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ACCOUNTING SOFTWARE AND QUALITY OF CORPORATE REPORTING IN PROFIT ORIENTED COMPANIES.

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Abstract

Tracking the various business parameters variables related to the business's goal is a difficult task to do without the right tools. Failure to properly put in place accounting processes that oversee and manage such parameters has led to the demise of many promising small and big organizations. This work looks into how the use of accounting software affects the quality of reporting while focusing on the tools and application modules that make the process hitch-free. Because of the lack of local data and feedback from first-hand operators of accounting software, the study infers knowledge from other works on the effectiveness of accounting software in organizational reporting. It also looks into the tools that come with Microsoft Excel, one of the most widely used accounting software in Nigeria. We make use of sales data gotten online to implement this tool and the result shows that the Microsoft Excel application is capable of minimizing errors, automating tasks, and forecasting. By making use of Excel Solver, we were able to determine the percentage of the baby food product that must be sold at the highest price to maximize profit. the solution model shows that at the lowest forecast rate of 67%, the organization will make \$163,875,000.00 and \$180,000,000.00 at 100%. The study concludes that accounting software is critical to the overall well-being of corporate organizations in Nigeria as it brings about a profound ease of corporate accounting processes

Keywords: Business firm, Efficiency, Corporate reporting, BROADSHEET accounting software, Forecast

1.0 Introduction

The process of accounting is an integral part of any business and has been for many years. The Merriam-Webster Dictionary (2020) defines it as the system of recording and summarizing business and financial transactions and analyzing, verifying, and reporting the results. It further shows that accounting can also mean taking stock of the principles and procedures of a system; be it financial or otherwise.

According to Tetroashvili (2019), there are three major types of accounting namely Financial, Managerial, and cost while Girsch-Bock (2020) show that the types, in addition to those of Simon

Tetroashvili's, can be further broken down into Governmental, Public, Forensic, Tax, and Auditing.

The need for this research is as a result of, through implementation, to show how accounting software can be used and is actively being used to improve the quality of reporting in corporate organizations.

The need for accounting software is due to the complexity of the operations involved in accounting, the vulnerability to errors, and the growing volume of accounting transactions (Wickramsainghe, Cooray, Dissanayake, and

Pemarathnaet 2017). As business variables to take into consideration continues to rise and business have to conform to modern industry standards, accounting software coupled with the needed expertise has become the right tool. This work, therefore, seeks to ascertain what impact accounting software have on corporate reporting for efficiency, reliability, data integrity & quality, and accuracy for corporate reporting within a business environment. Using Microsoft Excel as the software of choice, we perform simulations of what it is capable of doing and show some of its intricacies. By doing this we try to answer the question, do Accounting Information Systems have a quality impact on corporate reporting and if signaling theory i.e. describing behavior when two parties (individuals or organizations) have access to different information which is fundamentally concerned with reducing information asymmetry between two parties hold in this scenario

2.0 Literature Review

Over the last few decades, the need to integrate Accounting software otherwise Known as Accounting Information System (AIS), and getting those who are experts at its operations have become industry standard. This is as a result of the comparatively cheaper and increasing performance of Information Technology Hardware and software, the explosive increase of requirement to do business in an interconnected world, and the expertise needed to perform accounting operations for the peculiarities of a business and its environment. Accounting plays a critical role in the operation of any organization. For every business, it is important that the financial information of the business activities is being kept up-to-date and monitored by the organization which sometimes involves complex processes.

Accounting software helps organizations to keep track of financial transactions, perform analyses and infer information, and maintain the integrity of data especially for reporting and auditing (Kenton, 2020). It also facilitates management decision making, quality of the financial report, internal controls besides playing a crucial role in

the economy of the overall system (Hla and Teru, 2015). Accounting applications also help businesses take stock of processes that may be otherwise tedious to manage. In general, they bring the following benefits

Efficiency: It should be noted that every business has pre-dominant goals to improve performance and to maximize shareholder wealth. Hence, to achieve these objectives, the right plans together with necessary resources are needed and used for implementation. Efficiency becomes important because resources are scarce. Efficiency in a business context refers to the ability of a firm to maximize value by using the least inputs to achieve higher outputs. Empirical studies have reinforced the need for efficiency in the operations of the firm. Accounting software as a vital organizational mechanism is critical for the effectiveness of decision management and achieving efficiency in organizations. An effective accounting software as noted by Taylor (2020) should be able to carry out the tasks of making general ledger automatically, managing payables, maintaining order matching, managing account receivable and fixed assets, budget planning, real-time reporting, and much more. In other words, it must be able to carry out accounting tasks efficiently.

Reliability: Accounting software must produce reliable data that are critically used to plan, identify, and control business operations that are germane to the projections of the organization's business goals. The information provided by accounting software must show to be the true reflection of how the business has fared and faring and this can only come from data that has not been tampered with. This shows that accounting software not only has the responsibility of generating true reports but must provide mechanisms that remove the opportunity for data to be tampered with.

Data Quality: The quality of data, whether in static or dynamic form, that is being fed into the accounting system must be accurate else the organization runs the risk of making decisions based on wrong information. This in the long run can lead to the growth or going under of any organization as such information can include the

indices that make the stock of any organization to be sought after or avoided. Again, the dissemination of wrong information is also punishable by law in most countries and as such, accounting software must be able to maintain a very high standard of integrity of data.

Accuracy: Accounting software must not only be fast in carrying out tasks that require a level of automation but must to a very high degree, be accurate in its results. Minute discrepancies in reported figures can have a cascading effect on the overall financial outlook of any organization. This is the importance of the formulation of industry standards. Also, the functions, modules, and formulas embedded in the system must do what it is meant to do. Failure to do so will require human inference with an expert eye which defeats the purpose of the accounting system in the first place.

2.1 Types of accounting software

According to Accounting Tools (2020), spreadsheets, Commercially-available software, Enterprise resource planning software, and Custom accounting software are the major types of accounting software.

Spreadsheets are inexpensive to acquire and implement but require a level of expertise to design professionally acceptable models that are not error-prone. Commercially-available software also known as Commercially off-the-shelf software (COTS) can cater to the needs of a myriad of customers and can be configured to specific organizational requirements. ERP integrates the data of all departments and provides a centralized system for the management of business data and processes. Custom accounting software is bespoke software that caters to the specific needs of an organization. They are built with the organization's business process in mind.

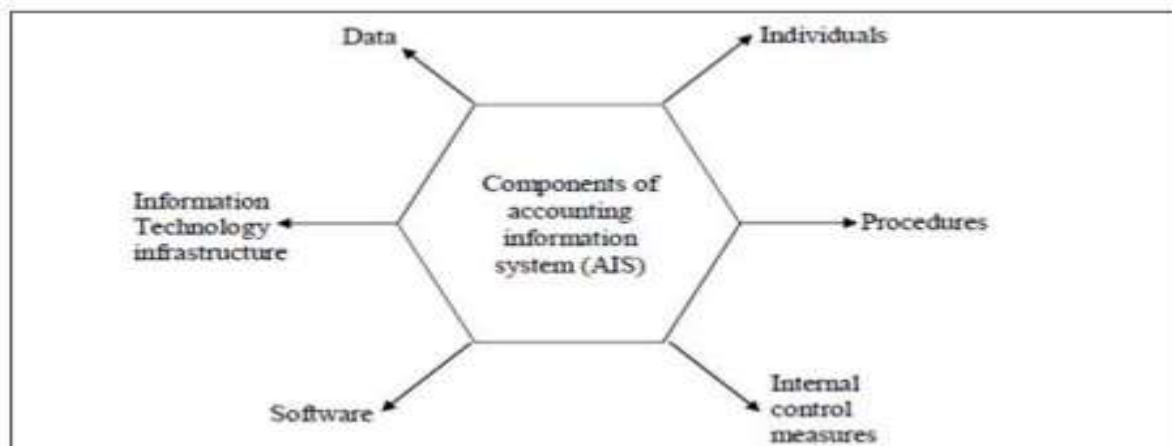


Figure 1. components of the accounting information system (Ganyam & Ivungu, 2019)

Some examples of accounting software include FreshBooks NetSuite ERP, Tipalti, Sage Business Cloud Accounting, Plooto, Tradogram, AvidXchange, QuickBooks Online, MYOB, Essentials, SignRequest, Zoho Expense, Sage, 50cloud, FreeAgent, Invoiced Zoho Books. Generally, their performances can be measured based on factors like Net Promoter Score which is a measure of a customer recommending the business to others, Customer lifetime value i.e. the amount the business is expected to make from a customer, customer acquisition cost i.e the amount spent to bring in a customer into the fold,

Customer churn rate i.e. the rate at which a customer stops buying a business's services or products, Monthly recurring revenue i.e. the amount expected to be made by the business by month, Average revenue per customer i.e. the amount that the business makes from each customer (AR, 2020).

According to FinancesOnline (2020), a survey by Silvervine shows that 67% of accountants think technology in accounting enables them to be more efficient and finish their work faster

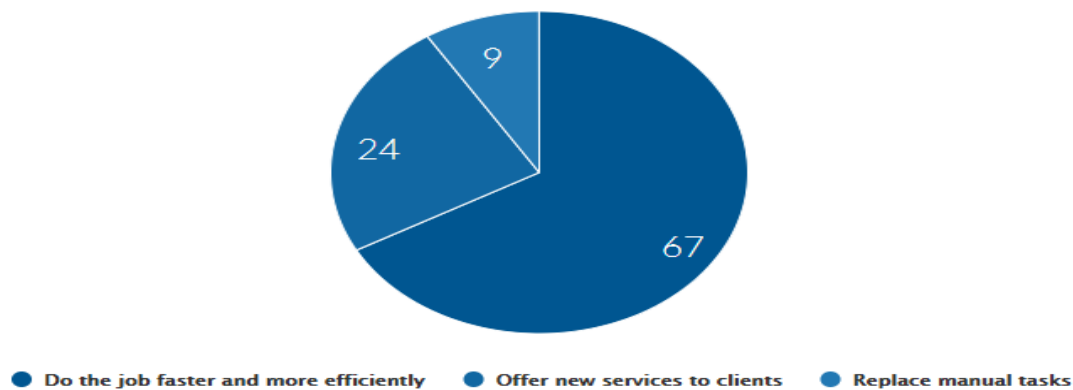


Figure 2. Benefits of Technology in Accounting (FinancesOnline, 2020)

This above figure claim is supported by the works of Anne Beatty (2014) and Benito, Brusca, & Montesinos (2013) which shows the advantages accounting software has brought to Banking and Government accounting respectively.

As with any system, there is always a need for improvement. Some scholarly work that has been done in this area include

Ganyam & Ivungu (2019) stress that an accounting information system is an absolute tool that needs a level of expertise to be impactful. The work showed the various theories on which AIS are built on namely Contingency Theory i.e. there is no one best way of leading and that a leadership style that is effective in one situation may not be successful in others, Resource-based view Theory i.e. the source of sustainable advantage derives from doing things in a superior manner; by developing superior capabilities and resources, Agency Theory i.e. theory describes the owners' (principals') delegated authority to manager (the agent) to run the firm on his or her behalf with the owners' welfare depending on the manager accordingly. The work concluded that the information technology (IT) component of accounting information system is one of the biggest impact of AIS to firms as it enables firms to track, record, and produce financial and accounting reports with much ease

Bader & krema (2018) made use of the red flag approach to presents hints for unusual behaviour, whereas process mining reconstructs and visualizes the as-is business process from the underlying dataset. The combination of the two

techniques allowed for the identification and subsequent visualization of possible fraudulent process instances with the corresponding red flags. They were able to successfully identify 15 of 31 fraud cases in their dataset.

Troshania, Janssen, Lymer, & D.Parker (2018) showed how actor engagement issues and the intertwined and mutually reinforcing nature of a mosaic of forms of institutional work shaped the path of these transformations. Their work contributes to existing research by explaining how supportive conditions and structures are brought about and made to coalesce in the regulatory business reporting space for digital reporting to become established and widely adopted by the business.

Richardson, Sanchez, Setia, & Smith (2018) show that, to date, research does not address what factors a firm should consider when designing CIO incentives and how these incentives influence firm performance. To achieve this, they examine both the antecedents and performance consequences of CIO equity incentives, assess organizational, environmental, and individual factors that influence CIO equity incentives, and found that environmental and organizational factors are more important than individual CIO characteristics in the determination of CIO equity incentives. Also, they discovered that firms that create higher CIO equity incentives realize greater subsequent accounting and market performance.

Valence (2019) concluded through an exploratory review that the importance of IT to

management accounting is undeniably enormous and makes the whole business process seamless.

Wickramasinghe, Cooray, Dissanayake, & Pamarathna, (2017) pointed out that the use and correct usage of accounting software majorly played a big role in the effectiveness of the system. Their research looked into parameters that determined the measure of the effectiveness of accounting systems. Their results showed that there exists a strong impact of accounting software on business performance (66.4%) based on business services which are influenced by proper usage.

Chong & Nizam (2018) also looked into the parameters such as efficiency, reliability, ease of use, data quality, and accuracy of AIS that indicates its impactfulness on business. The result of their study showed that have significant effects on the use of AIS and firm's performance.

Fadzilah, (2017) also made use of efficiency, reliability, ease of use, data quality, and accuracy parameters to measure the AIS impact of firms. They made use of a sample size of 78 participants that consists of accountants or employees who make use of accounting software in their work. They concluded that efficiency and ease of use have significant impacts on business performance but reliability, data quality, and accuracy are not found to have a significant impact on business performance. The research did therefore raises a lot of questions based on the fact that all aspect of the business work in cohesion to achieve the business goal.

The works reviewed that are based on the impact of accounting applications on businesses show

that AIS is very important for the general well-being and scalability of any business. Peculiarly, a majority of them take into account factors like gender and marital status but fail to show how these factors affect the usage of the application.

3.0. Methodology

This confirmatory research work tests our prior hypothesis which seeks to find if accounting software thus has advantageous effects on the quality of corporate reporting. Our hypothesis is based on results from previous studies and our data report outcome is independent of and not influenced by the category of accounting software used.

For a lack of available dataset set from local respondents who are familiar with the operations of accounting systems, this study's design in the form of an observational study. This is because we can draw inferences from a sample of other studies that claim that accounting software does bring about effectiveness and efficiency in an organization's accounting process.

We made use of Microsoft Excel, an easily accessible accounting (spreadsheet) software that is used mostly in an organization in Nigeria.

Aside from Excel's availability, it checks all the boxes for what constitutes a proper Accounting Information System as shown in figure 4.

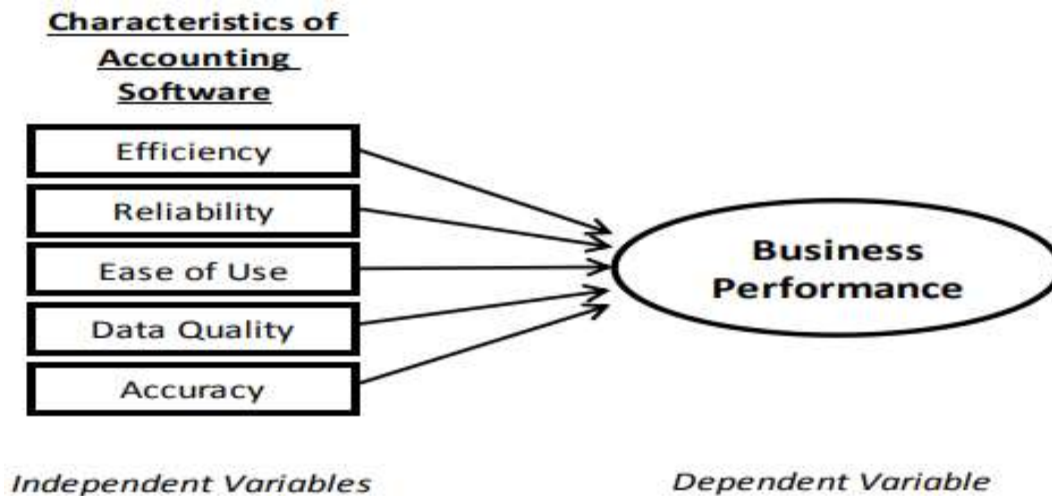


Figure 3. AIS model parameters (Fadzilah, 2017)

The model above (Figure 3) is based on the general AIS model below (Figure 4)

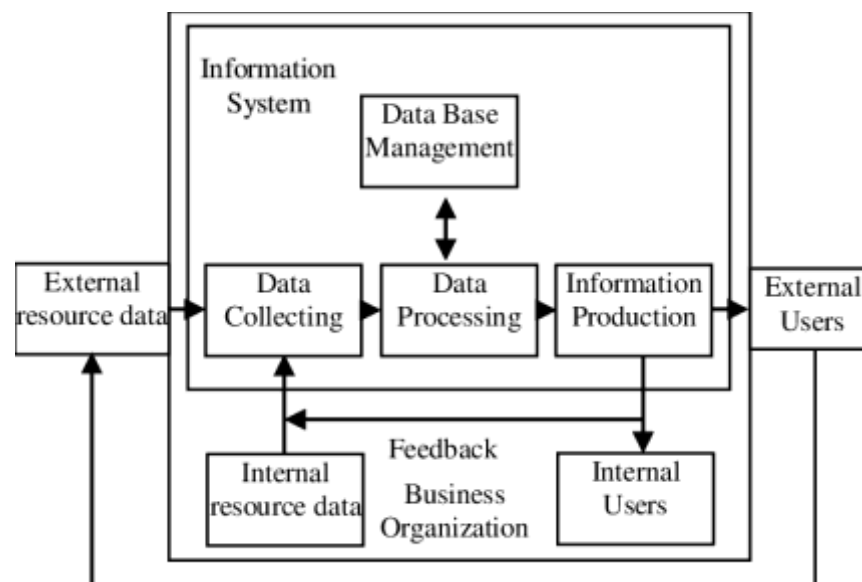


Figure 4. Accounting Information System model (Allahverdi, 2011)

The models show the system will require functional parts like the database which is used for manipulating and storing data, systems of data collection and processing be it internally generated or externally generated, and users of these data.

This research is focused on the area of corporate reporting thereby making data quality and accuracy of utmost importance.

We infer from the model (Figure 4) that the impact of any accounting software on corporate reporting is dependent on the quality and integrity of data which has to do with its source, collection methods, and processing methods.

4.0 Results

The data is made up of the sales record of Baby food across many countries. The Data shows the various Transaction dates, regions' revenues, shipping dates, order date, and ordering platform used.

The data cuts across seven regions namely Asia, Australia and Oceania, Central America and the Caribbean, Europe, Middle East, and North Africa, North America, and Sub-Saharan Africa. The sheet contains 66, 383 baby food sales records for 185 countries

Table 1: Cross-section of data from a spreadsheet

Region	Country	Item Type	Sales Chat	Order Pri	Order Date	Order	Ship Date	Units	Unit Pri	Unit C	Total Reven	Total Co	Total Pri
Central America and the Caribbean	Dominican Republic	Baby Food	Offline	H	8/25/2011	8.25E+08	9/24/2011	274	255.28	159.42	69946.72	43681.08	26265.64
Europe	Iceland	Baby Food	Offline	M	10/2/2010	6.78E+08	11/3/2010	3462	255.28	159.42	628489.36	392492.04	258007.32
Australia and Oceania	Tonga	Baby Food	Online	L	5/11/2016	8.39E+08	5/31/2016	5531	255.28	159.42	1411953.68	881752.02	530201.66
Europe	Albania	Baby Food	Offline	H	7/19/2012	7.57E+08	8/13/2012	7890	255.28	159.42	2014159.2	1257823.8	758335.4
Central America and the Caribbean	Nicaragua	Baby Food	Online	L	11/11/2016	5.44E+08	11/16/2016	2891	255.28	159.42	738014.48	460883.22	277131.26
Sub-Saharan Africa	Liberia	Baby Food	Offline	H	6/6/2015	1.47E+08	6/12/2015	1324	255.28	159.42	337990.72	211072.08	126918.64
Sub-Saharan Africa	Mali	Baby Food	Online	L	11/3/2015	2.9E+08	12/7/2015	1691	255.28	159.42	942238.48	588419.22	353819.26
Middle East and North Africa	United Arab Emirates	Baby Food	Offline	M	4/25/2017	2.78E+08	6/14/2017	5529	255.28	159.42	1409911.44	880476.66	529434.78
Asia	Kazakhstan	Baby Food	Online	H	11/25/2016	2.7E+08	12/12/2016	3578	255.28	159.42	913391.84	570404.78	342987.06
Sub-Saharan Africa	Sudan	Baby Food	Online	H	6/27/2014	7.48E+08	7/8/2014	4518	255.28	159.42	1153555.04	720259.56	433095.48
Sub-Saharan Africa	Togo	Baby Food	Online	M	7/13/2012	6.87E+08	8/5/2012	2050	255.28	159.42	523324	326811	156513
Middle East and North Africa	Lebanon	Baby Food	Online	H	10/17/2015	8.92E+08	10/27/2015	6055	255.28	159.42	1545720.4	965288.1	580432.3
Australia and Oceania	Solomon Islands	Baby Food	Online	M	7/6/2017	1.88E+08	7/24/2017	2683	255.28	159.42	684916.24	427723.86	257192.38
Middle East and North Africa	Turkey	Baby Food	Online	H	1/8/2011	7.08E+08	2/8/2011	5475	255.28	159.42	1397858	872824.3	524833.5
Central America and the Caribbean	Dominican Republic	Baby Food	Offline	H	9/8/2015	2.96E+08	10/19/2015	4378	255.28	159.42	1117615.84	687940.76	419675.08
Asia	Indonesia	Baby Food	Offline	H	7/29/2010	8.33E+08	8/13/2010	1142	255.28	159.42	291529.76	182057.64	109472.12
Sub-Saharan Africa	Kenya	Baby Food	Online	H	10/17/2013	2.42E+08	11/1/2013	9849	255.28	159.42	1493332.72	923447.58	580885.34
North America	Greenland	Baby Food	Offline	C	1/23/2015	9.95E+08	3/9/2015	9804	255.28	159.42	2502765.12	1562953.7	899811.44
Asia	Mongolia	Baby Food	Offline	C	6/14/2017	6.9E+08	7/14/2017	3714	255.28	159.42	948309.92	592085.88	356024.04
Sub-Saharan Africa	Tanzania	Baby Food	Offline	H	7/15/2016	6.01E+08	7/28/2016	1847	255.28	159.42	471502.16	294448.74	177053.42
Asia	Cambodia	Baby Food	Offline	C	10/24/2012	6.14E+08	11/24/2012	175	255.28	159.42	44674	27898.5	16775.5
Central America and the Caribbean	Saint Vincent and the Grenadines	Baby Food	Offline	H	9/2/2018	4.79E+08	10/19/2018	4674	255.28	159.42	1193178.72	745129.08	448048.84
Sub-Saharan Africa	South Sudan	Baby Food	Online	H	4/29/2014	5.91E+08	5/22/2014	6181	255.28	159.42	1577885.68	985375.02	592510.66
Middle East and North Africa	Iran	Baby Food	Offline	M	7/17/2017	3.34E+08	8/1/2017	6391	255.28	159.42	1631301.68	1027604.01	642751.66

Data for this work was gotten from www.eforexcel.com, an online sales data repository. The data contains sales records of different products. For this work, the focus was on the data for baby foods products which was used to test the efficacy of Excel's accounting capabilities in the areas of data storage, data integrity, data presentation, ease of use, and forecasting

Microsoft Excel is a spreadsheet application originally belonging to the Microsoft suite of applications. For this simulation, we made use of the 2016 version.

Excel makes use of a combination of in-built commands, functions, formulas, and programming (Visual Basic for Applications) to process and query data. There is usually more than one way to achieve a goal with spreadsheet applications depending on the result needed.

The spreadsheet (Table 1) lays credence to our earlier position that spreadsheets are error-prone as anyone who has access to the data can change the value of data which leads to inaccurate reports. To minimize the chance of this happening, Excel saves the worksheet periodically and notifies the user about changes when exiting the application. It also gives the option of saving a copy of the sheet in the cloud and provides a password option before a user can access the document.

More advanced features for limiting error includes protecting a worksheet and disabling specific cells from being edited i.e. even though a user has gained access to the sheet, they cannot change its contents and if the need arises, only the contents of specific cells can be changed as shown in Figure 2

Another point raised with spreadsheet applications is the need for expertise in using them. This is also true with Microsoft excel as it makes use of hundreds of predefined functions (custom functions can also be created) to process data. Some common functions include SUM,

COUNT, COUNTIF, VLOOKUP, AND IF, etc. Some Functions have conditions that have to be met before they can work properly.

For example, we can easily get the total number of units sold by using the SUM function

Table 4: SUM function implementation

	B	C	D	E	F	G	H	I	J
1	Country	Item Type	Sales Channel	Order Priority	Order Date	Order ID	Ship Date	Units Sold	Unit Price
6378	Nigeria	Baby Food	Online	M	42233	545535409	8/28/2015	4905	255.28
6379	Cyprus	Baby Food	Offline	C	41235	926224982	12/14/2012	9410	255.28
6380	Estonia	Baby Food	Online	H	42855	159219634	5/14/2017	5483	255.28
6381	Malawi	Baby Food	Offline	C	41051	752283513	6/26/2012	6264	255.28
6382	Gabon	Baby Food	Offline	C	41579	678500449	12/20/2013	2216	255.28
6383	Democratic Republic of the Congo	Baby Food	Offline	M	41259	954486453	12/24/2012	2607	255.28
6384	Tajikistan	Baby Food	Online	H	41819	200717914	7/18/2014	5746	255.28
6385									
6386								Sum of Units Sold	331632880
6387									

Table 4 shows the total of all units sold. Cell J66386 shows the value while the formula bar shows that the values of cell I1 to I66384 were summed up. It is imperative to know that many formatting options come with Excel that can be applied to make the data more reader-friendly. Functions can also be combined to do more.

Another form of the function is called array functions which are used for more advanced calculations and matrix multiplication. For Instance, if we want to calculate the number of unique countries from the countries column, we can use the formula shown in Table 5

Table 5: Array Functions

C	D	E	F	G	H	I	J	K	L	M	N	O	P
												No of	
Item Type	Sales Channel	Order Priority	Order Date	Order ID	Ship Date	Units Sold	Unit Price	Unit Cost	Total Revenue	Total Cost	Total Profit	countries	185
Baby Food	Online	L	41650	3.04E+08	1/22/2014	3947	255.28	159.42	1007590.16	629230.74	378359.42		
Baby Food	Online	H	40769	2.14E+08	8/24/2011	9825	255.28	159.42	2508126	1566301.5	941824.5		

The curly brackets in the formula bar indicate that it is an array function and gives us the value of 185 unique countries.

A very important aspect of accounting software is data visualization. Excel comes with many types

of charts that make it easy for data to be easily interpreted. Suppose we want to see the difference in online and offline transactions channels usage, a chart is a better option for such information.

Table 6: Offline vs online transaction channels

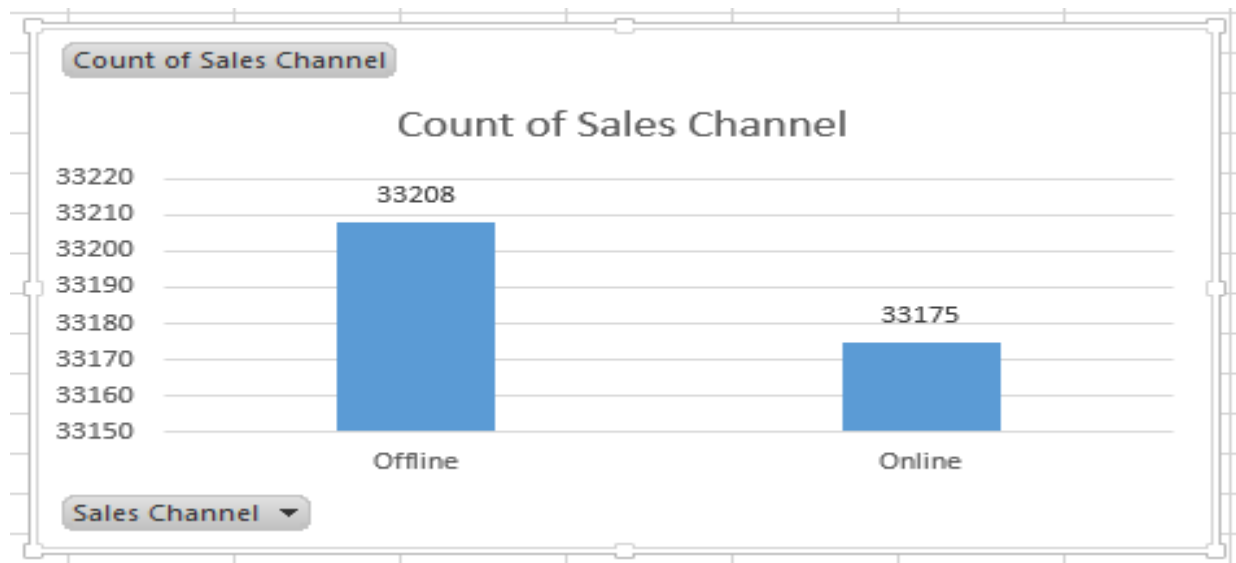


Table 6 is a clustered column chart that shows the difference between the online and offline transaction usage channels.

Like Excel, other accounting software has different types of graphs that are suitable for different information. Some other examples of charts in Excel are pie charts, line charts, bar charts, etc.

Accounting software, as earlier stated should also be able to forecast and carry out scenario analysis

i.e. if the analysis is based on data. For example, assuming the fictional organization needs to be able to forecast at what price they need to sell a hundred and fifty thousand units of a new baby food product they are introducing to the market to maximize profit. They need to assume specific bases like what percentage of units they need to sell at a certain price and what price they need to sell the remainder to make a profit.

In Excel, this can be achieved by using the Excel Solver in conjunction with the scenario manager

Table 7: Forecast model

Total units of Baby food	150,000	
Percentage sold for the Highest price	57%	
		Unit price
Number of Highest price	85,500	1200
Number of lowest price	64,500	950
	Total Profit	163,875,000

The model above shows that there are 150,000 units of baby food available. The model starts with 57% being sold for the highest price at the rate of 1200. Peradventure the product is not completely sold on time and the expiry date is on

the horizon, the organization then decides to sell the remaining 64500 units for 950 each. The model shows that the company will make 163,875,000 minus production cost. What

show that the use of AIS does have a profound impact on corporate reporting and the overall performance of the organization.

However, the results that support this statement were not generated locally. It is therefore recommended that research analyzing the impact of using accounting software applications should be replicated in principle to generate and confirm results.

6.0 Implications of the Study.

This study shows that accounting applications are a must-have in the modern business world. They automate and make seamless processes that are cumbersome and can take stock of every facet of the business value chain. They also lay credence to the applicability of the signal theory in the sense accounting software integration to the business process environment shows would-be investors and the general public (depending on the information disseminated) that such organizations are technologically savvy, ready to expend resources on human capital and technological development, and can compete favorably in the marketplace.

7.0 Contribution to Knowledge

This study shows that irrespective of where it is used and the amount of data it is supposed to work on, accounting software, when properly used, can help organizations make quick and informed business-oriented choices. A very cogent case in point is its ability to make projections. This work also shows that human error can be a cause for misinformation by the software and so expertise and training are required for proper usage and quality reporting.

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