial forecasting problems, many forecasting techniques have been developed in recent years. Each has its special use, and care must be taken to select the correct techniques for particular application. (Chambers at el 2017)P1

However; the selection of method depends on many factors such as, in the context of the forecast, the relevance and individuality of historical data, the degree of accuracy, desirability, the time period to be forecast, the cost /benefit of the forecast to the business, and the time available for making the analysis. As such, a manager generally assumes that when asking a forecaster to prepare a specific projection, the request itself provides sufficient information for forecaster to do the job. This is never true. Successful forecaster begins with collaboration between the manager and the forecaster, in which they work to answer main forecast objects queries (Problems).

With adequate understanding of the basic features and limitation of the techniques, the decision maker can help the forecaster formulate the forecasting problem properly and can therefore have more confidence in forecasts provided and use them more effectively .The forecaster ,in turn ,must bring together the technique with the knowledge and experience of the manager. (Chambers et al 2017)P36

2. An Overview of Forecasting Literature:

Decision-Making, the principle task of management, is challenging because most information received by managers is no longer current and the future, in which decision take effect, is

uncertain. In addition, our modern management information systems, such as data warehouses are often limited to focus on the past based on historical data. Managers should therefore be able to show whether objectives set in the past, are achievable today? (KPMG 2017) “Forecasting is described as the art of projecting future events” (Hazier and Render2011) P136. It normally involves taking historical data and projecting them into the future application of mathematical model and in some cases adjusted by a manager’s healthy judgment. “It is a common statistical task in business, where it helps informed decisions about scheduling of production, transportation and personnel, and provides a guide to long –term strategic planning. However, business forecasting is often done poorly and is frequently confused with planning and goals”.

Hence; forecasting is all about predicting the future as accurately as possible, given all the information available including historical data and knowledge of any future events that might impact the forecasts. Goals are what you would like to happen. They should be linked to forecasts and plans, but this does not always happen. Too often, goals are set without any plan on how to achieve them, and no forecasts for whether they are realistic. Planning is a response to forecasts and goals .It involves determining the appropriate actions that are required to make your forecasts match your preset goals.

Forecasting should be an integral part of the decision making activities of management, as it can play an important role in many areas of the business or company. Modern organizations require short term, medium and long term forecasts, depending on the specific application. (Rob 2009)

Managers must bear in mind that what works best in one firm may be catastrophic in another business concern, depending on the business environment and manpower capacity based on the merits of recruitment in the organization. They must also know that there is some limitation from what is expected from forecasting given a set of tools applied. Forecast is seldom, if ever, perfect and are costly and time consuming to prepare and monitor.

However; effective forecasting in both short and long term will depend on the company’s product and services. Business forecast are used to predict sales, profit, cost, prices, interest rate, taxation policies, governance, political environment and others. Despite the use of computers and sophisticated mathematical models in forecasting modern business environment it is not an exact science. Experience, judgment, and technical expertise play a vital role in developing meaningful and useful forecasts in modern business concern.

Hence, in most business, the responsibilities for preparing the demand forecast lies with the marketing or sales managers, rather than operations. So it is important to harness, marketing and operations managers’ position, since forecasts are also major responsibility for operation managers; otherwise business will be in dilemma between the two departments.

In reality, an organization needs to develop a forecasting system involving several approaches to predicting uncertain events. Such forecasting systems require the development of expertise in identifying forecasting problems, applying a range of forecasting methods, selecting appropriate methods for each problem, and evaluating and refining forecasting methods overtime. It is also

important to have strong organizational support for the use of formal forecasting methods if they are to be used successfully (Rob 2009)

2.1 Forecast Features:

There are some features which are common to all forecasts. However; Stevenson (2007) cites the following:

- 1- Forecasting techniques and methods generally assume that the same underlying casual system that existed in the past will continue to exist in the future.
- 2- Forecast are rarely perfect, actual results may differ from predicted values –therefore allowances should be made for inaccuracies
- 3- Forecast for group items are more accurate than forecasts for individual items and
- 4- Forecast accuracy decreases as the time period covered by forecast increases.

Forecasting is divided into three categories as follows,

a) Short term forecast:

It has a time span of up to one year; it is commonly three month and can extent up to 12 month not more

b) Medium term forecast:

It ranges from one year to three years, not more. This kind of forecast is suitable for sales planning, production, budgeting and cash budgeting and analysis

c) Long Term Forecasting:

Is generally of duration of three years or more, It is used in planning for new product, capital expenditure, facility location or expansion and research and development

1. Types of forecast

There are three major types of forecast in planning for future operations and they are as follows:

2. Economic forecast:

It address businesses cycles by predicting inflation rates, money supplies, and other economic indicators

3. Technological forecast:

It is concerned with the level of technological development which can result in growth of new exciting products, requiring new plants and machinery

4. Demand forecast:

These are projections of demand for a company's product and services. They are also known as sales forecast, which determine a company's production capacity and scheduling systems and serves as inputs to finance, marketing and human resources planning (Heizer2011)P137.

The decision maker can help the forecaster formulate the forecasting problem properly and can therefore have more confidence in forecasts provided and use them more effectively. The forecaster, in turn, must blend the techniques with the knowledge and experience of managers

2.2 The Important of Forecasting in Modern Business:

Managers should know that forecasts are just estimates of demand until actual demands become realistic. Forecast of demands, therefore, affect various areas of business operation and growth and sum are as follows,

a) Human Resources:

Human resource is an important capital in any business organization, therefore, hiring, training and development, and dismissal of employees depends on anticipated demand and the quality of manpower employed. Senior Management needs to give enough warning time to Human Resources Departments to hire, train and lay-off workers. For example, inadequate training could result in poor quality products and services production.

b) Capacity

If business capacity is inadequate, its ability to meet customers demand become ineffective, and which might lead to loss of customers, market share and good will and if excess capacity is built on the other hand, business could end up in a situation whereby huge amounts of capital are tied up with little or no return. Therefore, Managers should project balance capacity to enable strike a balance and wine the market.

c) Supply chain Management:

Good supplier relations and price discount for materials and parts depend on accurate forecasting. The forecast must strive to get the right items in the right quantity, at the right price and at the right time.

2.3 Steps in Forecasting

1-Determine the use for forecast

What business objectives. This question will lead and provide an indication to the level of detail needed in the forecast, i.e. the amount of resources needed and willing to be committed by the business and the level of adequacy and efficiency necessary.

2-Select the items to be forecasted

Explore as to whether to forecast for individual or group items

3- Determine the time prime of the forecast

Management has to determine the time prime of the forecast as follows short, medium or long term

4-Select the forecasting technique

5-Gather relevant data and Make Forecast

Identify any assumptions that are made in conjunction with preparing and using of the forecast

6-Monitor:

To see whether forecast is performing as planned and to the satisfaction of the management, if not re-examine the methods and assumptions and validity of the data and reworked the forecast for suitability.

2.4 Forecasting Methods

There are mainly two forecasting methods, qualitative and quantitative,

1-Qualitative methods:

Qualitative methods are mainly consisting of subjective inputs and it incorporate factors such the decision maker's intuition, emotions and personal experience. However; the group of high level managers often in combination with statistical models is grouped to arrive at an estimate of demand in a given company situation.

a) Sales force composite

The sales staff is often a good source of information because of their direct contact with customers. Here; each sales person estimate what projected sales will be in his her area or region of domain.

b) Customer's survey:

Information is solicited from customers or potential customers regarding future purchasing plans. Managers should ensure that they exercise a great deal of care in constructing a survey, administering and interpretation of the results in order to obtain meaningful and valid information for objective and rational decision making

2-Quantitative Methods:

This forecasting methods based it's forecasting on historical information and they fall under following two categories/models as follows.

1-Time Series Models

These models based their prediction on assumption that the future is a continuation of the past, so they use a series of past data to make forecast (daily, weekly, monthly, quarterly, yearly etc) no matter how valuable they are, may be ignored.

Analysis of time series data requires managers to identify the underlying behavior of the series; this can easily be done by simply plotting the data and visually examining the plot/graph as follows

- a. **Trend:** It refers to gradual, long term movement in the data over time .Changes in income, population, age distribution or cultural views.
- b. **Seasonality:** Is a data pattern that repeats itself after a period of time say days, weeks, month, and years? Restaurants and Supermarkets are examples of business which experiences weekly yearly seasonal variations
- c. **Cycles:** These are patterns in data that occur every several years; these are often related to a variety of economic and political factors or natural factors in case of agricultural conditions
- d. **Irregular Variations;** These are due to unusual circumstances such as severe weather changes, earthquake, or major change in product and service. Time series model uses the following methods of data for forecasting and they are

1-Naïve Model

This is a forecasting technique that assumes demand in the next period is equal to demand in the most recent period, say if Vivacell sold 2000 cellular phones in may ,then management assume that they will sell the same (2000)phones in June.

2- Moving averages

This is a forecasting method that uses an average of the n most recent periods of data to forecast the next period, Say if n represent 3 month, then we basically add up the actual sales in the last three months and divide by 3.

Moving average = \sum demand in pervious n period

Months	Water Pumps Sales
January	12
February	13
March	15
April	16
May	18

June	20
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Solutions as per formula above

Months	Water pumps sales	3month moving averages
January	12	
February	13	
March	15	
April	16	$(12+13+15)/3 = 13.33$
May	18	$(13+15+16)/3 = 14.66$
June	20	$(15+16+18)/3 = 16.33$

The management could also use weighted moving averages by using the following formula

$$\text{Weighted moving averages} = \frac{\sum (\text{weight for period } n) (\text{demand in period } n)}{\sum \text{weights}}$$

Weeks	Water Pumps Sales	Three weeks moving average
1	12	
2	13	
3	15	
4	16	$\{(3*15) + (2*13) + (1*12)\}/6 = 83/6 = 13.8$
5	18	$\{(3*16) + (2*15) + (1*13)\}/6 = 91/6 = 15.16$
6	20	$\{(3*18) + (2*16) + (1*15)\}/6 = 106/6 = 17.66$
7	1	$\{(3*20) + (2*18) + (1*16)\}/6 = 112/6 = 18.66$

Exponential Smoothing

It is a weighted moving –average forecasting technique in which data points are weighted by an exponential function. Exponential function is useful when very little past data is available.

New forecast = last period’s forecast + α (last period’s actual demands – last period’s forecast), where α is a weight, or smoothing constant, chosen by forecaster, that has a value between 0 and 1. This equation can be written mathematically as follows

$F_t = F_{t-1} + \alpha (A_{t-1} - F_{t-1})$ where F_t = new forecast, F_{t-1} = Previous forecast, α = smoothing constant ($0 \leq \alpha \leq 1$) and A_{t-1} = Previous period’s actual demand.

Example

In January Juba top sports dealer projected February demand for 153 new sports items. Actual February sales were 164 new sports items. Using smoothing constant chosen by management of

$\alpha = .20$, we can forecast March demand using the exponential smoothing model formula as follows.

New forecast for March demand = $153 + .2(164 - 153) = 155.2$

Therefore; forecast for March new demand for sports items is rounded up to **155**

3.0 Methodology

In this paper the techniques used for data collection were combination of questionnaires containing both open and closed ended questions, observations and secondary data were gathered from books, journals, documents, records and periodicals.

3.1 Research Design

This was an exploratory study; it used a case study design where both quantitative and qualitative approaches were applied. The quantitative approach allowed the researcher to solicit information that have been expressed numerically while the qualitative approach enabled the researcher to solicit narrative and descriptive information which were expressed in textual format. The study sought to assess the forecasting capacity for business growth within the businesses in Juba market.

3.2 Study Population

The study population involved businesses in the selected Juba markets that are either professionals, or involved in performing forecasting functions.

3.3 Sample Size

The sample frame included managers involved in the forecasting function. These were forecasting professionals or persons involved in performing forecasting functions in each of the business concern in Juba.

3.4 Sampling Techniques

Stratified, purposive and random sampling methods were used. The samples constituted the job family of forecasting managers whose sizes were determined based on convenience of the researcher. These methods gave every member of the sample frame an equal opportunity of being selected thereby representing a well-balanced study of the population.

3.5 Data Collection Methods

The Analysis utilized both primary and secondary data to come up with the findings and recommendations contained in this report.

a) Questionnaire survey

Primary data were collected using questionnaires administered to respondents who are involved in forecasting functions for business growth. Both closed and open ended questions were used to ensure efficient and convenient collection of the qualitative and quantitative data.

b) Document Review

The study obtained secondary data through document review of available information on forecasting. This was in order to gain an understanding of the current forecasting capacity environment for business growth in Juba market.

c) Data Collection Instruments *Questionnaire*

Questionnaire with open and mostly close-ended questions were used for collecting primary data. This enabled the collection of 61 questionnaires within a period of two weeks. The collected data were checked for errors and omissions.

d) Validity

The Questionnaires were developed and reviewed to ensure high degree of validity in measuring the study variables.

e) Reliability

Reliability was guaranteed by pre-testing of the questionnaires which ensured that the research design, data collection instruments, respondents and timeframe were valid which guaranteed quality of the data. The selection of respondents based on involvement in forecasting activities ensured that the study area was not abstract to them.

f) Data Collection Procedures

Questionnaires were designed, and were then pretested and decision taken to proceed with the data collection.

3.6 Data Analysis

Obtained data were analyzed using both quantitative and qualitative procedures.

a) Quantitative Data Analysis

Quantitative data from the questionnaire were examined for errors & non-responses, coded and responses captured in the SPSS version 16. This was then analyzed using statistical methods.

b) Qualitative Data Analysis

Qualitative data on the other hand from the open ended questions of the questionnaire were edited, examined and sorted or grouped together to generate common themes in relation to the objectives of the study.

4.0 Analysis and Discussion

Table 1: Basic Information

Basic information	Frequency	Percent
1990s	14	23.0
1980s	32	75.4

1970s	6	85.2
1960	6	95.1
1950s	2	98.4
1940s	1	100.0
Total	61	

In table one, indicates that most business man in modern business in Juba markets are of young age, 52.5 of them were born in 1980s, Therefore it shows that young population of people in Juba are going private

Table 2: Field of Study

Field of Study	Frequency	Percent
Missing	18	29.5
Business/ Economics	26	42.6
Engineering	1	1.6
Sociology/ Community Studies	2	3.3
Medicine	1	1.6
Others	13	21.3
Total	61	100.0

Table 2 above show to us that 42.6% respondents are well educated and specialized in the area of business and economics and it also reflect to us that they use modern business techniques in managing their businesses and few of them are from different specializations such as engineering ,medicine and other social sciences. It is evidence that young educated class is taking up small business serious and it also creates self employment

Table 3: Forecasting

Forecasting	Frequency	Percent
No	2	3.3
Seasonal	10	16.4
Sometimes	31	50.8
Yes	18	29.5
Total	61	100.0

This table Shows that about 50.8% respondents undertake forecasting sometimes and 29.5% undertakes business forecasting for business growth, in other way it tells us that majority of the business owners in Juba market undertake business forecast Occasionally where as some of them do it normally

Table 4: Business forecasting

Business forecasting	Frequency	Percent
To know our product demand position	21	34.4
To know as to where we are	9	14.8
To Know Business Financial Position	2	3.3
Understand Business Environments	16	26.2
Foresee Business Growth	13	21.3
Total	61	100.0

The above table shows that 34.4% of business managers make business forecasting in order to know their product demand position in the market where as 26.2% undertake business forecasting to understand business environment, 21.3% undertake business forecasting to foresee their business growth, 14.8 are making forecasting to know where they are where they would want to be and only 3.3% wants to know their financial position.

However, it is clear that knowing company product demand is essential factor for any business to determining its general health financially, socially, politically and economically.

Table 5: Types of Business Forecasting

Types of Business Forecasting	Frequency	Percent
Missing	1	1.6
Qualitative	17	27.9
Quantitative	39	63.9
Not any	4	6.6
Total	61	100.0

As it has been reflected in table 2 educational level of respondents, it's evident in table 5 here that level of education play greater role in type of forecasting. About 63.3 of the respondents used quantitative methods of forecasting, 27.9 used qualitative where as 6.6 did not use any. In this paper it is evident that those respondents, who said they have not used any method of forecasting, used qualitative methods indirectly, because they based their decisions on personal judgments and experience.

The respondents in the study are mostly educated class but vast majority of the business managers are either uneducated or with elementary education and in most cases they undertake qualitative business forecasting

Table 6: Period /term of business forecasting

Term of business forecasting	Frequency	Percent
Short term	5	8.2
Medium	24	39.3
Long term	30	49.2
Nothing	2	3.3
Total	61	100.0

The table above suggests that about 49.2% businesses in Juba market used long term forecasting to determine their business future, about 39.3 used medium term forecasting, 8.2% used short term forecasting and about 3.3 don't apply any methods. Based on the observation most managers applied all of the above methods in accordance to the factors and nature of the need of the business, for example when it wants to expands than long term forecasting is use

Table 7: Bases of forecasting

Bases of forecasting	Frequency	Percent
Judgment	15	24.6
Experience	7	11.5
Common Sense	4	6.6
All	34	55.7
Not Sure	1	1.6
Total	61	100.0

Table 7 above reflects that 55.7 % of the respondents used, Judgments, Experience and Common senses in forecasting short term requirements of their businesses, 24.6% applied judgments, 11.5 used personal experience and 6.6% applied common sense where as 1.6% are not sure of the methods they used, but in our observation they used all of the above mentioned forecasting method accordingly.

Table 8: Methods of forecasting:

Methods of forecasting	Frequency	Percent
Time Series	23	37.7
Trend Analysis	30	49.2
Seasonality	5	8.2
Irregular Variation	3	4.9
Total	61	100.0

Table 8 above shows that about 49.2% respondents used trend analysis method for forecasting the future of their business where as 37.7% applied time series analysis, 8.2% respondents used seasonality's analysis and 4.9% applied irregular variation

However; Observations tells us that most respondents in Juba market applied mainly scientific methods for forecasting their businesses. Whereas majority of the traders in Juba market are illiterates and do not use any scientific methods for forecasting, the selected businesses in this work are mostly foreigners and they manage groceries, malls and businesses like printing house and standard restaurants and hotels.

Table 9: Tools for measuring business growth

Tools for measuring business growth	Frequency	Percent
I'm not sure	3	4.9
Disagree	3	4.9
Strongly Disagree	3	4.9
Agree	28	45.9
Strongly Agree	24	39.3
Total	61	100.0

The above table reflects that 45.9% of the respondents agree that forecasting is an important tool for measuring business growth, 39.3% strongly agree and 14.7 of the respondents either not sure, disagree or strongly disagree.

It has been observed in this paper that business managers agree and strongly agree that forecasting is very essential in predicting their businesses future and determination of their success

Table 10: Planning Precedes Forecasting

Planning Precedes Forecasting	Frequency	Percent
I don't agree	6	9.8
Agree	14	23.0
Strongly agree	33	54.1
Disagree	4	6.6
Strongly disagree	4	6.6
Total	61	100.0

The above table suggests that 54.1 of the respondents strongly agree that planning precedes forecasting, 23% agree and 9.8 don't agree where as 13.2% either disagree or strongly disagree.

In this paper it has been realized that planning is always head forecasting in any matters of business concern.

Table 11: Business growth trend

Business growth trend	Frequency	Percent
I don't agree	1	1.6
Agree	22	36.1
Strongly agree	32	52.5
Disagree	1	1.6
Strongly disagree	5	8.2
Total	61	100.0

Table 11 suggests that forecasting is an important tool in predicting business growth trend, this has been proved by 52.5% of the respondent who strongly agree and 36.1% who agree where as 8.2% strongly disagree and 3.6 don't agree and disagree respectively. The observation shows that more managers accepted that forecasting is an essential tool for predicting their future business growth.

Table 12: Forecasting includes judgments and Quantitative methods

Forecasting includes judgments and Quantitative methods	Frequency	Percent
I don't Agree	1	1.6
Agree	19	31.1
Strongly Agree	36	59.0
Disagree	1	1.6
Strongly Agree	4	6.6
Total	61	100.0

Table 12 suggests that 59.0% of the respondents strongly agree that forecasting includes judgments as well as quantitative methods and 31.1% agree where as 6.6% strongly disagree and 3.2 either don't agree or disagree. It is evident that forecasting is both qualitative and quantitative in nature.

5.0 Conclusion

In this paper it is evident that most of the small businesses in Juba are run by uneducated class who are using personal judgment in business decision making, whereas most business managers

in the sample are educated class and mostly economist, or business experts and are mostly non South Sudanese.

When appropriate forecasting methods are applied, they can results to more positive results to business growth. Parameters such as business growth, demand and capacity forecast are essential in any business planning and consequently business growth forecasting. Forecasting is of a great value to any business and it can determine business future growth in any market if appropriate methods are applied in particular case and environment.

In conclusion, this paper demonstrates that business growth forecasting can be attained adequately by usage of appropriate forecasting method, and it is also evident that judgments are essential in this respect ,thought systematic methods are paramount also in particular situations. Further investigations are recommended to ascertain business forecasting growth and wider sample size is strongly recommended.

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