Research Paper

Enterprise Content Management: Corollary for Administrative Efficiency of Manufacturing Firms

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ABSTRACT: *The study investigated the relationship between enterprise content collaboration management and administrative efficiency manufacturing firms in Rivers State. Using four dimensions of digitalization, content analytics, intelligent information management and internal document management, while cost reduction and real-time service measured Administrative Efficiency. The population of this study comprised of the 78 managers censused from twenty six (26) manufacturing firms operating in Rivers State. Data gathered with structured closed ended research questions from the targeted respondents were analysed using the Pearson's Product Moment Correlation Statistical tool, partial correlation and multiple regression were used to test the hypotheses and presented with the aid of statistical packages for social science (SPSS) version 23.0. The p-values were calculated to determine the significance of the hypothesized relationship. Analytical outcomes revealed statistically positive and significant relationships between the dimensions of our predictor variable-enterprise content collaboration management and the measures of the criterion variable-administrative efficiency. Based on the findings, the study concluded that enterprise content collaboration management has a positive significant relationship with administrative efficiency of manufacturing firms in Rivers State. The study further recommended that Managers of manufacturing firms should capitalize on the critical role of digitalization in their operations to drive their administrative efficiency; Managers of manufacturing firms should seek to build strong content analytics antecedents in consonance with their company policies and practices aimed at achieving administrative efficiency; Managers of manufacturing firms should apply objectivity in their intelligent information management processes as this has the potency to either ruin or enhance their administrative efficiency; Managers of manufacturing firms should adopt the internal document processes as it possesses the potency to transform their paper-document processes to a digital state.*
KEYWORDS: *Enterprise Content Management, Digitilization, Content Analytics, Intelligent Information Management, Internal Document Processes*

I. INTRODUCTION

In the present day organisation, Information Technology has reclassified the manner in which we think, work and live. The presentation of Information on the world stage has caused an adjustment of the conventional technique for learning, correspondence, and so on inside and outside organisations. The present-day manufacturing firms in Rivers State, Nigeria are confronted with diverse difficulties of dealing with their records. These difficulties range from dubious documentation processes, huge record control, unfortunate information filing, cost failure, as well as unfortunate data recovery and openness. [1]. The difficulties represent an obstacle on the decision-production processes of organisations which can be damaged because of the difficulties related with overseeing critical records and items in the association over a significant stretch of time. Once more, the association can be immersed with catastrophic events like flooding as well as a wildfire. In this current time of innovation, the fast development of data has impacted numerous organizations to make various sorts of items, which contain institutional records, paper-based records and other electronic archives. Regardless of the way that numerous establishments depend significantly on the accessibility, openness and trustworthiness of the substance they make [2]. As a critical imperative for working in a state of the art working climate to make a foundation a computerized work environment, there is the requirement for computerized change advances that

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would guarantee that every single institutional substance and day to day, schedule business processes are electronically overseen in a compelling and productive way and achieve administrative efficiency in order words, the process or activity of running an enterprise, specifically with the aid of content collaboration management. Organizational efficiency connotes the organizations' degree of success in using the least possible input in order to produce the highest possible output. [3] opined that efficiency signifies a peak level of performance that uses the least amount of inputs to achieve the highest amount of output. Efficiency is a term that recently has come to the limelight in the scientific world. As the world struggles to accommodate the enormous growth in population and to manage the distribution of resources, the effort to make things more efficient has become increasingly more relevant suggest efficiency as being the ratio output per unit input. Thus, a firm is said or believed to be technically more efficient than another firm if it can produce more output using a given amount of inputs as compared to another firm. One of the central areas that study these previously mentioned subjects is known as Enterprise Content Management (ECM). Venture Content Management can be portrayed as an incorporated way to deal with dealing with an association's all's happy as well as work process which incorporates digitized paper archives, electronic information, reports, site pages and computerized resources as well as every one of the methodologies, apparatuses, cycles, and abilities an establishment needs to oversee and handle all its data resources [4]. ECM frameworks are situated as specific and specialized answers for a foundation's administration of an extensive variety of content and business cycles or work processes to guarantee a computerized work environment. [5]. Content in ECM is essentially an institutional information or data. It comprises of unstructured data, for example, recordings, examined pictures, word reports, PDFs or text matter of a record in any structure that are put away and made open to the perfect individuals with flawless timing. Content, in this situation incorporates the aggregate of the dependability, coherence, significance, and value of the data introduced, and the way with which it is introduced to its expected clients. By killing reliance on paper archives and sorting out unstructured data as part of a foundational business need, organisations are enabled to work all the more productively with ECM frameworks. Institutional items that ECM frameworks oversee may incorporate solicitations from sellers, resumes from work candidates, agreements, and correspondence and exploration reports. These items might be caught through utilizing electronic structures, filtering paper reports to be recorded in a computerized vault, dealing with an "generally computerized" content, including Microsoft Office reports, PDFs, photographs and video and consequently recording and sorting reports from servers and other shared areas [6]. Based on this backdrop, this study investigated the relationship between enterprise content collaboration management and administrative efficiency of Manufacturing firms in Rivers State, Nigeria. In this sense, Enterprise Content Collaboration Management (ECCM) involves the cycles, methodology, devices and well as strategies through which the customary items in the association are changed into a computerized design while empowering a road for the clients to connect with each other over the web. Cooperation here alludes to that empowering climate wherein thoughts and inputs are saturated on the endeavor content administration stage. Today, associations are confronted with heaps of business dynamism like approach of advances, digitization, and so on. Associations in this way move with these patterns of time and each and every other association tries to move with that pattern. According to [7] Enterprise Content Collaboration Management means the systems associated with the most common way of changing over the customary items in an association into an electronic (advanced) state with the utilization of innovation, subsequently upgrading the productivity.

II. LITERATURE REVIEW

With the rapid growth in unstructured corporate contents, institutions face increasing difficulties in managing their contents and business processes. An ECM system therefore is designed to help institutions with effective management of their contents and workflows digitally to achieve the benefits that come with digital transformation [8]. With the implementation of an ECM system, an established process is created which allows electronic flow of the entire document-oriented business processes and workflows from the creation of documents and tasks through to the completion of tasks and archiving of documents. The researcher lays emphases on 'Collaboration' as a pivotal construct in this study, 'Enterprise Content Collaboration Management and Administrative Efficiency', in that through the utilization of the Enterprise Content Management (ECM) systems, the actors within and outside the organization tends to collaborate with each other while working on a real-time base. Collaboration as in this study opines that in a bid to building a digital workplace, the employees and other actors of the organization stays afloat with each other. Simply put, Enterprise Content Collaboration Management does not just offer the transformation of traditional workplace contents to a digital format but also offers ample opportunities for the actors to interact with each other in real-time. The Manufacturing firms in Rivers State, Nigeria in this case would record a great deal of success and efficiency in its daily operations through the application and adoption of not just enterprise content management (ECM) but enterprise content collaboration management (ECCM). [9] ECM systems come in various models and functionalities that can make an administrative

working environment a digital workplace. Depending on the ECM system, the modules may include document capture and imaging, records management, electronic workflow and process automation, web forms and others [10]. The latest ECM systems ensure the management and optimization of contents and advanced business processes. As a result, institutions are able to maintain control by ensuring efficient and effective flow of contents and workflows. Workflow and business process automation, a key component of an ECM system is a predefined set of rules that allow users to focus on their assigned tasks preventing them from chasing paper from office to office. As such ECCM systems can easily be used as an extension of an institution's ERP, CRM or other core systems whose contents are link to the business transactional records so that documents and processes can be retrieved with just the click of the mouse. Content can be institutional data or information which is either electronic or paper-based. It consist of unstructured information such as physical documents, videos, scanned images, word documents, PDFs or text matter of a document in any form that are stored and made accessible to the right people at the right time [11]. Paper-based content therefore connotes any form of information that printed on a physical paper and used for decision making. When juxtaposed to digital content; working with paper-based content comes with some challenges. Creating, capturing and storing documents digitally eliminate many of the hassles created by paper-based content [12]. They explained that labor-intensive, duplication, slow distribution, document deterioration, misplaced originals, storage space problems and the inconvenience of retrieving files from offsite storage were some of the problems associated with paper based system of managing contents or documents. These challenges affect the speed of getting information for decision making which in turn affect business continuity negatively [13]. An ECM system like any other IS system is implemented through policies, procedures and standards of an institution and as such required different implementation strategy from different institutions. In the process of implementing an ECM system. [14] indicated that there is the need to implement controls such as technical, physical and administrative controls. According to him, technical controls refers to the access control and data security control mechanisms while administrative control refers to the guideline and policies for the institution of such storage privileges.

Digitalization

The introduction of digital workflows in ECM systems avail an opportunity to improve, automate and streamline underlying processes in business also as to realize several benefits. Automation of parts of a paperless business process helps in reducing the number of unnecessary steps within a workflow, thereby improving the overall efficiency of the process and eliminating delays [15]. A properly implemented ECM system with a digital workflow does the same job as an employee, but faster and without or with little human errors, leading to lower operational cost. ECM system ultimately save institutions time and money, secure institutions' content and promote improved transparency. It is the transformation of socio-technical structures that were previously mediated by non-digital artefacts or relationships into ones that are mediated by digitized artefacts and relationships. They further explained that in business, digitalization is seen to be the automation of processes, including existing manual or paper-based processes through the digitization of contents from being paper-based into a digital content. In view of this, the digitalization of a business and the elements of its value chain lead to a digital business [16]. As a result, an institution is considered as digital when it is operating by performing business activities through the use of information, resources and digital technologies that produce innovative competence designed to meet new expectations of the digital world. Thus, in order to seize the opportunities that come along with digital technologies and stay competitive in the digital world, institutions are bound to fundamentally rethink through the way their business es are carried out leading them to the creation of digital business models [17]. Digitization is subset of Digitalization. Digitization connotes the technical process of embedding digital artifact into technological objects [18]. At its fundamental level, digitization can also be understood as the creation of a digital version of a physical object such as paper documents, microfilm images, photographs, sounds and the like. Simply put, digitization is a concept used to describe the process of changing a paper document into a digital format to be stored or used in an IS. The world has been dubbed as the information age and technology is playing a vital role in ensuring that institutions create innovative ways to manage their content and operations. In order to cope with the rate of technological change that the world is experiencing, business institutions use IS to digitally innovate and transform their day-to-day business operations [19], and this has resulted in concepts such as digital transformation and digital innovation. Digital transformation is the profound transformation of business and organizational activities, processes, competencies and models to fully leverage the changes and opportunities of a mix of digital technologies and their accelerating impact in a strategic and prioritized way, with present and future shifts in mind. Digitalization has been recommended by many studies as one of the key guides to achieving efficiency at the workplace and

mitigates unnecessary costs. As a result, some empirical studies have been carried out to assess the impact of digitalization on the efficiency of the organizations. [20] investigated the Effect of digitalization on the performance of commercial banks in Nigeria. The study findings revealed that digitalization has a long way in affecting the performance of commercial banks in Nigeria.

Content Analytics

Content Analytics can be viewed as a movement, a collection of practices and technologies, a transformation process, specific activities, a decisional paradigm, and a capability set. However, there exists a scarcity of studies carried out on content analytics. Moreover, the extant literature exhibits conceptual heterogeneity and a lack of appropriate measurement model for the construct of data analytics capabilities [21]. According to [22], Business Analytics (BA) can be defined as a broad category of applications, technologies, and processes for gathering, storing, accessing, and analyzing data to help business users make better decisions. Most vendors and academics interchangeably use "Business Analytics (BA)", "Content Analytics' (CA), "Business Intelligence (BI)" and "Big Data (BD)" to refer to similar topics. For example, the term "business intelligence" is used by the information technology community, whereas "business analytics" is preferred by the business community. In this study however, the term "Content Analytics" is used to be consistent with the leading vendors and academia. The growing use of information technology (IT) in the business world has led to the development of large and complex datasets for various organizational functions. Understanding their business use and making decisions based on very large datasets has become an important challenge for organizations. The IT industry refers to this development as "Big Data" to indicate the complexity and size of data sets. Traditional database applications do not have the capabilities to analyze such big data and address the decision-making needs of organizations. BA is the current solution for analyzing big data by using advanced mathematical and statistical models, databases, and interfaces to answer "what has happened" and "what will happen" questions [23]. In the digital era with upheaval growth of data production, big data has been introduced, which is known by big volume, variety, veracity, velocity, and high value. It brings hardness in analyzing with itself which entitled organization to deploy a new approach and tools in analytical aspects to overcome the complexity and massiveness of different types of data (structured, semi-structured, and unstructured) [24]. So, a sophisticated technique that aims to cope with complexity of big data by analyzing a huge volume of data is known as big data analytics [25]. Big data analytics supports organizations in innovation, productivity, and competition [26]. It is the techniques that are deployed to uncover hidden patterns and bring insight into interesting relations in understanding context by examining, processing, discovering, and exhibiting the result. The relationship between analytics and organizational performance has been a critical subject-matter in extant research. By investigating 109 case descriptions from 63 healthcare organizations, [27] examined the causal relationships between big data analytics capabilities and their business value. The findings of their study revealed a direct relationship between the study variables. Again, [28] empirically tested the relationship between big data analytics capabilities and market and operational performance, and found that they were positively related. It is obvious that the relationship between big data analytics and performance of different organizations have been empirically validated in literature. However, none of these studies have considered the effect of content analytics on administrative efficiency.

Intelligent Information Management

With technology that is evolving rapidly and constantly changing, all agencies, both government and private sectors have more need to use technology in the operation of the organization to reform accurate, fast and the most modern to be competitive advantage. In addition to technology, one of the important factors and coupled with the technology that makes the organization survive and compete with competitors is the availability of up-to-date information to immediately plan and support the decisions of high-level managers. Therefore, every organization need technology or tools to support the decision that is the right decision. Rapidly technology changes do not only affect people's lifestyle by increasing consumption options and facilitating various aspects, but also affecting the business model, work procedures, production and service through both locally and internationally economic environment. The competition is more intense and strongly in all sectors, whether public, private sector and industrial sector. Also education sector, it is necessary to accelerate the development and increase their competitiveness with the rapid technology [29]. Intelligent Information Management connotes a new world of information and content management. However with a set of instructions that facilitates work more than the past. Like data and content management, the problem is categorized and focused primarily on service issue. That needs to be improved and to be suitable for the current technology performance that is entering the era of intelligent data and content management. Intelligent Information Management can be seen as a complex information management which

has to manage strategic information, methods and tools to create, automatic capture, management, delivery, security and content analysis and documents related to the organization's work processes which the organization is considered a modern perspective and integrated information management. It is the whole activities of understanding the expectations of customers both inside and outside, making a basic digital structure improvement on modern information infrastructure compliance with rules and supervision by automated systems utilization of analytical and mechanical learning [30]. Intelligence technique was defined as systems that support decision making by gathering, analyzing and diagnosing problems; proposing possible causes of actions as well as evaluating the proposed actions. The study laid its emphases on the note: that for effective information management, there is the need to integrate cross-functional strategies, and investment in information management should be guided by both intelligence techniques and business strategy and needs. [31] investigated the evolution of information management practices from users' perspectives. The review established that the major concerns of information management practices include information overload and information fragmentation. Information overload was defined as a situation where information processing and demand on individuals/organizations exceed the capacity and competency and the time needed for such processing. Information fragmentation, according to the review, is a situation where data are in different format, stored and distributed across multiple devices and locations using different applications for manipulation.

Internal Document Management

As cited in [32], Document management and project management are closely linked in an information-intensive project. The result of a project is usually a set of documents that describe the developed product, recycled process, or product to be delivered. If organization can identify the documents that generate the output and those that are needed at various intermediate stages, it can track the progress of the project using the document management system. Document management systems have been established to receive, process and transmits information. Document Management (DM) being well established has enjoyed considerable success in the 1980's and 1990's. The DM systems primarily aim to organize and make files accessible. It has the following components: File storage: The system knows the physical location of each file that it tracks but doesn't require the end user to know that location. *File categorization:* The user can assign file types and groups based on the criteria that he chooses. *Metadata services:* The user can attach any kind of extra data to a file (such as owner, status, create date, and so on) based on its type. *Collaboration services:* The user can check files in and out of the system and jointly edit them. Workflow services: The user can route files from worker to worker in an organized way. *Versioning services:* The user save a historical series of files and can retrieve them when required. *Access services:* The user can find files through tables of contents, indexes, and full-text searches. DM systems do not necessarily deal with "documents". Although users often target systems toward word-processing and other office files, DM systems have no restrictions about the type of files that one puts in them. Thus, they should more accurately be called file-management systems. The Digital age has refurbished the production and use of documents around the world. In the Information age, the process of entering, delivering, storing, receiving, and categorizing data is crucial. Enterprises are increasingly relying on automated, reliable solutions to ensure that their information is secure and accessible for effective management. Thus, a document management system is a computer system used to track and store electronic documents and/or images of paper documents. This term partially coincides with the concepts of content management systems, which are often seen as a component of enterprise content management systems and are related to digital asset management, document mapping, document management systems, and records management systems. In a common language, the word document usually means a container of information containing written or drawn information for a particular purpose in structured form ([33]. Traditionally, a document is a sheet of paper or a set of documents, such as a memo, a letter. Central to the idea of the document is that it can be easily transmitted, stored and processed as a whole. Over the past decade, the term "document" has undergone radical changes in definition. This change is partly related to information technology. Thus, most of the documents processed in today's business world are stored as separate computer files and are considered as operating and e-mail systems as a unit. Information technology (IT) is able to create a new type of document; to wit: an electronic document in which graphic, text, CAD and multimedia objects (i.e. audio or video clips) can be stored. Documents can be processed and stored electronically not as physical objects, but as digital objects. A document is no longer a place where words are placed on a page; rather it has become a set of elements or objects related to a particular topic, assembled together. Thus, a new definition of a document in the electronic age appears: An internal document is a body of information contained in electronic form which collects information from variated sources in different forms and formats on a similar context to meet the needs of the user. A user can create an internal document on a personal computer without creating a paper document. An internal

document can be identified, taken and stored on the Internet and Intranet in electronic form. One advantage of the internal document is that it is not necessary for each user to have the same media; thus, an internal document can be delivered in any format that meets the needs and expectations of the user. The document carries information in such a format that it can be distributed, stored and processed. accordingly, anything stored in the available source is a document, whether it is a data source or a database. It is unlikely that any documents are made by hand today, but many are still transferred by printing them and sending them to other parties by mail or courier, often using copying companies as intermediaries. A slightly more complex method is that documents are created digitally and transmitted digitally as email attachments. This accelerates the transfer of documents, but from the point of view of document management it hardly gives any improvement compared to the current situation, as finding a document on the personal computer of another person can be even more difficult than on its shelves. Obtaining a document often, as a last resort, may require a person to deliver it. The most common method currently used is to use document management systems (DMs), where documents are stored centrally on the server, and users interact with this central repository through interfaces implemented using standard web browsers [34]. Document management as a technology and discipline traditionally extends the capabilities of a computer's file system. It is the process of storing, locating, updating, and sharing data to advance the workflow and achieve business results. Centralized data is sharing and storage across s specific servers helps organizations gain effective access to information along with data protection. Technological advancements have entirely reshaped the workplace by making their operations highly integrated and more streamlined. Technology has also facilitated employees in running their tasks smoothly and performing well than ever before. [35] state that for an office to run smoothly, facts and accurate information are necessary for quick decision- making and modern office technologies can help managers be focused and in contact with their co-workers. It can be said that having advanced technologies in the workplace can increase employee efficiency because such technologies make work flexible and of course, you would agree with me that no employee enjoys working under a stressful atmosphere. Suffice to say that information technology has really reshaped the operations of the workplace, to wit: manufacturing firms in Rivers State, Nigeria, by providing tools that enables employees within and outside the workplace to collaborate with each other seamlessly and this is overtime done in real time base. Information Technology is not just a facilitator; it is also a major factor for a digital workplace compared to the traditional workplace. This is attuned with the concept of Enterprise content collaboration management in that it seeks to adapt technological approaches in the transformation of the organizations' content management to a digitalized format. This in turn contributes to the efficiency of the organization as the use of these technological tools help the organization stay afloat at a minimal cost while recording huge success.
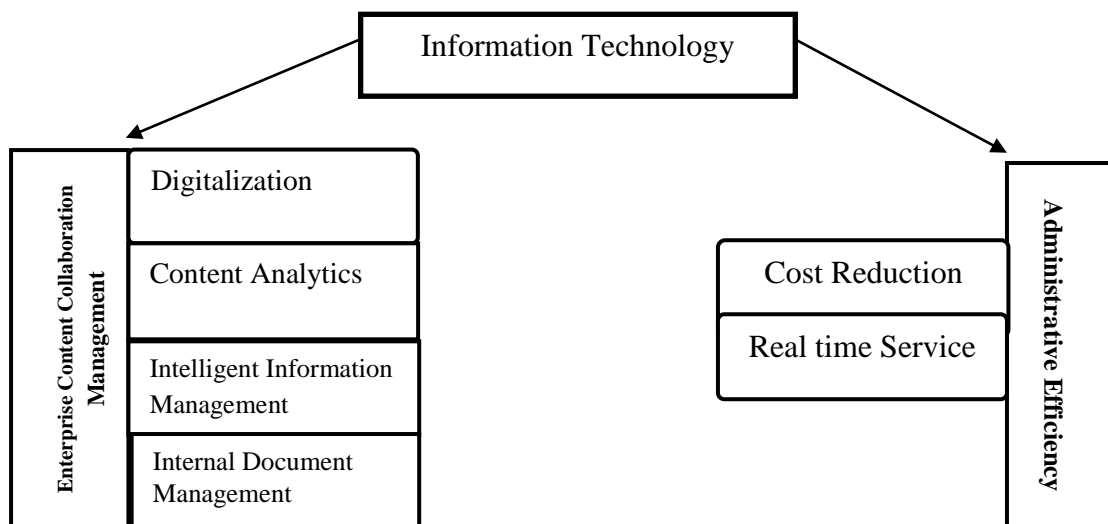

Fig. 1: Framework of ECCM & Administrative Efficiency of Manufacturing Firms in Rivers State, Nigeria

III. METHOD

This study is a descriptive study as such adopted a cross –sectional survey design suitable for this study. The study population comprised of the twenty six (26) manufacturing firms operating in

Rivers State as enlisted in the Nigerian Directory and Search Engine (2022). This study adopted the census technique considering the number of respondents who are basically opinion leaders or principal officers of the organization studied. Three respondents were censused from each of the 26 manufacturring companies giving a total sample size of 78 respondents. Thus, 78 copies of the structured close ended 4point lykert scale questionnaire were administered on the categories of employees that formed the respondents mainly Top and Senior Managerial Cadres. The reliability test of the structured questionnaires was ascertained through Test-re-test in which a pilot administration of the questionnaire was made on a portion of the chosen sample and administered after two months and relationship between the two results determined by correlation coefficient, through SPSS version 20. Our reliability test was also anchored on the Cronbach Alpha at 0.7. At the primary level of our analysis, this study adopted the use univariate descriptive statistical tool such as mean, standard deviation, frequency tables, simple percentages, bar charts and histograms to present the data that was generated while for bivariate inferential statistics, the Pearson's Product Moment Correlation was employed at the secondary level of analysis, to test the hypothesized statements. At the tertiary level of analysis, the study employed Partial Correlation to test the impact of the moderating variable (level of influence) on the relationship between enterprise content collaboration management and administrative efficiency. Also, the study adopted the Multiple Regression Analysis in testing the combined influence of all the dimensions of the study on each of the measures. All the statistical analyses were performed using the Statistical Package for Social Sciences (SPSS) version 23.0.; because this version has the ability to transform scaled data into discrete or continues data and vice versa. Below is the Pearson's product moment correlation co-efficient formula.

$$ r \;=\; \frac{n\sum xy \;-\; \sum x \sum y}{\sqrt{\left(n\sum x^2 \;-\; \sum x^2\right)\left(n\sum y^2 \;-\;\left(\sum y\right)^2\right)}} $$

Where:

r = Pearson product moment correlation coefficient,

X and Y = individual observations of the two variables,

$\overline{X} \, and \, \overline{Y}$ = arithmetic means of the two sets of observations.

n = number of bivariate observations.

This section is used to present answers to our research questions and hypotheses. We shall commence by first presenting a proof of existing relationships.
Decision rule
Reject Ho if PV< 0.05
Accept Ho if PV > 0.05

Table 1 Showing Strength and Direction of Relationship between Variables

Range of values	Degree of relationship
$\pm 0.00 - \pm 0.19$	Very weak
$\pm 0.20 - \pm 0.39$	Weak
$\pm 0.40 - \pm 0.59$	Moderate
$\pm 0.60 - \pm 0.79$	Strong
$\pm 0.80 - \pm 1.00$	Very strong

Table 2: Relationship between Digitalization and Cost Deduction

		Digitalization	Cost reduction
Digitalization	Pearson Correlation	1	.443[**]
	Sig. (2-tailed)		.000
	N	73	73
Cost reduction	Pearson Correlation	.443[**]	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation i□ □ignificant at the 0.01 level (2-tailed).

From the SPSS output on Table 3, it can be ob□erved that there i□ a correlation coefficient of 0.443[**] between Digitalization and co□t reduction, indicating a moderate and po□itive relation□hip between Digitalization and co□t reduction. More □o, the probability value (0.000) i□ le□ □ than the critical value (0.05), thi□ □how□ that there i□ a moderate □ignificant relation□hip between Digitalization and co□t reduction. Thi□ further implie□ that mo□t of the co□t reduction experienced among manufacturing firm□ in River□ State i□ cau□ed by their Digitalization while other□ are cau□ed by externalitie□. Ba□ed on thi□, we reject the null hypothe□i□ that there i□ no □ignificant relation□hip between Digitalization and co□t reduction of manufacturing firm□ in River□ State and incline to the alternate hypothe□i□ that there i□ a moderate, □ignificant relation□hip between Digitalization and co□t reduction of manufacturing firm□ in River□ State.

Table 3. Relation□hip between Digitalization and Real-time □ervice

		Digitalization	Real-time □ervice
Digitalization	Pear□on Correlation	1	.893[**]
	Sig. (2-tailed)		.000
	N	73	73
Real-time □ervice	Pear□on Correlation	.893[**]	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation i□ □ignificant at the 0.01 level (2-tailed).

From the SPSS output on Table 3, tat there i□ a correlation coefficient of 0.893[**] between Digitalization and real-time □ervice, indicating a very □trong and po□itive relation□hip between Digitalization and real-time □ervice. More □o, the probability value (0.000) i□ le□ □ than the critical value (0.05), thi□ □how□ that there i□ a very □trong □ignificant relation□hip between Digitalization and real-time □ervice. Thi□ further implie□ that mo□t of the operation□ in real-time □ervice among manufacturing firm□ in River□ State are cau□ed by their Digitalization while other□ are cau□ed by externalitie□. Ba□ed on thi□, we reject the null hypothe□i□ that there i□ no □ignificant relation□hip between Digitalization and real-time □ervice of manufacturing firm□ in River□ State and incline to the alternate hypothe□i□ that there i□ a very □trong, □ignificant relation□hip between Digitalization and real-time □ervice of manufacturing firm□ in River□ State.

Table 4. Relation□hip between Content Analytic□ and Co□t Reduction

		Content Analytic□	Co□t Reduction
Content Analytic□	Pear□on Correlation	1	.544[**]
	Sig. (2-tailed)		.000
	N	73	73
Co□t Reduction	Pear□on Correlation	.544[**]	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation i□ □ignificant at the 0.01 level (2-tailed).

Table 4 above revealed that there i□ a correlation coefficient of 0.544[**] between content analytic□ and co□t reduction, indicating a moderate and po□itive relation□hip between content analytic□ and co□t reduction. More □o, the probability value (0.000) i□ le□ □ than the critical value (0.05), thi□ □how□ that there i□ a moderate □ignificant relation□hip between content analytic□ and co□t reduction. Thi□ further implie□ that mo□t of the co□t reduction achieved among manufacturing firm□ in River□ State i□ cau□ed by their content analytic□ while other□ are cau□ed by externalitie□. Ba□ed on thi□, we reject the null hypothe□i□ that there i□ no □ignificant influence of content analytic□ on co□t reduction in manufacturing firm□ in River□ State and incline to the alternate hypothe□i□ that there i□ a moderate, □ignificant influence of content analytic□ on co□t reduction in manufacturing firm□ in River□ State.

Table 5. Relation□hip between Content Analytic□ and Real-time Service

		Content Analytic□	Real-time Service
Content Analytic□	Pear□on Correlation	1	.856[**]
	Sig. (2-tailed)		.000
	N	73	73
Real-time Service	Pear□on Correlation	.856[**]	1
	Sig. (2-tailed)	.000	

| | N | 73 | 73 |

**. Correlation is significant at the 0.01 level (2-tailed).

From the SPSS output on Table 5, it can be observed that there is a correlation coefficient of 0.856** between content analytics and cost reduction, indicating a very strong and positive relationship between content analytics and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between content analytics and real-time service. This further implies that most of operations of real-time service in manufacturing firms in Rivers State are caused by their content analytics while others are caused by externalities. Based on this, we reject the null hypothesis that there is no significant influence of content analytics on real-time service in manufacturing firms in Rivers State and incline to the alternate hypothesis that there is a very strong, significant influence of content analytics on real-time service in manufacturing firms in Rivers State.

Table 6: Relationship between Intelligent Information Management and Cost Reduction

		Intel Inf Mgt	Cost Reduction
Intel Inf Mgt	Pearson Correlation	1	.762**
	Sig. (2-tailed)		.000
	N	73	73
Cost Reduction	Pearson Correlation	.762**	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

From the SPSS output on Table 6, it can be observed that there is a correlation coefficient of 0.762** between intelligent information management and cost reduction, indicating a strong and positive relationship between intelligent information management and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between intelligent information management and cost reduction. This further implies that most of the cost reduction experienced among manufacturing firms in Rivers State is caused by their intelligent information management while others are caused by externalities. Based on this, we reject the null hypothesis that there is no significant relationship between intelligent information management and cost reduction of manufacturing firms in Rivers State and incline to the alternate hypothesis that there is a strong, significant relationship between intelligent information management and cost reduction of manufacturing firms in Rivers State.

Table 7: Relationship between Intelligent Information Management and Real-time Service

		Intel Inf Mgt	Real-time Service
Intel Inf Mgt	Pearson Correlation	1	.820**
	Sig. (2-tailed)		.000
	N	73	73
Real-time Service	Pearson Correlation	.820**	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

From the SPSS output on Table 7, it can be observed that there is a correlation coefficient of 0.820** between intelligent information management and real-time service, indicating a very strong and positive relationship between intelligent information management and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between intelligent information management and real-time service. This further implies that most of the real-time service operations experienced among manufacturing firms in Rivers State are caused by their intelligent information management while others are caused by externalities. Based on this, we reject the null hypothesis that there is no significant relationship between intelligent information management and real-time service of manufacturing firms in Rivers State and incline to the alternate hypothesis that there is a very strong, significant relationship between intelligent information management and real-time service of manufacturing firms in Rivers State.

Table 8: Relationship between Internal Document Management and Cost Reduction

		Internal Doc Mgt	Cost Reduction
Internal Doc Mgt	Pearson Correlation	1	.718[**]
	Sig. (2-tailed)		.000
	N	73	73
Cost Reduction	Pearson Correlation	.718[**]	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

From the SPSS output on Table 8, it can be observed that there is a correlation coefficient of 0.718[**] between internal document management and cost reduction, indicating a strong and positive relationship between internal document management and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between internal document management and cost reduction. This further implies that most of the cost reduction experienced among manufacturing firms in Rivers State is caused by their internal document management while others are caused by externalities. Based on this, we reject the null hypothesis that there is no significant impact of internal document management on cost reduction of manufacturing firms in Rivers State and incline to the alternate hypothesis that there is a very strong, significant impact of internal document management on cost reduction of manufacturing firms in Rivers State.

Table 9: Relationship between Internal Document Management and Real-time Service

		Internal Doc Mgt	Real-time Service
Internal Doc Mgt	Pearson Correlation	1	.738[**]
	Sig. (2-tailed)		.000
	N	73	73
Real-time Service	Pearson Correlation	.738[**]	1
	Sig. (2-tailed)	.000	
	N	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

From the SPSS output on Table 9, it can be observed that there is a correlation coefficient of 0.738[**] between internal document management and real-time service, indicating a strong and positive relationship between internal document management and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between internal document management and real-time service. This further implies that most of the real-time service operations experienced among manufacturing firms in Rivers State are caused by their internal document management while others are caused by externalities. Based on this, we reject the null hypothesis that there is no significant impact of internal document management on real-time service of manufacturing firms in Rivers State and incline to the alternate hypothesis that there is a strong, significant impact of internal document management on real-time service of manufacturing firms in Rivers State.

Table 10: Moderating influence of Information Technology on the Relationship between Enterprise Content Collaboration Management and Administrative Efficiency

Control Variables		Enterprise Content Collaboration Management	Administrative Efficiency	Technology
-none-[a]	Enterprise Content	Correlation	1.000	.845	.795
	Collaboration	Significance (2-tailed)	.	.000	.000
	Management	Df	0	71	71
	Administrative	Correlation	.845	1.000	.771
	Efficiency	Significance (2-tailed)	.000	.	.000
		Df	71	0	71
	Information	Correlation	.795	.771	1.000
	Technology	Significance (2-tailed)	.000	.000	.
		Df	71	71	0

Information	Enterprise Content	Correlation	1.000	.601
Technology	Collaboration	Significance (2-tailed)	.	.000
	Management	Df	0	70
	Administrative	Correlation	.601	1.000
	Efficiency	Significance (2-tailed)	.000	.
		Df	70	0

a. Cells contain zero-order (Pearson) correlations.

From the results of the analysis on Table 10, it can be observed that there is a correlation coefficient is 0.845 which indicate that enterprise content collaboration management has a very strong and positive relationship with administrative efficiency. More so, the probability value is less than the critical value (1.e, $p=0.000<0.05$) this implies that the result of the analysis is statistically significant. Also, the result indicates that there is a correlation coefficient of 0.601 indicating that information technology has a moderate strong significant moderation of the relationship between enterprise content collaboration management and administrative efficiency. More so, the probability value is less than the critical value (i.e, $p=0.000<0.05$) this implies that the result of the analysis is statistically significant.

Table 11: Correlation Matrix Showing Summary of all the Variables

		Digitalization	Content Analytics	Intelligent Information Management	Internal Document Management	Cost Reduction	Real-time Service
Digitalization	Pearson's Correlation	1	.909**	.816**	.503**	.443**	.893**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	73	73	73	73	73	73
Content Analytics	Pearson Correlation	.909**	1	.563**	.563**	.544**	.856**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	73	73	73	73	73	73
Intelligent Information Management	Pearson Correlation	.816**	.563**	1	.799**	.762**	.820**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	73	73	73	73	73	73
Internal Document Management	Pearson Correlation	.503**	.563**	.799**	1	.718**	.738**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	73	73	73	73	73	73
Cost Reduction	Pearson Correlation	.443**	.544**	.762**	.718**	1	.365**
	Sig. (2-tailed)	.000	.000	.000	.000		.001
	N	73	73	73	73	73	73
Real-time Service	Pearson Correlation	.893**	.856**	.820**	.738**	.365**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.001	
	N	73	73	73	73	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

From the correlation matrix on Table 11, it can be observed that there is a correlation coefficient of 0.443** between digitalization and cost reduction, indicating a moderate and positive relationship between digitalization and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a moderate significant relationship between digitalization and cost reduction. This further implies that some of the cost reduction actualized in the manufacturing firms in Rivers State is caused by digitalization while others are caused by externalities. Also, there is a correlation coefficient of 0.893** between digitalization and real-time service, indicating a very strong and positive relationship between digitalization and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very significant relationship between digitalization and real-time

service. This further implies that some of the real-time service operations in the manufacturing firms in Rivers State are caused by digitalization while others are caused by externalities. Accordingly, the Table shows that there is a correlation coefficient of 0.544^{**} between content analytics and cost reduction, indicating a moderate and positive relationship between content analytics and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a moderate strong significant relationship between content analytics and cost reduction. This further implies that most of the cost reduction experienced among manufacturing firms in Rivers State is caused by content analytics while others are caused by externalities. Also, there is a correlation coefficient of 0.856^{**} between content analytics and real-time service, indicating a very strong and positive relationship between content analytics and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between content analytics and real-time service. This further implies that most of the real-time service operations in manufacturing firms in Rivers State are caused by content analytics while others are caused by externalities. The Table further indicates that there is a correlation coefficient of 0.762^{**} between intelligent information management and cost reduction, indicating a strong and positive relationship between intelligent information management and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between intelligent information management and cost reduction. This further implies that most of the cost reduction achieved among manufacturing firms in Rivers State is caused by intelligent information management while others are caused by externalities. Also, there is a correlation coefficient of 0.820^{**} between intelligent information management and real-time service, indicating a very strong and positive relationship between intelligent information management and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between intelligent information management and real-time service. This further implies that most of the real-time service operations in manufacturing firms in Rivers State are caused by intelligent information management while others are caused by externalities. It also indicates that there is a correlation coefficient of 0.718^{**} between internal document management and cost reduction, indicating a strong and positive relationship between internal document management and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between internal document management and cost reduction. This further implies that most of the cost reduction achieved among manufacturing firms in Rivers State is caused by internal document management while others are caused by externalities. Also, there is a correlation coefficient of 0.738^{**} between internal document management and real-time service, indicating a strong and positive relationship between internal document management and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between internal document management and real-time service. This further implies that most of the real-time service operations in manufacturing firms in Rivers State are caused by internal document management while others are caused by externalities. Finally, the Table divulged a correlation coefficient of 0.601^{**} on the moderating influence of information technology on the relationship between enterprise content collaboration management and administrative efficiency, indicating that information technology has a strong and positive influence on the relationship between enterprise content collaboration management and administrative efficiency of manufacturing firms in Rivers State. More so, the probability value (0.000) is less than the critical value (0.05), this shows that technology has a strong significant influence on the relationship between enterprise content collaboration management and administrative efficiency of manufacturing firms in Rivers State.

Table 11: Combined influence of all Dimensions of ECCM

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.558ᵃ	.311	.292	1.905

a. Predictors: (Constant), Digitalization, Content Analytics, Intelligent Information Management, Internal Document Management

Table 12: Analysis of Variance of all Dimensions of ECCM on Cost Reduction

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	114.901	4	57.450	15.834	.000ᵇ
	Residual	253.976	70	3.628		
	Total	368.877	72			

a. Dependent Variable: Cost Reduction

b. Predictors: (Constant), Digitalization, Content Analytics, Intelligent Information Management, Internal Document Management

Table 13: Combined influence of all Dimensions ECCM on Cost Reduction

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	7.979	1.811		4.406	.000
	Digitalization	-.261	.209	-.296	-1.244	.218
	Content Analytics	.810	.237	.813	3.421	.001
	Intelligent Information Management	.566	.141	.525	4.004	.000
	Internal Document Management	.338	.077	.387	4.417	.000

a. Dependent Variable: Cost Reduction

The result of the analysis on Table 13 shows that the regression coefficient is 0.558 this means that Digitalization, Content Analytics, Intelligent Information Management and Internal Document Management have moderate and positive combined influence on Cost Reduction. More so, the Table 4.24 reveals that the result is significant at $p = 0.000 < 0.05$

Table 14: Combined influence of all Dimensions ECCM

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.900[a]	.809	.804	.989

a. Predictors: (Constant), Digitalization, Content Analytics, Intelligent Information Management, Internal Document Management

Table 15: Analysis of Variance of all Dimensions of ECCM on Real-time Service

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	290.865	4	145.433	148.607	.000[b]
	Residual	68.505	70	.979		
	Total	359.370	72			

a. Dependent Variable: Real-time Service
b. Predictors: (Constant), Digitalization, Content Analytics, Intelligent Information Management, Internal Document Management

Table 16: Combined influence of all Dimensions ECCM on Real-time Service

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.312	.941		3.521	.001
	Digitalization	.577	.109	.664	5.308	.000
	Content Analytics	.249	.123	.253	2.024	.047
	Intel. Inf Mgt	.215	.140	.214	1.539	.130
	Internal Document Management	.111	.076	.136	1.463	.150

a. Dependent Variable: Real-time Service

The result of the analysis on Table 16 shows that the regression coefficient is 0.900 this means that Digitalization, Content Analytics, Intelligent Information Management and Internal Document Management have a very strong and positive combined influence on Real-time Service. More so, the Table 16 reveals that the result is significant at $p = 0.000 < 0.05$

Table 17: Significance of Combined Influence of all Dimensions of ECCM on Administrative Efficiency

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	829.605	4	276.535	135.276	.000[b]
	Residual	147.184	72	2.044		
	Total	976.789	75			

a. Dependent Variable: Administrative Efficiency

b. Predictors: (Constant), Digitalization, Content Analytics, Intelligent Information Management, Internal Document Management

The result of the analysis on Table 17 shows the significance of all the dimensions of enterprise content collaboration management, viz: digitalization, content analytics, intelligent information management and internal document management on administrative efficiency. The Table reveal that the result is significant at p= 0.000<0.05.

IV.   DISCUSSION OF FINDINGS

The analysis of the study revealed a correlation coefficient of 0.443[**] between digitalization and cost reduction, indicating a moderate and positive relationship between digitalization and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a moderate significant relationship between digitalization and cost reduction. The analysis results also revealed a correlation coefficient of 0.893[**] between digitalization and real-time service, indicating a very strong and positive relationship between digitalization and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between digitalization and real-time service. The analysis of the study revealed a correlation coefficient of 0.544[**] between content analytics and cost reduction, indicating a moderate and positive relationship between content analytics and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a moderate significant relationship between content analytics and cost reduction. The analysis results also revealed a correlation coefficient of 0.856[**] between content analytics and real-time service, indicating a very strong and positive relationship between content analytics and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between content analytics and real-time service.

The analysis of the study revealed a correlation coefficient of 0.762[**] between intelligent information management and cost reduction, indicating a strong and positive relationship between intelligent information management and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between intelligent information management and cost reduction. The analysis results also revealed a correlation coefficient of 0.820[**] between intelligent information management and real-time service, indicating a very strong and positive relationship between intelligent information management and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between intelligent information management and real-time service. The findings of this study are in agreement with the findings of [36] whose study assessed the impact of Information and Communication Technology (ICT) on the performance of commercial banks in Nigeria for the period 1991 to 2012 using data sourced from 11 sampled commercial banks in Onitsha, Anambra State. The study applied Ordinary Least Square approach econometric techniques, Fixed and Random Effects Models in its analysis to ascertain the relationship between Banks Performance and the Application of ICT. The results indicate that Random Effects Model was appropriate.

The analysis of the study revealed a correlation coefficient of 0.718[**] between internal document management and cost reduction, indicating a strong and positive relationship between internal document management and cost reduction. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between internal document management and cost reduction. The analysis results also revealed a correlation coefficient of 0.738[**] between internal document management and real-time service, indicating a strong and positive relationship between internal document management and real-time service. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a strong significant relationship between internal document management and real-time service.

The analysis of the study revealed a regression coefficient of 0.601[**] on the moderating influence of information technology on the relationship between enterprise content collaboration management and

admini□trative efficiency, indicating that technology ha□ a □trong and po□itive influence on the relation□hip between enterpri□e content collaboration management and admini□trative efficiency. More □o, the probability value (0.000) i□ le□ □than the critical value (0.05), thi□ □how□ that technology ha□ a □trong □ignificant influence on the relation□hip between enterpri□e content collaboration management and admini□trative efficiency.

V. CONCLUSION

In line with the finding□ of thi□ □tudy and to the extent of it□ con□i□tency with re□ult□ of □imilar previou□ □tudie□, we conclude that enterpri□e content collaboration management ha□ a po□itive □ignificant relation□hip with admini□trative efficiency of manufacturing firm□ in River□ State. Thu□, enterpri□e content collaboration management i□ a key imperative for management and improvement in admini□trative efficiency within the River□ State manufacturing indu□try given it□ digitalization, content analytic□, intelligent information management and internal document management of enterprise content collaboration which in turn impacts on the efficiency of the business, as well as real-time service of the firm.

VI. RECOMMENDATIONS

Based on the findings of the study and to the extent of its consistency with the result of similar studies we make the following recommendations.

1. Managers of manufacturing firms should capitalize on the critical role of digitalization in their operations to drive their administrative efficiency.

2. Managers of manufacturing firms should seek to build strong content analytics antecedents in consonance with their company policies and practices aimed at achieving administrative efficiency.

3. Managers of manufacturing firms should apply objectivity in their intelligent information management processes as this has the potency to either ruin or enhance their administrative efficiency.

4. Managers of manufacturing firms should as a point of concern adopts the internal document processes as it possesses the potency to transform their paper-document management processes to a digital state.

5. Managers of manufacturing firms should adopt the elements mentioned in this study to reciprocate the expecta tion of managers as they are pivotal to administrative efficiency through enterprise content collaboration management.

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