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PRERANA: Journal of Management Thought and Practice

PRERANA in Sanskrit means hope and inspiration. The primary objective of PRERANA journal is to enhance the standard of management education by drawing from conceptual and empirical research based articles reflecting current industry practices. PRERANA shall include contributions from eminent members of the academia and sharing of practices by experts from industry. The Journal will also contain book reviews, editorial abstracts and executive summaries of recent publications in management.

The Editorial Board

PRERANA: Journal of Management Thought and Practice

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FROM THE EDITOR (S)

It is our pleasure to place before you the second issue of the fourteenth volume of '***PRERANA***: Journal of Management Thought and Practice.' The objective of ***PRERANA*** is to disseminate contemporary developments in the field of management in the form of empirical research that tests, extends or builds management theory and contributes to management practice. ***PRERANA*** encourages manuscripts that present strong empirical and theoretical contributions to the management field. Preference is given to submissions that test, extend, or build strong theoretical frameworks. ***PRERANA***'s international and multi-disciplinary review team ensures maintenance of standards of excellence with regard to the quality of contents. This edition contains five research articles on BlockChain Deployment, Business Intelligence and innovation, Post Pandemic Shopping Intention, BlockChain Research and Development and Employee Retention in Industry 4.0 Organizations.

Pankaj M. Madhani in his article on "Blockchain Deployment in Marketing: Enhancing Efficiency and Effectiveness," identified various benefits of blockchain deployment in marketing and developed a digital transformation framework to emphasize how marketing is transformed with blockchain deployment. According to him, Blockchain deployment in marketing eliminates intermediaries, combats click fraud, mitigate privacy issues, enhances digital marketing security, boost trust and transparency and make loyalty programs more effective. Organizational readiness and difficulty in implementation (e.g. lack of technology standards, infrastructure, scalability, expertise, and high cost) are considered to be the main challenges for blockchain deployment in marketing.

Olota, Oluwayomi Omotayo in their article on "Business Intelligence and Innovation: Assessing Theory and Evidence" examined the relationship between business intelligence and innovation. The data warehousing impacts on process innovation, relationship between real time and marketing innovation and the effect of data sources on product innovation were studied. They critically reviewed the literature on Business Intelligence, Data warehouse and Innovation. Primary data was collected through structured questionnaire from 228 employees working in Tuyil, Pharmaceutical Industries Limited. Multiple Regression was used to test the formulated hypotheses. The authors concluded that business intelligence has a strong positive relationship that is significant to innovation as most of the examined variables are significant statistically to each other. The study recommended organizations to develop a data warehouse that will ensure more innovativeness in the organization.

The authors Elangovan N., Aparna S., Sundaravel E., have studied a very relevant topic for the current scenario "Post Pandemic Shopping Intention in Retail Store: How does Trust and Store Environment Modify the Impact of Perceived Vulnerability and Fearfulness?". The authors investigated whether trust in the retail store and the store environment can reduce the fearfulness and increase the stopping intention using structural Equation Modelling (SEM). Five variables Convenience, Hygiene, Social Distance, Non-Contact, Atmospherics and Safety are identified as the store environment that can impact the shopping intention. The study revealed that trust in the retail store had more impact on the shopping intention. This study may help the retail managers to focus on a pandemic related store environment and communicate the same in building trust among the customers.

RavindharVadapalli in his article on "Determining Co-efficient of Successes and Annals for Blockchain Research and Development Projects in South Asia" made an attempt to develop of simple method for BLOCKCHAIN R&D projects' evolution which is basically based on relative chance of success of specific project vis-a-vis an alternative project which may be available. He has examined the economic appraisal of BLOCKCHAIN R&D project and reached the conclusions that the wastage of financial resources under slow economic growth can be avoided if the economic appraisal (ex-ante) of various Blockchain projects is successfully done at the initial stage.

Santiago Antony Selvi and VandanaMadhavkumar in their research study on "Factors Influencing Retention of Millennial Employees in 4.0 organizations" examined the key attributes of retention of the millennial workforce through the review of literature in the area. The study identified that work-life balance, career development opportunities, meaningful work, continuous feedback & recognition, competitive compensation and benefits, work-engagement, and relationship with colleagues and superiors were the key attributes for the retention of the millennial workforce in 4.0 organizations. The study implies that organizations need to redesign retention strategies based on the leading key attributes.

We thank all the authors for their contributions towards the second issue of the fourteenth volume of ***PRERANA***.

We look forward for novel, insightful and crafted conceptual work that challenges conventional wisdom concerning all aspects of organizations from academicians, bureaucrats and business executives for publishing in ***PRERANA***.

- Dr P Sadhasivam – *Chief Editor*

- Dr S Kavitha – *Associate Editor*

BLOCKCHAIN DEPLOYMENT IN MARKETING: ENHANCING EFFICIENCY AND EFFECTIVENESS

Dr. Pankaj M. Madhani*

Blockchain in marketing helps in fraud prevention, better targeting of digital marketing advertising campaigns and reliable performance measurement of marketing. It also enables marketing to effectively and efficiently execute various processes and provide data protection with secure transaction. Blockchain deployment in marketing eliminates intermediaries, combats click fraud, mitigate privacy issues, enhances digital marketing security, boost trust and transparency and make loyalty program more effective. Blockchain deployment in marketing enhances efficiency and effectiveness of various processes as it supports distributed database where all the parties involved in marketing network have access to the database and no single party controls network. Organizational readiness and difficulty in implementation are main challenges for blockchain deployment in marketing. The research identifies various benefits of blockchain deployment in marketing and develops a digital transformation framework to emphasize how marketing is transformed with blockchain deployment.

Keywords: *Blockchain, Marketing, Digital transformation, Click fraud, Disintermediation, Efficiency, Effectiveness*

INTRODUCTION

Over the last many years, organizations have embraced various technologies mainly because of flexibility, security, efficiency, real-time processing, scalability, and cost savings provided by it. In the recent past, organizations have witnessed a new set of technologies - AI (artificial intelligence), Cloud, RPA (robotic process automation), 3D (three-dimensional) printing, IoT (internet of things), and Blockchain. Out of these, Blockchain-based applications are considered one of the most significant breakthroughs in recent times due to their process efficiencies, transparency, and security features (PwC, 2017).

Marketing functions are being digitized with advent of digital marketing, however, still less attention has been paid to the perspective that how marketing can be revamped for better with Blockchain deployment. Marketing can't afford to completely ignore Blockchain as marketing processes will effectively transform with the Blockchain deployment. Blockchain in marketing helps in fraud prevention, better targeting of digital marketing advertising campaigns and reliable performance measurement of marketing. It also enables marketing to effectively and efficiently execute various processes and provide data protection with secure transaction.

* Dean (Academics) & Professor, IBS Hyderabad, IFHE University Hyderabad, Telangana, India.

LITERATURE REVIEW

Blockchain is considered the most trending technology that may significantly impact businesses across the globe. A study from Market Reports Centre found that the global Blockchain market was worth $708 million in 2017 and is expected to rise to $60.7 billion by 2024 (Market Reports Centre, 2018). The recent hype around Blockchain technology has led to its deployment in areas such as finance (i.e. the crypto industry), healthcare, tourism, real estate (Rejeb*et al.,* 2020), human resources (HR) (Madhani, 2022a) and supply chain management (SCM) (Madhani, 2021a, 2021b). Although, Blockchain was once solely used to trade cryptocurrency, it can revolutionize many functional areas of business, especially the marketing function.

The basic unit of a Blockchain is a single transaction that involves one or more entities. Different entities which are involved in a transaction act as nodes. Blockchain stores transactional data in blocks that can be shared between members. These blocks can be added together in a chronological sequence which forms a chain (Treiblmaier, 2018). A specific Blockchain configuration is usually a combination of multiple technologies, tools and methods that address a particular problem or business use case (Rejeb*et al.,* 2018). Thus, marketing managers need to understand the possibilities of Blockchain technology as a protocol of communication that marks the transition from the Internet of information to the Internet of value and trust (Zamani&Giaglis, 2018).

The consumer confidence and trust in brands have been severely eroded (Quelch, 2009) as a brand's success is contingent on the level of trust and transparency that it can generate over a period of time (Strebinger&Treiblmaier, 2004; Tapscott&Tapscott, 2016). Trust is vitally important in B2C e-commerce (Lee & Turban, 2001), however, the digital marketing and advertising industry has been plagued by a series of frauds, scandals, and deceptive campaigns (Hongwei&Peiji, 2011). Blockchain deployment facilitates brands and consumers to operate in a more secure and transparent ecosystem by empowering trust and transparency in digital marketing. As the Blockchain provides consistency of information, transparency, and immutability, it helps in establishing trust in the system itself (i.e., "trust by design"). Blockchain deployment in marketing helps in better targeting of digital marketing advertising campaigns; reliable performance measurement of marketing; real-time tracking to avoid fraud (like bots) and thus saves a considerable amount of money (Forbes, 2018; Kuno Creative, 2018). Payments to potential consumers for consuming their advertisement media is also an emerging marketing instrument. Brave Browser, Block stack Browser, Killi Browser, Mad Network, and BIG token app, are allowing consumers to own, and in certain cases, monetize, personal data by sharing their data or viewing targeted advertisements (Newman 2019; Walker 2018).

Implementation of Blockchain in marketing function is an emerging area and hence the financial benefits of its deployment in marketing are not yet documented (Madhani, 2022b). Many businesses are in doubt about the availability of skilled manpower and high cost of Blockchain implementation. Avasant 2019 report states that there are only 45,000 to 60,000 skilled human resources available globally who are experts in the Blockchain (NASSCOM Avasant, 2019).Some experts claim that Blockchain is not mature yet, and functions of blockchain can be performed by already mastered technologies (Gatteschi*et al.,* 2018). According to CMO Survey, only 8% of firms rate the use of Blockchain in marketing as moderately or very important (Harvey *et al.,* 2018).

Blockchain Technology: Various Features

Blockchain is best known as the backbone for the digital currency Bitcoin and other crypto currencies that make financial transactions safe without a bank or other middleman. Blockchain is a decentralized computer system that transmits information in a quick, secure, and straightforward way. Blockchain records the transactions by using a distributed ledgersystem and can be represented as a giant global Google spreadsheet document representing the accounting of transactions and registry of both asset types, tangible as well as intangible. Blockchain is a peer-to-peer network of digital ledgers that encrypts and stores recordsorganized into groups of data called blocks. Such blocks of data and digital history, are distributed over networks and can be viewed and verified by anyone in the network. A single block can store a variety of data. All the transaction records are coded in different blocks in the form of a chain where the authenticity of the transaction will be validated using two different keys, i.e. public key or may be private key (Clohessy*et al.,* 2019).

A blockchain is a digital logbook of transactions where each block is connected in series to the one before and after it.Once these blocks are connected in a blockchain, they cannot be changed or deleted by a singleactor; instead, they are verified and managed by governance rules.As each transaction occurs, it is put into a block and thus, the complete audit trail of each informational transaction can be traced. The blocks are linked in a chain (hence called blockchain) in which a block is made up of data, a hash, and the hash of the previous block, creating the chain-like design. Furthermore, because the block has a copy of all transactions and cannot be modified, the technology ensures transparency and enhances trust over the network. Each block references and detects its predecessor by a hashing function, creating a continuous chain. Hash is a value that is generated from a string of text. A hash can be compared as the equivalent of a fingerprint, meaning that each is unique, and gives a type of identity to the block. When the data within the block changes, so does the hash. Thus, each block has the hash of the prior block, for

instance, block n +2 has the hash of the block n + 1, and so on, ensuring traceability. Consequently, this process validates the preceding blocks' information back to the first block that started a process.

A cryptographic hash function, which takes an input and returns an alphanumeric string of fixed length, is used to create so-called transaction hashes that encode the contents of this transaction (Papadopoulos, 2015).These transaction hashes cannot be used to recreate the original transaction and are visible in case the blockchain is public. The validity of the hash is then processed within a proof-of-work system to guard the transaction from double-spending. When the validity is confirmed, a timestamp is added to the generation of each block and the hash is placed in chronological order on a platform creating a blockchain. Time is unique, so after adding the timestamp, double recording can be avoided, and the timestamp cannot be tampered with or deleted once it is generated after the blockchain is expanded according to the sequence of generation time. Key features of blockchain technology (Madhani, 2021b) are explained below:

B*lockchain Technology: Major Features*

Distribution

Distribution relates to the computational work that is divided between several computers. In the blockchain, the chain of blocks is distributed over a peer-to-peer (P2P) network, in which every node maintains the latest version of it. The data exists on multiple computers at the same time, allowing all parties sharing of the records. Thus, if an illegal or unauthorized modification takes place on one of the computers, it can be traced back for verification purposes. In a P2P system, the consensus of nodes that agree upon the issue ensures its validation and authorization. The whole process of validating transactions and adding blocks in a blockchain is fully distributed such that no single controlling authority exists. A distributed ledger system can maintain records of transactions and make them accessible and visible to participants with permission in a network.

D*ecentralization*

Decentralization refers to a situation whereby no single entity controls transaction processing. Decentralization is the core feature of blockchain, which is also impossible to achieve with other technologies. Due to the decentralization of the blockchain, each node adopts distributed accounting storage; that is, each node has a general ledger. In a blockchain, the ledger is not stored in any one master location (i.e. the central server) or managed by anyone, but rather is stored as copies distributed among numerous computers (a network of several computers). As each activity in the system is visible and auditable by all members, this decentralized system creates trust. The decentralization and P2P characteristics of the blockchain

make it harder for the system to be disrupted than the conventional distributed application architectures (such as client-server).

Encryption

Blockchain uses a hash function, which is a type of cryptography that transforms data into a hexadecimal code of a fixed length and cannot be inverted to recover the original input. Information processing will be encrypted by the hash algorithm as encryption of data is done as an add-on in the blockchain. Hash algorithms and cryptographic digital signatures help in data integrity and avoid manipulation of the blocks.

Immutability

Blockchain preserves old transactions forever, and adds new ones to the chain permanently, ensuring everyone on the ledger's network sees the same history as everyone else. Records can't be changed or manipulated unless all participants agree on the need to do so (Iansiti& Lakhani 2017). Due to immutability, data entered cannot be imitated by other parties as the digital signature will secure it in the blockchain. The immutability of data is highly dependent upon the coding of smart contracts in transactions.

S*mart Contracts*

Blockchain provides a platform to execute the 'smart contracts'. A smart contract is a digitalized set of agreements between parties represented in a code and being self-executed by computers once certain conditions are met. The advantages of smart contracts are increased accuracy, speed, security, and trust-building with resulting transparency, traceability, and efficiency.

Blockchain Transactions: How It Works?

Blockchain encompasses a history of data records or blocks. A new block is formed with each transaction through encryption and then connected in series with the next one in an irreversible mode. Hence, blockchain is represented as a chain of "blocks". If a block is successfully validated, it is appended to the chain of previous blocks in a way that makes it increasingly hard to remove from the whole chain. Each transaction in the blockchainis recorded in the form of a hash code showing which parties were involved, transaction detail and timestamp with a digital signature of the authentic party. Hashes are built off of each other,which grant legitimacy to every block that is created later on along the chain. Tampering with one block would alter the whole network because alterations would contradict the proof-of work applied in the previous blocks. After confirmation from shared members, the stored data in this chain cannot be erased and this characteristic makes blockchain perfect for recordkeeping. Once the other peers "accept" the changes, the transaction

block is added to the digital ledger. This consensus serves as an audit trail for each transaction in the network so that if there is an unauthorized change in any block, other peers will either validate the change as "valid" or "reject" the change based upon written smart contracts.

Any node in the blockchain has a copy of the database, and each block created is encryptedand stored with transaction information details; and when each block is created, and the block is completed and transmitted to all nodes in the blockchain, the timestamp is created, and allnodes are notified universally. Blockchain is composed of multiple blocks, which are automatically formed according to the creation time (Rejeb*et al.,* 2020). After each node updates the database, the encrypted information cannot be changed. Even if the data of a certain node is destroyed, the node will not be used because the information of most other nodes is inconsistent. The data in a blockchain cannot be deleted or changed, only added to, and it is required that everyone connected to each block must agree before new information can be added into a chain. Every time new data is added it extends the ledger's chain of blocks.

To understand the working of a blockchain, consider transactions between two parties (i.e. participant X and participant Y). This mechanism is based on the blockchain concept. Instead of recording accounting transactions by participant X with another participant Y - which is recorded when completed in two separate ledgers – blockchain created a digital, distributed ledger that accounts for the transaction and brings two participants X and Y together. Transaction in blockchain initiates with participant X, informing the network of his arrangement with participant Y. Then, Y announces its acceptance, by using his public-key, to the network and simultaneously informs the nodes within the network to determine the authenticity of the transaction. Several transactions are subsequently combined into one single block. Blockchain encrypts data and delivers them to all peers for verification. In most cases, the authenticity of the transaction is verified with the use of miners who deploy computing resources that compete amongst each other to create the next block. Miners extract the information from the block, in which it has been stored after Y's acceptance, and turn it into a hash by applying a mathematical formula to it.

RESEARCH METHODOLOGY

Blockchain is not a standalone technology as it also depends upon other qualitative data collection technologies usually deployed by marketing. These include internet of things(IoT) and Big Data. Adopting IoT with blockchain will have added benefits like accurate information acquisition, real-time information delivery, removal of unnecessary intermediation, and building a trusted environment. The research identifies various benefits of blockchain deployment in marketing (Madhani, 2022c) and develops a digital transformation framework to emphasize how marketing is transformed with blockchain deployment.

Blockchain Benefits in Marketing

Disintermediation

Blockchain deployment could eventually decentralize trust for online marketplaces by attaching trust to the seller on various marketplaces rather than to the e-commerce sites themselves. Blockchain deployment in marketing fosters disintermediation and facilitates near-zero financial transaction costs by eliminating intermediaries.

Click Fraud

With blockchain deployment, it is possible to ensure trust and transparency over online advertising-related activities such as the authentication of clicks. Blockchain could make it difficult for bots to set up fake social media accounts, flood users with deceptive messages, and thus make online advertising more efficient by combating click fraud.

Privacy

To mitigate privacy issues, blockchain could be a viable solution as the decentralized nature of blockchain helps ensure that data breaches do not occur (Zheng *et al.,* 2018). Blockchain deployment in marketing allows consumers to gain more control over their personally identifiable information (PII) because their PII cannot easily be commoditized. Thus, blockchain deployment in marketing enhances privacy protection.

T*rust*

Blockchain deployment in marketing can help build trust in the brand as transparency and privacy concerns are high in consumers' agendas. Blockchain deployment in marketing enables customers to track the entire lifecycle of each product (from sourcing to production) and associate it directly with manufacturers and thus reduces disinformation risk in their purchases.

T*ransparency*

Blockchain enhances trust in the system via the shared transparency and integrity of data it provides on transactions and the system's immutable architecture. Blockchain allows users to interact directly with each other, without the presence of intermediaries. Blockchain could be an innovative tool for marketers to ascertain authentic products and thus increase their sales and safeguard their brand reputation by reinforcing transparency.

D*igital Marketing Security*

Blockchain empoweres digital marketing security and ensures that information and transactions are stored securely and cannot be altered without a consensus of participants. Blockchain deployment in marketing could be the solution to the

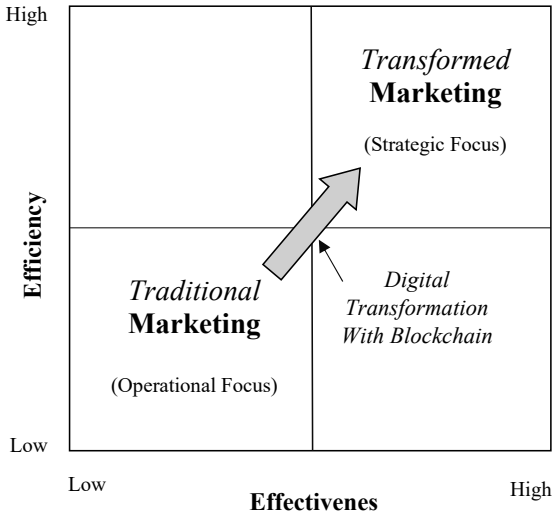

Figure 1: Digital Transformation of Marketing: Enhancing Efficiency and Effectiveness
(Source: Framework developed by the author)

long-standing data security problem. Blockchain deployment enhances the level of security as it is a security-oriented technology that secures data and processes.

L*oyalty Programs*

Blockchain deployment in marketing reforms how loyalty programs are designed, tracked and communicated to consumers. The blockchain could assist marketers to develop effective loyalty programs by making the process less expensive and more secure by cutting out the middlemen and using the blockchain's unique verification capabilities.

Digital Transformation of Marketing: Enhancing Efficiency and Effectiveness

Marketing should consider the benefits of blockchain technology in transforming various marketing processes. As shown in Figure 1, blockchain deployment in marketing boosts performance due to the higher efficiency and effectiveness of various processes. To align marketing priorities with the organizations' goals and objectives, it must integrate and enable itself to focus more on strategic activities. Benefits of blockchain deployment in marketing include, disintermediation, increased trust and transparency, combating click fraud, enhancing privacy, digital marketing security, and better loyalty programs. Blockchain deployment will help marketing in strategic decision-making as it significantly reduces administrative work and increases performance.

Illustration

Cathay Pacific

Asian airline Cathay Pacific and its rewards program, Asia Miles, have teamed up with Accenture to deploy blockchain technology thus allowing customers, airline partners, and the airline itself to manage air miles and member rewards in real-time with a new cryptocurrency called "BigCoin" (Herman, 2018). Cathay Pacific has transformed its air miles benefit scheme by deploying blockchain, and mobile devices, combining blockchain and gamification offering a better experience for their customers.

CONCLUSION

Blockchain is a decentralized computer system that transmits information in a quick, secure, and straightforward way. The blockchain concept can be understood as associated with transactions' disintermediation, i.e. without a central authority to validate and offer credibility to transactions. Blockchain deployment in marketing enhances efficiency and effectiveness of various processes as it supports distributed database where all the parties involved have access to the database and no single party controls network. Blockchain deployment in marketing eliminates intermediaries, combats click fraud, mitigate privacy issues, enhances digital marketing security, boost trust and transparency and make loyalty programmore effective.

Blockchain can make data-driven marketing more transparent by validating and analysing every consumer's journey through verified ad delivery, confirming that a real person saw thead as per the specifics of a media contract. Marketers will able to control how their assets are delivered by monitoring exactly where their ads are being placed, alleviating ad fraud from automated bots by ensuring that real followers and consumers are engaging with their ads, and ensuring proper ad engagement tracking that will lead to more precise consumer insights. The successful adoption of blockchain heavily depends upon real-time and accurate data collection from multiple sources and requires massive data warehouses from several firms. Organizational readiness and difficulty in implementation (e.g. lack of technology standards, infrastructure, scalability, expertise, and high cost) are considered to be the main challenges for blockchain deployment in marketing.

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BUSINESS INTELLIGENCE AND INNOVATION: ASSESSING THEORY AND EVIDENCE

Olota O.O. Ayoola, Olorunfemi Joseph, Balogun E. O.*

ABSTRACT

Complexity and a constantly evolving global business climate define the world we live in today. Lately, the collection of data, as well as its storage costs, have decreased dramatically, as such, organization's willingness to acquire vast quantities of data in order to obtain a competitive advantage over rivals has risen as a result.The central objective of this study was to examine the relationship between business intelligenceand innovation. The subsidiary objectives are to: evaluate how data warehousing impacts process innovation; define the relationship between real-time and marketing innovation; analyze the effect of data sources on product innovation. Primary data was collect through structured questionnaire administered to the organization's staff. Two hundred and twenty-eight questionnaires were administered and all completed and returned correctly.Multiple Regression analysis was run through the Statistical Package for Social Sciences software to test the hypotheses formulated. The findings indicated that: data warehousing has a major effect on process innovation with R2 value of 0.489, which indicates that data processing leads to process innovation; real-time has an impact on marketing innovation with R2 value of 0.637; data sources have an impact on product innovation with R2 value of 0.728. The conclusion, therefore, is that business intelligence has a strong positive relationship that is significant to innovation as most of the examined variables are significant statistically to each other. The study, therefore, recommends organizations to develop a data warehouse that will ensure more innovativeness in the organization.Organisations should understand how to use their time effectively.

Keywords: *Business intelligence, data processing, real-time, data sources, innovation.*

INTRODUCTION

Complexity and a constantly evolving global business environment define the contemporary times we are in. The continuous advancement of technology is a major contributor to this and has also contributed to the production and storage of more and more data. More significantly, the cost of data acquisition and storage has decreased significantly and, as a result, the organization's willingness to acquire vast quantities of data to obtain a competitive advantage over rivals has increased. Organizations have therefore recognized the potential value of the data, so, they look for ways to exploit this valuable asset.

* Department of Business Adminstration Faculty of Management Sciences, University of Ilorin. olotaoluwayomi@gmail.com, aolorunfemi@yahoo.com, balobendar@gmail.com

The use of business intelligence systems, according to Eckerson and Sherman (2008), leads to and plays a very important role in displaying organizations' innovative talents and adding value to their operations, to get through the various outputs of creativity that allows them to bring new products and services, design new processes and methods.

The use of modern, effective and advanced technology has been enhanced by innovation in the exploitation of new methods and technologies. Through innovating at various levels of hardware, software along with unique system technologies such as data mining, online analytical analysis, data warehouse, customer relationship management, marketing, visualization, business intelligence systems, human resource management and delivery management system, decision support system, enterprise information system, knowledge management, and graphical interface system, organizations are trying to gain competitive advantage. Increasing technical innovation strengthens the BI tools that can help users make more accurate and more competitive decisions.

The practice of market intelligence has become more important in the pharmaceutical industry as the competitive intensity in the industry has increased owing to complex technologies, product availability and variety, strict regulations, and customer maturity. More precisely, since it relies on research & development (R&D) for survival, the pharmaceutical industry is highly complex. In this business, the cost of R&D is enormous and the risk of "no success" is high. The effective growth of a new drug, however, may generate abnormal profit for a time. Thus, for successful strategic decision-making, pharmaceutical companies must pay more attention to collecting information about consumers, products, competitors and the environment (Ettore 2015).

This study was conducted through a single case study that is Tuyil Pharmaceutical Industries Limited, a pharmaceutical company located in Ilorin, Kwara State.

STATEMENT OF THE PROBLEM

Today, globalization poses for the urgent need for rapid response and competitiveness of business processes, products and services, which calls for accurate understanding of business requirements.

The volume of data generated daily in organizations can be enormous and this requires the application of tools capable of creating knowledge from stored data in order to use it proactively. Proactive rather than reactive action has turned into an essential element, achieved by having and using constantly updated information on business developments, which is subject to immediate processing in order to provide the platform for improved performance. Today, companies use intelligence to better interpret what is happening in the global market to develop new and more effective forms of data analysis and interpretation.

In recent times, the pharmaceutical industry has undergone significant changes in methods of gathering and analyzing data. In a more interconnected world where global competitors are increasing by the numbers, as competitive advantages are decreasing rapidly, constant changes in market demands, forecasting and supply chain management and sales strategy. Also the production costs of drugs are increasing rapidly coupled with declining profit margins due to the degenerating nature of the Nigeria economy. Moreover, increased regulations from governments are also making the path harder to traverse. To this end, organisations seek out viable strategies for creating a sustainable competitive advantage and delivering superior value to customers which one of the strategies is phasing out the traditional orthodox management systems and adopting a more viable system of intelligence for gathering, storing, accessing, and analyzing data.

This research, therefore, seeks to define the variables that will inform the implementation of business intelligence in an enterprise. Furthermore, the analysis also aims to evaluate the direct and indirect effect of each factor found on the adoption of business intelligence.

RESEARCH QUESTIONS

i. What is the effect of data warehousing on process innovation?
ii. Is there a relationship between real time and marketing innovation?
iii. Do data sources have an impact on product innovation?

OBJECTIVES OF THE STUDY

The general objective of this paper is to assess the relationship between business intelligence and innovation. The specific objectives are to:

i. Determine how data warehousing affect process innovation
ii. Identify real time's relationship with marketing innovation
iii. Examine data sources' impact on product innovation

HYPOTHESES OF THE STUDY

H_{O1} : Data warehousing does not affect process innovation
H_{O2} : Real time has no relationship with marketing innovation
H_{O3} : Data sources have no significant impact on product innovation

CONCEPTUAL CLARIFICATIONS

Concept of Business Intelligence

Bustech (2013) defined Business Intelligence as processes, technologies and resources needed to convert data into information, information into knowledge and

knowledge into action plans to facilitate profitable business. Business intelligence offers an enterprise array of decision support tools aimed at allowing better and quicker decisions to be made by information employees such as executives, managers, and analysts. It is believed that business intelligence systems have solutions that are responsible for translating data into information and expertise, as well as providing an atmosphere for efficient decision making, strategic thinking, and organizational action. (Ghattas, Soffer and Peleg, 2014)

Zeng, Shi, Zang and Wu (2016) viewed BI a procedure of collecting, treating and diffusing data with an objective, as well as reducing uncertainty in the making of all strategic decisions. In their early BI work, Smith and Lindsay (2012) proposed that the word Business Intelligence could mean three distinct concepts: a procedure, an organizational function, and a product. That is to say that BI is an operation conducted to generate BI's product by individuals employed in the organizational role of BI. First, from the point of view of the procedure, BI incorporates systemic procedures directly related to support for decision making, for example, gathering, processing and preservation of data from different areas of the organisation, its assessment & transformation into the actionable decision for further use. Secondly, BI's organizational function is responsible for managing the BI procedure, while BI's final product is the completed knowledge of management concern regarding current as well as future environment in which the company operates.

Business intelligence was described by Richards, Yeoh and Wang(2011) as the process of integrating data across different internal and external data sources, applying analytical tools and techniques to understand the information within the data, making a decision, and taking required action based on this intelligence gained.

Concept of Data Warehouse

A very important component of BI is the data warehouse and it is subject-oriented and integrated. By managing the various business records for integration, cleansing, aggregation and query activities, the data warehouse facilitates the physical dissemination of data (Linstedt & Olschimke, 2016). It may also contain operational data that can be represented as an updateable collection of integrated data used in a specific subject area for enterprise-wide tactical decision-making. Organizational operating systems, external systems and non-structured systems are typically data sources for data warehouses. Operational systems for enterprises are the most common source of data and consist of systems for enterprise resource planning and customer relationship management. Open data providers or other services that are not operated by the company itself may be external sources. Sources of non-organized data are sources containing data that is not structured. Data such as addresses, texts or photographs are included here. The purpose of the data warehouse is to support the reporting and analytical needs of organisations. Data in the data warehouse must be accessible, comprehensible and trustworthy to the user (Singh & Singh, 2010).

Concept of Real-Time Business Intelligence

Real-time business intelligence (RTBI) is a term that explains the method of providing business activities or business intelligence (BI) data as it happens. Real-time refers to next-to-zero delays and fast data access whenever possible. This fast data access assist organisations in making more accurate decisions as well as manage their activities better. These systems use smart data management systems such as Redshift data warehouse, visualizations, as well as ad hoc analytics applications to produce real-time data (Barney, 2011).

The rate at which people use computing system today has made real-time possible to operate in modern data warehouses, leading to RTBI. Business operations are entered into BI device immediately they occur, that is, in real-time that preserves the present state of the company. RTBI serves not only the data storage for classic strategic functions to extract data and expertise from previous business operations but also, offers operational real-time assistance to guide enterprise decisions that respond rapidly to incidents as they come up. Simply put, it substitutes the enterprise application integration (EAI) as well as classical data warehouse features. The RBTI fundamental concept is Event-driven development (Daugherty, Chen, &Ferrin, 2011).

Concept of Data Source

A data source refers to the collection of areas for the transmission of data to BI by a department in the organization. From a technology perspective, data source consist a group of logically connected fields for data to flow into the BI in a flat or several flat designs (extraction structure) (for hierarchies). Data Sources have an origin metadata overview. it is used for data retrieval and dissemination from a system source into the BI system. It is also useable for direct access to the BI device source info (Davey & Champion, 2012).

Operational databases, statistical records, external data (e.g. from market research agencies or from the internet) or information from the current data warehouse environment may be data sources. Relational databases or some other data system serving the line of business applications can be the data sources. Structured information, such as tables or spreadsheets, or unstructured material, such as plaintext files or images and other multimedia information, may often be found on several different channels.

Concept of Innovation

Innovation is when companies adapt or build solutions that diagnose, identify or avoid environmental issues. Innovation refers to the creation and development of innovations, methods of activity, goods and processes that help to minimize environmental burdens or achieve environmental sustainability goals (Rennings & Zwick, 2002).

Innovation Dimensions

Innovation is defined by dimensions and is thus seen as an emerging procedure in which products that are new or processes substitute existing ones with new or substantially improved ones. There are four types of innovation, namely Product, Method, Marketing and Organizational Innovation.

i. *Product Innovation:* Innovation of products can be described as the production of a new product from new materials (completely new product) or the modification of existing products to satisfy customer satisfaction (improved version of already existing products). It also refers to the launch of new goods or services for the purpose of creating new markets or customers or satisfying established markets or customers (Wang and Ahmed, 2014). Product innovation can be created with the use of new concepts and a range of product options can also be made. Innovation of products is the enhancement of original goods, the alteration of the design of recognized goods or the introduction of new supplies in the construction of recognized goods (Alegre, Lapiedra, &Chiva, 2011).

Product invention is a process involving the practical design, research and development, manufacturing, management and marketing activities involved in promoting a new product. Product innovation is the primary factor in business growth and the efficiency of the business product innovation process is calculated as a component of new product development (Wheelwright, 2012).

ii. *Process Innovation:* Process innovation is typically the process of reengineering and enhancing the internal functioning of business processes (Cumming, 2008). This approach covers many facets of the functions and fields of an organization, including technological design, R&D, development, management and commercial activities. Innovation in processes is concerned with the advancement or enhancement of techniques and the growth of processes or systems. Innovation in technology, expertise, strategies, structures and procedures that are used in the process of converting data into output, for example. Process innovation may be referred to in a manufacturing operation as new or enhanced processes, methods, devices, and expertise in the production of a product.

Innovation in processes is based on performance improvements i.e the effectiveness and performance of the manufacturing process. This requires improvements in the manner in which goods and services are produced and distributed to clients. The innovation of systems varies from incremental modifications to more drastic changes. Innovation in processes brings important changes to machinery, procedures or software. Process developments are aimed at minimizing unit output or distribution costs, increasing value and value, or developing or providing new or more enhanced goods (Brown & Frame, 2014).

iii. Marketing Innovation: Innovation in marketing is one that produces major changes in some of the elements of the marketing mix, such as product, price, promotion and distribution. It may be dependent on the distinction, advertising, distribution, demand or cost of commodity and price in this case. Changes in the sense of the introduction of goods and services to the market are what market innovation is about (Ballot, Fakhfakha, Galia& Salter, 2015). Marketing innovation, therefore, addresses the introduction of new approaches, resulting in a major innovation in product creation, packaging, advertising, positioning and even pricing. Innovation in marketing aims to meet the needs of customers, by opening up new markets, by repositioning a company's goods within the market, with the goal of growing sales.

In order to satisfy a customer's purchasing preference, consumer innovation deals with the market mix and market range (Johne, 2008). Because of modern marketing technologies, especially through the Internet, continuous market innovation needs to be done by a company, enabling other competitors to reach potential customers around the globe at a light pace.

iv. Organizational Innovation: Organizational innovation involves introducing a new strategy in the corporate practices of a company, such as the management of the work environment and external relationships as well. New approaches contribute to the activities and procedures of the organization and also drive the work and practices that promote the exchange of learning and information of a group.

The introduction of novel organizational procedures in industry organizational processes, business workplace, or external relationships is the innovation of organizations (Angel, Meroño-Cerdan, &López-Nicolas, 2013).

Concept of Innovation Based Business Intelligence (Bi-Innovation)

Business intelligence does not apply to information technology or technical applications, but rather to a coherent package of business processes and activities and analytical resources. Business intelligence helps businesses understand data so that the effects of the future can be anticipated. After collecting such data (where data collection is ongoing and continuously updated), companies can complete the analysis of the data by collecting information on the activities of goods marketing, sales organization and consumer behaviour, processed and structured in a way that enables reference and processing, and then the business intelligence is used to achieve detailed and impressive results. Depending on the means to collect evidence and information extraction, processing and utilization of timely business intelligence applications are the cornerstone of many organizations, in particular, have a lot of data, so that decision-makers today need for detailed and accurate information is provided by business intelligence structure, which enables them to use advanced tools for data analysis, business intelligence applications take great

importance as practical information technology helps the Organization to manage the intangible assets, which are information and knowledge of the most important elements (John, 2011).

THEORETICAL REVIEW

Technology, Organization and Environment Theory

In 1990, Tornatzky and Fleischer created the TOE system. It describes three aspects of the framework of an enterprise which affect the mechanism by which new advances is introduced and applied: technological context, organizational context, and environmental context.

(a) Technical background applies to both the company's domestic and foreign technologies. This includes existing procedures and equipment within the firm and also the set of technology available outside the company.

(b) The organizational context relates to operational descriptive indicators such as the reach, duration and management structure.

(c) The environmental framework is the arena where an organization controls its enterprise, business, rivals, and government relations (Tornatzky& Fleischer 1990).

Centered on previous research, there are long lists of possible primary causes that have taken place under these three viewpoints. Therefore, this study has chosen to highlight those suggested by previous studies that are relevant and specifically linked to the adoption of BI. In the light of the above claims, it will be necessary to have a clear understanding of the main factors to ensure the successful adoption of BI technology. However, it was not possible to understand all the potential variables that had an impact on the adoption of BI, and the choice of theoretical constructs in our model was decided through a large literature review.

This research therefore explores the impact of the different factors on the decision to follow BI. As shown in the research context in Figure 1, the following four (4) factors have been identified which are considered to be linked to the adoption of BI in organizations. These variables include: (1) Innovation in products; (2) Innovation in processes; (3) Innovation in marketing; and (4) Innovation in organizations. Under technical factors, product and process innovation is classified. We have Organizational Creativity focused on organizational variables. Ultimately, under environmental concern is Marketing Creativity. The company's best success appears to concentrate on innovation in goods and processes, and there is no easy winning strategy to complement various types of innovation (Ballot, Fakhfakha, Galia, & Salter, 2015).

Resource Based Theory (RBT)

The advocates of this view claim that, instead of looking at the competitive environment for it, companies should look within the business to find the sources

of competitive advantage. The resource-based theory (RBT) arose as a supplement to the competitive gain theory of Porter (Barney, 2012).The original theory of comparative advantages based on the capabilities created or gained by any company in order to execute the commodity market strategy was drafted by Wernerfelt (1984). The fundamental contribution of Wernerfelt (1984) acknowledged that the introduction of commodity business strategies by companies may have a strong impact on corporate basic resources and on the competition between organizations depending on their resources (Barney, 2012). Tools are all components that a company makes accessible to creative activities (Werner, 2014). The fact that workers require access to enough tools to be innovative has been verified. These tools may include adequate access to finances, materials, services, expertise, intelligence, time to develop new work in the field and access to training (Werner, 2014). There are still ample opportunities to address creative problems.It provides a new perspective of creativity to explore how capital can foster a competitive advantage with personalized methods for driving growth over time.

The key factors in shaping its strategy are the capabilities and skills of an entity; they are the main constants upon which an organization can define and develop its strategy and are the primary sources of viability for an organization (Barney, 2012). The key to an innovative approach focused on capital is to study the connections between skills, capacities, competitive advantages and sustainability and to consider the processes over the years to maintain competitive advantages. This includes the implementation of techniques that optimize the display of the specific features of the enterprise.

An organization's success depends on how much comparative edge it has in the competitiveness of the market in which the organization resides. In contrast with the break-even rival in the business, having a competitive edge does not always guarantee a higher or better result. The benefit associated with the competitive advantage is that its appropriateness depends on the product price with respect to the organization. An integral part of the approach of the enterprise is commodity pricing. However, the company is most affected by the competitive aura that surrounds it when choosing prices for its goods, particularly by the bargaining power of consumers, the current prices of rival business institutions, and the reactions predicted from rivals to the price chosen.

EMPIRICAL REVIEW

Sujitparapitaya et al. (2012) analyzed ten different variables in technical, environmental and organizational elements affecting the take up of IB in private as well as government institutions of higher learning in United States. Data was gathered from 243 Institute Senior Administrators of Research & IT Units in two years as well as four years via a survey process. Their findings suggest a major factor of IHE BI usage structure, entity capacity, absorption ability, firms credibility,

support of stakeholder & cost of perceived sophistication, and that, other elements like support for executive, strategic advantage as well as perceived advantage do not substantially affect adoption.

Malladi (2013) analyzed the components of Technology-organization-environment (TOE) relevant to the use of Business Intelligence & Analytics (BIA) in organizations. Data have been obtained by way of a survey process from 358 businesses all over North America. The findings revealed that perceived advantages of organization, the stage of BIA usage is related in a positive way to technology maturity with regards to organization sizes and data infrastructure. The findings also showed that BIA would possibly be more generally adopted by companies in knowledge-intensive industries, but the absence of industry standards hinders the adoption.

METHODOLOGY

For this study, survey research design was adopted because it is a formal and structural design that involves the collection of information from a sample of individuals. The primary data needed for this analysis were obtained using standardized questionnaires provided to the interviewees. The survey was also split into two sections: Section A and Section B. Section A included questions supplying the respondents with demographic statistics. Section B allowed respondents to answer questions related to the analysis at a 5-point Likert Scale. Likert Scale was used to allow the researcher to easily compare answers between individuals. The population was 570 workers of Tuyil, Ilorin, Kwara Pharmaceutical Industries Limited (527). The probability sampling method is used in this analysis. This offers an equal opportunity to be chosen by all aspects of the population.

The sample size technique used for this study was determined using Taro Yamane formula maintaining error at 5% to be 228. A total number of two hundred and twenty-eight (228) copies of questionnaires were administered on the staffs and all copies were accurately filled and returned by the respondents. Multiple Regression was used to test the formulated hypotheses for the study with the aid of Statistical Package for Social Sciences software.

Hypothesis Testing One

H_{O1} : Data warehousing does not affect process innovation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.699a	.489	.487	.71335
a. Predictors: (Constant), data warehousing				

Source: SPSS Printout, 2022

The model summary shows the extent of variance in process innovation (dependent variable) that is explained by data warehousing (independent variables). In the

model, data warehousing accounts for 48.9% of variation in process innovation. Other variables not included in the model account for the remaining 51.1%.

ANOVA [a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	110.057	1	110.057	216.278	.000b
	Residual	115.004	226	.509		
	Total	225.061	227			
a. Dependent Variable: Process Innovation						
b. Predictors: (Constant), Data Warehousing						

Source: SPSS Printout, 2022

The F value calculated indicates a significant relationship. The P-value of 0.000 in the ANOVA table above indicates that the variables under consideration are jointly significant. The regression sum of squares value is higher than the residual sum of squares value which implies that data warehousing (independent variable) to a large extent make up the variation in process innovation(dependent variable). Also, the alpha level of 0.05 is greater than the P-value of .000 we have in the table, thus the overall model is fit and the null hypothesis is rejected.

Coefficient a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	3.440	.222		15.526	.000
	Data warehousing	.505	.034	.699	14.706	.000
a. Dependent Variable: Process Innovation						

Source: SPSS Printout, 2022

The co-efficient table shows positive relationship between data warehousing and process innovation. According to the results, the P-value is 0.000 which is less than 0.05 (i.e P<0.05). This implies that these variables are statistically important at a 5 per cent significance level, i.e. there is a corresponding increase in process innovation for every unit increase in data warehousing.

Hypothesis Testing Two

H_{O2}: Real time has no relationship with marketing innovation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.798a	.637	.624	1.27066
a. Predictors: (Constant), Real Time				

Source: SPSS Printout, 2022

The model summary shows the extent of variance in marketing innovation (dependent variable) that is explained by real-time (independent variables). It shows that real time accounts for 63.7% of variation in marketing innovation. Other variables not included in the model account for the remaining 36.3%.

ANOVA a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	96.273	1	96.273	59.627	.000b
	Residual	364.897	226	1.615		
	Total	461.170	227			
Dependent Variable: Marketing Innovation Predictors: (Constant), Real Time						

Source: SPSS Printout, 2022

The F value calculated indicates a significant relationship. The P-value of 0.000 in the ANOVA table above indicates that the variables under consideration are jointly significant. The regression sum of squares value is higher than the residual sum of squares value which implies that the independent variable to a large extent accounts for the variation in the dependent variable. Also, the alpha level of 0.05 is greater than the P-value of .000 we have in the table, thus the overall model is fit and the null hypothesis is rejected.

Coefficient a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.682	.519		5.172	.000
	Real Time	.619	.080	.457	7.722	.000
Dependent Variable: Marketing Innovation.						

Source: SPSS Printout, 2022

The co-efficient table shows positive relationship between real-time and marketing innovation. According to the results, the P-value is 0.000 which is less than 0.05 (i.e P<0.05). This means that these variables are statistically significant at 5% significant level i.e for every unit increase in real-time, there is a corresponding increase in marketing innovation.

Hypothesis Testing Three

H_{O3}: Data sources have no significant impact on product innovation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.853a	.728	.727	.56010
a. Predictors: (Constant), Data Sources				

Source: SPSS Printout, 2022

The model summary shows the extent of variance in product innovation (dependent variable) is explained by data sources (independent variables). It shows that data sources account for 72.8% of variation in product innovation. Other variables not included in the model account for the remaining 27.2%.

ANOVA a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.307	1	40.307	50.535	.000b
	Residual	180.259	226	.798		
	Total	220.566	227			

a. Dependent Variable: Product Innovation
Predictors: (Constant), Data Sources

Source: SPSS Printout, 2022

The F value calculated indicates a significant relationship. The P-value of 0.000 in the ANOVA table above indicates that the variables under consideration are jointly significant. The regression sum of squares value is higher than the residual sum of squares value which implies that data sources (independent variable) to a large extent make up the variation in product innovation (dependent variable). Also, the alpha level of 0.05 is greater than the P-value of .000 we have in the table, thus the overall model is fit and the null hypothesis is rejected.

Coefficient a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.110	.398		7.812	.000
	Data Sources	.437	.061	.427	7.109	.000
Dependent Variable: Product Innovation.						

Source: SPSS Printout, 2022

The co-efficient table shows positive relationship between data sources and product innovation. According to the results, the P-value is 0.000 which is less than 0.05 (i.e P<0.05). This implies that these variables are statistically important at a 5 per cent significance level, i.e. there is a corresponding increase in product innovation for every unit increase in data source.

CONCLUSION

From the inferences of hypothesis one, this shows that data warehousing contributes in effectively coordinating data from one or more sources to another which leads to an improvement in the methods applied in process innovation which subsequently increases organizational productivity.

Moreover, from the findings of hypothesis two, market innovation and its relationship with real-time was examined as well. The market innovation strategy includes the development of new and established markets with some changes

and enhancements using the same existing expertise. In business innovation, the primary objective here is to explore new opportunities using new knowledge. This is up-to-the-minute where intelligence helps the company to make smarter choices and better understand their activities.

Furthermore, from the inferences of hypothesis three, The study examined the effect of data sources on product innovation and It has been established that both variables have an impact. Data sources are a series of fields that provide data for a business unit in a flat structure (the extracting structure) or in multiple flat structures for data transfer into business intelligence (for hierarchies).

Provision of data, flat structure and multiple structures all these are part of variables of product innovation, It helps the organization to get adequate and reliable data about a product to be innovated in the organization.

Overall, the study indicated that business intelligence significantly affect innovation at Tuyil Pharmaceutical Industries Limited, Ilorin, Kwara State.

RECOMMENDATIONS

The following recommendations are made in line with the findings of the study:

i. Organizations should create a warehouse for data, these data should be sourced from customers, market, and supplier that will assist the organization to be more innovative, because these data will assist the organization to come up with innovative ideas. This source policy should be made whereby when firms needs to make any innovative ideas they can easily go there and take it, these means they must have a standard library, data banks, that will be used to make innovative ideas.

ii. Organization should know how to how use of their time effectively in other to make smarter decisions and understand their operational activities better. Organizations should be able to minimize their time in order to be able to provide information when required.Companies' market innovation should ensure that their marketing strategy and production are in line with the market, demand, consumer-oriented and able to enhance their market orientation and acceptance in accordance with the vision and purpose of the company, thereby improving their performance, companies should be able to address market innovation on the basis of new approaches, with substantial changes in product development, packaging, positioning, and even in pricing at the appropriate time.

iii. Organizations can receive their information from a reliable source since this data source offers a framework that maintains the business application line, operational databases, historical data, or external data may be the data collected. Information from the current data warehouse may all be required for successful process advancement, may also reside on several different platforms, and may

include structured information, such as tables or spreadsheets, or unstructured information, such as plaintext files or images and other multimedia information. With deliberate efforts to incorporate it into business operations, product innovation that is powered by technology should be given sufficient attention because it is necessary to improve an organization's overall efficiency. In order to build a new market or to satisfy the existing market or consumer, product innovation should be introduced in the enterprise for the launch of new goods or services.

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POST PANDEMIC SHOPPING INTENTION IN RETAIL STORE: HOW DOES TRUST AND STORE ENVIRONMENT MODIFY THE IMPACT OF PERCEIVED VULNERABILITY AND FEARFULNESS?

Dr. Elangovan N*, Aparna S, Sundaravel E,

ABSTRACT

Buying behaviour of consumers has changed during and after the pandemic. During the lockdown, consumers moved to online shopping. Even post lockdown, buyers were fearful of shopping in the retail store due to possible infections. Retail store managers are concerned about increasing the footfall of customers. Trust on the retail store and the store atmospherics aligned to protect shoppers from getting infected can impact the intention to shop in the retail store. Data is collected from 410 residents of Bengaluru city during the post-pandemic time on their perceived vulnerability to disease and fearfulness in the retail store. The authors investigate if the trust in the retail store and the store environment can reduce the fearfulness and increase the stopping intention. The structural Equation Modelling (SEM) technique is used for data analysis. Convenience, Hygiene, Social Distance, Non-Contact, Atmospherics and Safety are identified as the store environment that can impact the shopping intention. Trust in the retail store had more impact on the shopping intention. This study helps retail managers focus on a pandemic related store environment and communicate the same in building trust among the customers.

Keywords: *Perceived vulnerability, fearfulness, trust, store environment, shopping intention, pandemic, retail stores*

INTRODUCTION

The pandemic has changed the way we do shopping. There is an increase in the online shopping. These changes are likely to remain after the pandemic (UNCTAD, 2020). The abrupt change has made the retail business to think about how to serve the customers effectively through the regular channels (Briedis, Kronschnabl, Rodriguez, & Ungerman, 2020). The Coronavirus is to stay with us as an endemic (Phillips, 2021). Even after returning to normal, shoppers have fear of crowd and become stressful when the crowd in the retail store increases. This reduces the excitement and shopping experience thereby reducing the customer purchase value (Sit, 2021). The fear of infection will affect the customers coming to the store or even spending more time in the store.

Retail managers had innovated many strategies to sustain their business after the stores were allowed to open. Customer safety and health was the priority of the

* School of Business and Management Christ University, Bengaluru, India. Email: elangovan.n@christuniversity.in

retailers(Pantano, Pizzi, Scarpi, & Dennis, 2020). Store opening time was changed to provide more time for customers to shop. Stores were opened very early in a day and were open late in the night. Store employees worked beyond the time the store was open for cleaning and sanitisation. Physical stores would take the order over the phone or online and allowed the customers to pick up from the curb ((“COVID-19: Impact & Next Steps for Retailers | Accenture,” n.d.). To avoid crowding inside the store, entry of customers was phased. Pre-booking and tokenised system were introduced to reduce the waiting time of the shoppers. Rationing of purchases was done to limit the panic buying. Temperature scanning was done at the entry. Hand sanitisers were provided not only at the entry but at different locations within the store. Signages for regulating the queues, cautions and instructions of safety were displayed. Store space was increased and the layout was modified to allow more room for social distance. Air conditioning systems were not operated due to the fear of virus spread in a closed environment. Natural ventilation and adequate lighting were created. Customers were more concerned about the cleanliness.

The interaction between retail store and customer depends on the exchange of trust. Customer’s engagement, satisfaction and continued buying intention are all depends on the trust. During the pandemic the role of trust had a multitude effect. The confidence in the capacity of the retail store to provide hygiene and safe environment for shopping was the major trust factor. It is the credibility trust that reflects the stores’ ability and competence to provide a reliable service. Trust reduces the perceived risk of shopping in the retail store during the pandemic situation (van Tonder & Johannes Petzer, 2018). For the store, building customer trust is an important requirement because customer emotions can provide huge payoffs (Magids, Zorfas, & Leemon, 2015).

The authors approach this research with the question if the store environment and trust reduce the fearfulness of customer and enhance the shopping intention. A conceptual model is developed from the literature and is validated from the data collected from the urban consumers who regularly shop in physical stores. Using structural equation modelling technique (SEM) an attempt is made to find if store environment and trust mediates the effect of fearfulness on shopping intention.The research is worth doing because, at this point of time as we know that most ofthe retail businesses are trying to revive back into their pre covid performances. Thus, at this point of time, it is of atmost importance to know how a customer feels after the pandemic to get back to astore. Hence this study would be helpful to all the high contact service or productcompanies so that they are wellprepared.

REVIEW OF LITERATURE

Covid-19 is an infectious disease that spread easily. This has caused many behavioural changes in individuals. The fear created by COVID- 19 gave people

a sense of cautiousness and sensitivity to touch. The way of life has been changed with the adaptations of precautions. This is a serious issue not only for customers but also for retail store workers(Mertens, Gerritsen, Duijndam, Salemink, & Engelhard, 2020).The reaction is triggered by the perceived vulnerability to disease. Duncan et al., (2009)developed a measure to assess the chronic concerns about the transmission of infectious diseases. Perceived vulnerability to disease has impacted the behavioural pattern of the retail consumers. Crowding in the retail store and the characteristics of the store environment creates a distress due to the perceived vulnerability to disease(Eroglu, Machleit, & Neybert, 2022).

Perceived threat of Covid-19 has led to change in the purchasing behaviour. There is an increase in the quantity per purchases. The frequency of the purchase has also come down. This change is high for people with high perceived vulnerability to disease than people with lower perception. Also consumers with high perceived vulnerability bought more of hygiene products like toilet paper, soap, and disinfectants and non-perishable food items such as pasta/rice and canned food items(Schmidt, Benke, & Pané-Farre, 2021). Studies found that the protection motivation theory that included perceived vulnerability influenced hope and fear, thus mediating the behavioural intention of the consumers (Kim, Yang, Min, & White, 2021).

Sathish, Venkatesh & Manivannan (2021) quoted psychological reactance theory in the context of purchase behaviour during pandemic. The restrictions in retail stores avert the freedom of performance of the consumer and that leads to fear. This fear is the reason for the change in the purchase patterns. Addo, Jiaming, Kulbo and Liangqiang(2020) noted that research on fear appeal was neglected for some time. Covid-19 has brought back the focus on the fear appeal. The fear appeal has two segments; adaptive behaviour that avoids danger and response behaviour due to the risks. Eger, Komárková, Egerová, & Mičík(2021) demonstrated that fear appeal including fear for health is related to the customer behavioural change in both traditional and online shopping. The study examined the fear level among the different generations. The study found difference in the products most sought after and the frequency of purchase due to fear among the different generations. Fear is found to have interplay with confidence, trust and loyalty. Fear can modify the consumer trust on the retail store. Similarly trust can mitigate the impact of fear on the shopping intention (Addo et al., 2020)

The COVID-19 epidemic has been one of the most disruptive catastrophes in recent decades, affecting society and the economy on a worldwide scale. Unprecedented incidents have made individuals aware that they must be prepared for everything that may occur in the future. COVID-19's political laws also resulted in considerable changes in daily grocery shopping buying (Brandtner & et al., 2021). The COVID-19 has influenced the customer trust on the retail stores. Trust in retail stores is very much crucial for keeping the regular customers. A store's operational

competence is favourably related to department store trust. Even salesperson's functional competence is positively connected with customer trust (Sun & Lin, 2010). Customers choose retail stores where they feel good to be trusted and get value for their money. It takes a lot for a person to trust another in the crisis situation. Interpersonal touch is the most effective communication and building trust. (Orth & et al., 2013) But in today's context, especially with COVID cases, beliefs, culture, and most importantly, health is vital in choosing grounds. The extent to which trust is built can be different and limited in this context.

Sneader& Sternfels (2020), in their report on reimaging the post covid-19 return suggested that customer experience and safety will have an impact on the recovery. Store environment is a major element in influencing the customer engagement in a retail store. Store atmospherics stimulate the conative, affective and cognitive factors and create positive experience to the shoppers. Store atmospherics include, light, odour, music, ventilation, colour, store layout, display of merchandise etc. Store atmospherics impact the stores profitability by increasing the time spent by the customer inside the store and creating buying intentions(Chate & Bharamanaikar, 2019; Elmashhara & Soares, 2022). Social presence has been a factor of shopping experience. Crowd has both positive and negative affect on the shopping experience (Rosenbaum, Ramirez, El-Manstrly, & Sit, 2021). All traditional retail stores are practicing different methods to avoid very close human contacts. By following pre-determined precautions, the retails stores guarantee safety for their customers. They also have competition from online stores which provide people more trust and assurance in purchasing contactless. Furthermore, the online–offline battle cannot be concealed. Over the last decade, online retailers' promotional efforts, such as price discounts and free shipping, have significantly increased their competitiveness relative to traditional offline retailers (Grewal, Levy, & Kumar, 2009).Due to the

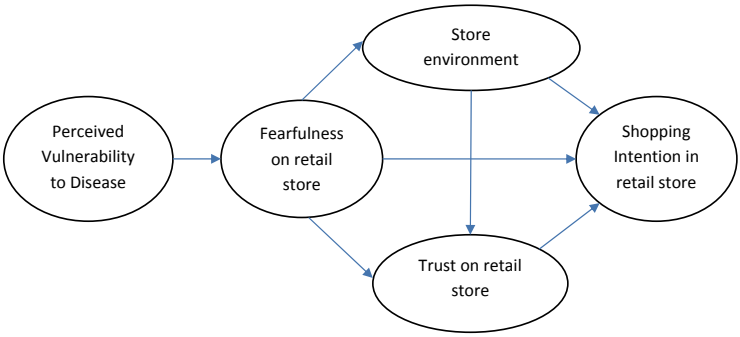

Figure 1. Conceptual model

pandemic, crowd control and social distancing, hygiene, spacious layouts, non-contact operations etc. got prominence in the store environment (Eroglu et al., 2022).

From the literature it is conceptualized that fearfulness will have an impact on the shopping intention in the retail store due to the perceived vulnerability to disease. Retail store managers need to ensure safety and hygiene in the store that will lead to trust on the retail store. It is proposed that store environment and trust will mediate the effect of fearfulness on shopping intention. The two factors will absorb and reduce the direct effect of fearfulness. The conceptual model is shown in the figure 1.

METHODOLOGY

A quantitative approach is carried out to test a priori conceptual model developed from the literature review. The measurement is done using standard scales as described in table 1. Items were adapted and modified to the context of pandemics and validated by the experts. A few items were added, removed and modified as per the suggestions of the experts. The validated scales are designed into a survey questionnaire and piloted with 50 potential respondents. The instrument was checked for the clarity and time taken to complete the response. The final instrument is distributed to the residence of Bengaluru city. The respondents are picked using convenience sampling from the residential apartments covering central, east, west, south, and north Bengaluru. After removing incomplete responses, 410 valid cases are finalised for analysis. The responses are coded and digitised in the IBM SPSS software, and the SEM analysis is performed in the IBM AMOS software. An exploratory factor analysis using principal component analysis was done to identify the factors of the store environment. Reliability is tested using Cronbach alpha. Validity is checked using AVE values. Mediation analysis was done to test the intervening effect of the store environment and trust in retail stores between fearfulness on retail stores and shopping intention in retail stores. The goodness of fit values is assessed for validating the model.

Table 1 Measurement scales

Scale	Items	measure	Source
Perceived Vulnerability to Disease	15	5-point Likert Scale	(Duncan *et al.,* 2009)
Fearfulness	4	5 Point Threat scale	(Duhachek, 2005)
Shopping intention	6	5-point Likert Scale	(Zielke, 2010)
Trust	6	5-point Likert Scale	(Schlosser, White, & Lloyd, 2006) (Okazaki, Li, & Hirose, 2009)
Store environment	24	5-point Likert Scale	(Sharma, Mohan, & Sivakumaran, 2012) Additional items included reflecting pandemic context

RESULTS

Descriptive statistics of the demographic variables revealed the characteristics of the respondents (Table 2). The results show that more women had responded to the survey (54.6% women and 45.4 % men). The majority of the respondents (40%) are from the age group of 25 to 34 years. Another 33.7% of respondents are in the age group of 18 to 24 years. Most respondents are either having a bachelor's degree or a master's degree. Most respondents have an income of less than 10 lakhs annually and are almost equally distributed under the less than 5 lakh and 2.5 lakh levels. Maximum of respondents (43.4%) made shopping every two weeks, and 39.5% shopped once a week.

Table 2. Demography

Frequency of visit	**N**	**%**		**Age**	**N**	**%**
More than once a week	36	8.8		18 to 24 years	138	33.7
Once a week	162	39.5		25 to 34 years	164	40.0
Once every two weeks	178	43.4		35 to 44 years	62	15.1
Once a month	34	8.3		45 to 54 years	32	7.8
Total	410	100.0		Above 55	14	3.4
				Total	410	100.0
Income group	**N**	**%**		**Education**	**N**	**%**
Less than 2.5 lakh annually	108	26.4		Up to schooling	50	12.2
2.5 lakh - 5 lakh annually	126	30.7		Bachelor's degree	196	47.8
5 lakhs - 10 lakhs annually	120	29.3		Master degree	150	36.6
Above 10 lakhs	56	13.7		Others	14	3.4
Total	410	100.0		Total	410	100.0
Gender	**N**	**%**				
Male	186	45.4				
Female	224	54.6				
Total	410	100.0				

An exploratory factor analysis using PCA with varimax rotation had a KMO (0.766) and Bartlett's Test of Sphericity (Sig <0.000), supporting good sample adequacy and a correlation matrix that can produce distinctive components. As many as six components were produced. We label them as Convenience (var = 14.277), hygiene (var=12.546), non-Contact (var=11.202), Social distance (var=10.132), atmospherics (var=7.839) and safety (var=7.683). The six components together explained a total variance of store environment to the extent of 63.679 % (Table 3).

Table 3 Factor analysis of Store environment

Factor	Items	Extraction	Rotated loading
Convenience Eigen = 3.426 Var = 14.277	Chit based /shopping list-based buying	0.752	0.858
	Dedicated shopping hours are provided for different categories of shoppers	0.642	0.779
	Store is open for longer hours for the opportunity to shop	0.661	0.756
	Home delivery options are easy to avail	0.542	0.708
	Turn for shopping is practised.	0.543	0.692
Hygiene Eigen = 3.011 Var = 12.546	Sanitiser is provided at the entrance and other places	0.708	0.818
	The restrooms are neat	0.688	0.806
	Temperature is being checked at the entrance	0.663	0.791
	Hand wash facility available	0.608	0.723
	The store is being disinfected frequently	0.506	0.654
Non-Contact Eigen = 2.689 Var = 11.202	Salespeople behave responsibly, avoiding contact with customers	0.775	0.865
	Customers are not allowed to touch products unnecessarily	0.626	0.769
	Digital payment and non-contact payment is available	0.624	0.754
	Technology at POS allows non-contact	0.574	0.700
Social distance Eigen = 2.432 Var = 10.132	Sales persons are concerned about customer's distance	0.607	0.770
	The store layout helps in social distance	0.663	0.768
	The checkout allows social distance	0.716	0.698
	The store takes the initiative to control the crowd by keeping the phase of entry	0.662	0.615
Atmospherics Eigen = 1.881 Var = 7.839	There is good lighting at all the places	0.781	0.867
	The store maintains a good temperature	0.738	0.798
	The store is properly ventilated	0.436	0.524
Safety Eigen = 1.844 Var = 7.683	There are proper signage & instructions for safety	0.772	0.867
	Shopping discipline is maintained by the store employees	0.627	0.762
	There is provision for complaining about the possible infectious situation	0.369	0.585
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.766	
Bartlett's Test of Sphericity Approx. Chi-Square		4002.920 (276)	Sig = 0.000

Table 4 presents the reliability and discriminant validity of the constructs. Except for Atmospherics (0.672) and Safety (0.635), the Cronbach alpha value of all the other constructs is above 0.7, showing good reliability. According to >>>>, we may still consider the two constructs with caution. The AVE value of all the constructs is above 0.5, indicating good discriminant validity. The mean value of Fearfulness (3.54), Germ Aversion (3.91), Convenience (3.11), hygiene (3.09), social distance (3.52) and Atmospherics (3.37) were all above the mid-value on a scale of five. This indicates a higher fearfulness and germ aversion and a better store arrangement in terms of Convenience, hygiene, social distance and Atmospherics. Shopping

intention (1.94), Safety (1.53) and Trust (1.78) are very low. Perceived infection (2.82) and non-contact (2.93) were moderate.

Table 4 Descriptive /reliability and Discriminant validity

	Items	Mean	Variance	Cronbach Alpha	CR	AVE
Fearfulness	4	3.54	0.178	0.910	0.919	0.741
Shopping Intention	6	1.94	0.036	0.897	0.899	0.602
Perceived Infection	7	2.82	0.087	0.920	0.921	0.628
Germ Aversion	8	3.91	0.073	0.880	0.893	0.520
Convenience	5	3.11	0.069	0.840	0.843	0.520
Hygiene	5	3.09	0.126	0.822	0.825	0.589
Social Distance	4	3.52	0.073	0.787	0.792	0.597
Non-Contact	4	2.93	0.048	0.797	0.814	0.526
Atmospherics	3	3.37	0.031	0.672	0.705	0.570
Safety	3	1.53	0.005	0.635	0.666	0.516
Trust	6	1.78	0.005	0.817	0.814	0.525

A structural model was developed in the IBM AMOS as per the conceptual model in the literature review section. The results of the SEM analysis are presented in Fig 2 and Tables 5 to 7. Germ Aversion (B = 0.395, P=0.005) and Perceived infection (0.809, P < 0.000) indicated the perceived vulnerability better. The six dimensions, atmospherics (0.440), non-contact (0.519), safety (0.249), social distance (0.807), hygiene (0.244) and convenience (0.646) reflected the store element better. The perceived vulnerability had a positive influence on fearfulness (0.522). Fearfulness had a negative influence on Store elements (-0.250), trust (-0.665) and shopping intention (-0.296). Trust positively influences shopping intention (0.159). Similarly, the Store environment has a positive influence on shopping intention (0.579).

Table 5 Path Model coefficients

			Estimate	C.R.	P	Std. Estimate
Fearfulness	<---	Perceived Vulnerability	0.759	4.119	0.000	0.524
Store environment	<---	Fearfulness	-0.257	-3.239	0.001	-0.252
Trust	<---	Fearfulness	-0.435	-10.538	0.000	-0.632
Trust	<---	Store environment	0.387	2.088	0.037	0.037
Perceived Infection	<---	Perceived Vulnerability	0.549	3.982	0.000	0.398
Germ Aversion	<---	Perceived Vulnerability	1			0.805
Shopping Intention	<---	Fearfulness	-0.202	-5.758	0.000	-0.302
Shopping Intention	<---	Store environment	0.420	2.807	0.005	0.142
Shopping Intention	<---	Trust	0.552	8.302	0.000	0.568
Atmospherics	<---	Store environment	1			0.434

			Estimate	C.R.	P	Std. Estimate
Non-Contact	<---	Store environment	2.019	4.33	0.000	0.515
Safety	<---	Store environment	1.169	3.289	0.001	0.277
Social Distance	<---	Store environment	3.987	4.563	0.000	0.801
Hygiene	<---	Store environment	-1.375	-3.133	0.002	-0.254
Convenience	<---	Store environment	2.604	4.484	0.000	0.646

The model fitness values are presented in Table 6. CMIN/df = 4.401 is found to be more than 2 but less than 5. Based on the threshold limits of Hu and Bentler (1999) we can consider the model to be fit.

Table 6 Model Fit

Model fit indices	Model Parameter	Threshold (Hu and Bentler 1999).
CMIN	6226.325	
Df	1415	
CMIN/DF	4.4	< 3 good; < 5 sometimes permissible
p-value	0	>0.05
GFI	0.957	> 0.95
AGFI	0.927	> 0.80
PGFI	0.904	
TLI	0.908	
CFI	0.917	> 0.95 great; >0.90 traditional; > 0.80 Sometimes permissible
PNFI	0.904	
RMR	0.076	< 0.05 good; 0.05 – 0.10 moderate; > 0.10 bad
RMSEA	0.071	< 0.05 good; 0.05 – 0.10 moderate; > 0.10 bad
PCLOSE	0	> 0.05

To test the mediation effect of the store element and the trust between Fearfulness and shopping intention, we calculate the direct, indirect and total effects. First, we check the zero-order impact of Fearfulness on shopping intention without the presence of other variables. Fearfulness negatively impacts shopping intention (B=-0.476, P=0.000) when no other variables are present. However, when the store environmentintervenes the fearfulness and shopping intention, the direct effect is reduced to B = -0.360, and an indirect effect of B= -0.118 is found. Similarly, trust mediates the fearfulness on shopping intention where the direct effect becomes B = -0.208, and an indirect effect of B = -0.262 is found. When the Store element and trust act together as a mediator, the direct effect becomes B= -0.196, and an indirect effect of B= -0.283 is found. We can conclude that Trust and store element intervene the effect of fearfulness on shopping intention and reduce the direct effect.

However, comparing the effect of trust and store environment, trust has more effect than store element.

Table 7 Direct Indirect results

IV	MV	DV	Direct Effect	Indirect Effect	Total Effect
Fearfulness		Shopping Intention	-0.478 (0.000)		
Fearfulness	Store environment	Shopping Intention	-0.360 (0.000)	-0.118 (0.001)	-0.478 (0.000)
Fearfulness	Trust	Shopping Intention	-0.208 (0.001)	-0.262 (0.000)	-0.470 (0.000)
Fearfulness	1) Store environment 2) Trust	Shopping Intention	-0.196 (0.045)	-0.283 (0.004)	-0.479 (0.004)
Fearfulness	Store environment	Trust	-0.435 (0.003)	-0.022 (0.000)	-0.456 (0.000)
Store environment	Trust	Shopping Intention	0.213 (0.028)	0.42 (0.032)	0.633 (0.000)

DISCUSSION

The Covid-19 pandemic rather than a health crisis has impacted life in many ways. It has affected individuals, families, businesses, government and even the environment. Personality and psychological factors have been found to impact the shopping intention of the customers. Psychological factors had a different impact on the necessities and non-necessities (Di Crosta et al., 2021).Retail store providing the necessities of people has seen huge impact initially due to closure and further on opening due to low footfalls. Fear of infection is the main reason for lack of shopping intention. This study found that germ aversion is high with the respondents. However, their perception of infection was lower. This shows that though people were averse towards germs, the risk avoidance and awareness had created a confidence that they are well protected and will not get infected. However, they have fear to shop in a retail store due to crowded environment inside the store. They feel that even if they are taking precautions, others may not follow the social distancing. Perceived vulnerability is found to impact the fearfulness.

Shopping intention was found to be lower among the respondents and the findings reveal that the fearfulness impacts the shopping intention. This may be the reason people deliberately continued with the online shopping to avoid the sudden crowd in the retail stores. All ecommerce stores had created portfolio of essential products such as groceries, fruits and vegetables. Delivery time was also shortened to encourage shopping online. Moreover, there was a little restriction on delivery of essential products than the non-essential products. Retail stores innovated many strategies to attract customers to the store with sanitising tunnel, extended timing, token system, redesigned layout with more space for social distancing, non-

contact services etc(Shumsky & Debo, 2020). This study shows that people had well perceived the store environment with the covid protocols. Customers felt that better convenience was created, and social distances were practiced. There was an improvement in the store atmospherics like ventilation. Customers felt that hygiene was moderate. However, non-contact or safety were poorly perceived. Billing and handling were the same. Except for digital payments options, there was no self-checkout systems. Customers were also not sure about the peoples contact to the products and is not practical to sanitise the food products every time. Respondents felt less safety when store employees failed to address the ignorant customers or heard any such complaints because that will affect their business. Store employees are like powerless enforcer and cannot manage the customers. They get abused physically and verbally for requesting customers to have social distance (Elnahla & Neilson, 2021). This study found that the mediating effect of store environment between fearfulness and shopping intention was low. Perception towards enhanced store convenience and atmospherics fails to enhance the shopping intention. The role of trust in such a situation is highlighted by the study findings. Trust is found to mediate the fearfulness and shopping intention. Trust reduces the effect of fearfulness. This shows that along with creating a pandemic related store environment, the same has to be communicated to build the trust among the customers. Trust provides a reassurance of the safety of the customers during shopping (Untaru & Han, 2021). Pantano et al (2020) recommend that communication is important and should include availability of products and any limitations in quantity, protective measures to consumers and employees, contribution to public health and the measures to limit the spread of disease. This will create a renewed trust on the retailer that can continue even after the normalcy returns.

The implications of the study inform the retail store managers that Coronavirus will remain and there is a need to continue with the protocols in the retail store. Fear of getting infected will be a major factor impacting the shopping intention or the time spent in side the store. Store environment has to continue focusing on the safety of the customers. Moreover, the customers need to be communicated about the Covid appropriate services and create a trust among the customers. Building trust is a overarching activity that will retain the customer loyalty. Even if the store can provide the best services, the same gets translated into action only when the trust mediates. The outcomes of the study contribute to the post pandemic literature and new normal that the retail stores need to practice.

CONCLUSION

Expecting the unexpected situations to come our way might change our procedures and normalities. During the normal situations, where there was no threat to human lives, the store always thought of ways to increase the footfall land satisfy the

customers, but now during the pandemic and post pandemic it is found that the customers and store are taking a lot of extra steps to satisfy the customers and make them feel safe. When a customer feels safe with the actions that a store portrays, it is often noticed that the customer feels that they have been given the highest priority and the sense of belongingness is generated. This makes them feel trusted and also the feeling of fear towards a disease is reduced and hence as a result the shopping intentions are increased. Hence this research is tried to study the important factors that impact the shopping intentions during and post pandemic situation. Thus, future research scope can be giving rise to new normal store atmosphere, and the new methodologies to improve the shopping intention and loyalty in a store. This study is applicable to business in the retail sector including small kirana shops to an extent, supermarkets, hypermarkets, consumer durable appliances.Since this study also deals with the customer feelings and behaviour, the same can be extended to other areas where customers appear as a crowd, for example theatre, malls etc.

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DETERMINING CO-EFFICIENT OF SUCCESSES AND ANNALS FOR BLOCKCHAIN RESEARCH AND DEVELOPMENT PROJECTS IN SOUTH ASIA

Dr. Ravindhar Vadapalli*

ABSTRACT

Lack of industry consensus on financials' of Blockchain Research and Development Projects and Lack of proper financial appraisal and in ability of the industry experts in determining co-efficient of successesfor Blockchain Research and Development Projects as to what constitutes a blockchain solution and overzealous attempts to apply the technology is creating blockchain fatigue. The model developed in this research article is an attempt to develop of simple method for BLOCKCHAIN R&D projects' evolution. It is basically based on relative chance of success of specific project vis-a-vis an alternative project which may be available. If an estimate of this probability can be made fairly accurately, it can be believed that this model of an adjusted NPV would be a useful model which can be adopted by the BLOCKCHAIN R&D Managers and Funds allocators.

Keywords: *Blockchain R&D, Alternative Project, Co-efficient of Successes; NPV JEL Classification: G30 General; G31 Capital Budgeting; Fixed Investment and Inventory Studies; Capacity; C9 Design of Experiments*

INTRODUCTION

In almost all developed and developing countries the current and near-future (Not exceeding 5 years) state of economy plays an important role in formulating and evaluating investment projects, although of course, the mix of economy growth and economy recession related cyclical investments varies from one country to another. For a private commercial entrepreneur project choice is a rather simple exercise, but the appraisal of Block chain Research and Development (R&D) Projects are very difficult because of uncertainty of its results. The cost-benefit analysis of BLOCKCHAIN R&D project is too complicated at the "ex-ante" stage, whereas the evolution of the project(ex post) is easy after completion of the project.

The author has examined the economic appraisal of BLOCKCHAIN R&D project and reached the conclusions that the wastage of financial resources under slow economic growth can be avoided if the economic appraisal (ex- ante) of various Blockchain projects is successfully done at the initial stage. For this purpose, the author developed a useful model-Adjusted NPV methods for economic appraisal of BLOCKCHAIN R&D projects.

* Professor of Blockchain, Analytics & Finance
Mittal School of Business, Lovely Professional University, Punjab

BLOCKCHAIN R&D PROJECTS

The BLOCKCHAIN R&D projects, like all other commercial Information Technology projects, involve commitment of resources and if the BLOCKCHAIN R&D projects are recklessly undertaken, it will cause a big drain of resources without any correspondence benefits, either to the society or to the organization concerned. It is, therefore, essential to develop a methodology which can help us in taking decision, whether particular project should be undertaken or not.

For the commercial and information technology project Net Present Value(NPV) is considered to be most ideal and objective method to decide on the future of a project. The questions are whether this method should be used for appraising and BLOCKCHAIN R&D project or not. This method can be useful, subject to some adjustment, for BLOCKCHAIN R&D project also.

Although NPV is a useful criterion yet it needs some adjustment for the purpose of BLOCKCHAIN R&D projects, on account of great uncertainties involved. Although, normal commercial and industrial projects also carry risks and uncertainties with them, but these uncertainties can be easily tackled by the statistical method of probability distribution which can be incorporated in the NPV methods.

UNCERTAINTIES WITH BLOCKCHAIN R&D PROJECT

The nature and the type of uncertainties associated with BLOCKCHAIN R&D project are, however, different from that of any commercial project. The success of BLOCKCHAIN R&D project mainly consists of two elements (i) Technical Success, and (ii) Commercial Success. The uncertainties with respect to any of these two elements can make or mar an BLOCKCHAIN R&D project. If any of them fails, the project is called an unsuccessful project. The problem of uncertainties equally affects these two factors.

MODEL DEVELOPED - DETERMINING CO-EFFICIENT OF SUCCESSES

As I have stated earlier that an NPV method is useful for BLOCKCHAIN R&D project also subject to some adjustments, this adjustment should be done for the two above mentioned success. The author propose that these respective successes, be presented in the form of co- efficient of successes and may be presented as symbols Alpha(ὰ)and beta(β)- where ὰ stands for co-efficient of technical success and β stands for co-efficient of commercial success on the specific project. The adjusted NPV would, then, be:

Adjusted NPV=PV of inflows x ὰ x β-PV of outflows

The value of alpha and beta can be shown as:

$$\grave{\alpha} = \frac{\text{Probability of Technical Success of the specific project}}{\text{Probability of Technical Success of alternative project}}$$

$$B = \frac{\text{Probability of commercial Success of the specific project}}{\text{Probability of Commercial Success of alternative project}}$$

This model is a method to incorporate both technical and commercial uncertainties and is based on time tested NPV method. This model can be illustrated as follows:

A case study of BLOCKCHAIN R&D project which has been developed as a drug where the scientist had proposed to work on the BLOCKCHAIN R&D project, believed 0.8 probability of developing the desired drug within the given time and resources, while if, the same resources Ire devoted on similar alternative projects, the probability to be considered 0.6 only. The probability of commercial success of alternative drug project is 0.4 only. The present value of inflow is estimated to be USD.199.932 Millions : Table- 2 (based on certainty of cash flows) while the present value of outflows was 52.832 Million - Table 1.

Table 1 Project-1: Adjustmnet Factor of NPV

Sr.No.	Year	Expenditure in Millions of USD	Discount Factor (10%)	Discount Value (NPV)
1.	1992-93	0.3.000	0.909	2.727
2.	1993-94	0.3.300	0.826	2.726
3.	1994-95	03.800	0.751	2.854
4.	1995-96	0.4.100	0.683	2.800
5.	1996-97	0.4.500	0.621	2.795
6.	1997-98	04.750	0.561	2.679
7.	1998-99	05.00	0.513	2.565
8.	1999-00	05.250	0.467	2.452
9.	2000-01	05.500	0.424	2.332
10.	2001-02	06.000	0.386	2.316
11.	2002-03	06.250	0.350	2.188
12.	2003-04	06.500	0.319	2.074
13.	2004-05	07.000	0.290	2.030
14.	2005-06	07.250	0.263	1.907
15.	2006-07	07.500	0.239	1.793
16.	2007-08	08.000	0.218	1.744
17.	2008-09	08.500	0.198	1.683
18.	2009-10	08.800	0.180	1.584

Sr.No.	Year	Expenditure in Millions of USD	Discount Factor (10%)	Discount Value (NPV)
19.	2010-11	09.000	0.164	1.490
20.	2011-12	10.000	0.149	1.490
21.	2012-13	11.250	0.135	1.519
22.	2013-14	12.000	0.123	1.476
23.	2014-15	13.500	1.12	1.512
24.	2015-16	14.000	0.102	1.428
25.	2016-17	15.000	0.092	1.380
26.	2017-18	15.500	0.084	1.30
205.250	52.832			
Source: Blockchainprep FZE LLC: " Economic Appraisal of BLOCKCHAIN R&D PROJECTS" Blockchain Whitepaper December,2018,pp 339.				

Table 2 Cash flows - 2015-18 (Fees/Royalties Realized from Different Industries)

S.No.	Year	Present Value Factor (10%)	Fees / Royalties USD Millions	Present Value (3x4)
1	2	3	4	5
1.	2015-16	0.909	42,50,00	38,63,252
2.	2016-17	0.826	81,62,865	67,42,256
3.	2017-18	0.751	125,00,00	93,87,500
		Grand Total =	249,12,865	1,88,93,278
Source: Blockchainprep FZE LLC: "Economic Appraisal of BLOCKCHAIN R&D PROJECTS" Blockchain Whitepaper December, 2018, pp 339.				

In this situation and value of ὰ would be as

$$\frac{0.8}{0.6} = 1.33$$

Whereas the value of β would be

$$\frac{0.6}{0.4} = 1.5$$

The adjusted NPV would then be:

Adjusted NPV= 199,932X1.33X1.5-USD.52.832=USD.364.003 lakh

In this case, the cash inflow is more than that of cash outflow whereas the present value of inflow has become to be USD.199.932 lakh and outflow was USD.52832 Million only. In this way it can be concluded that the economic appraisal of this project has been done properly.

Hence, the adjusted NPV has also become positive i.e. USD.346.003

In the second example- where the probability of technical success of specific project is 0.6 only and the probability of alternative project is 0.8. The probability of commercial success of specific project to be developed is estimated 0.6 only and the probability of commercial success of alternative project is 0.5 only. The present value of inflows is USD.8,60,308- Table-4 (based on certainty of cash flows) while the present value of cash outflows is USD.29,149,00-Table-3.

Table: 3 Project-2 : Analysis of Expenditure on Project (2006-07 to 2015-16)

Sr.No. (USD)	Year	Expenditure	Discount Factor (10%)	Discounted Value (NPV)
1.	2006-07	03.000	0.909	2.727
2.	2007-08	0.2.250	0.826	2.685
3.	2008-09	04.000	0.751	3.004
4.	2009-10	04.000	0.683	2.732
5.	2010-11	04.000	0.683	2.732
6.	2011-12	06.000	0.621	3.105
7.	2012-13	06.000	0.564	3.384
8.	2013-14	06.000	0.513	3.078
9.	2014-15	06.000	0.467	2.802
10.	2015-16	08.000	0.386	3.088
	10 Yrs	29,149		
Source: Blockchainprep FZE LLC : " Economic Appraisal of BLOCKCHAIN R&D PROJECTS" Blockchain Whitepaper December,2018,pp 339.				

Table: 4 Cash flows (2011-12 to 2017-18) Fees/Royalties Realized from Different Industries

Sr No.	Year	Present Value Factor (10%)	Fees / Royalties USD	Present value (3x4)
1	2011-12	0.909	94.688	86.071
2	2012-13	0.826	1,18,874	98,190
3	2013-14	0.751	1,25,683	94,388
4	2014-15	0.683	1,21,151	82,748
5	2015-16	0.621	1,14,194	70,915
6	2016-17	0.564	75,185	42,404
7	2017-18	0.513	7,51,641	3,85,592
		Grand Total =	2,49,12,865	1,88,93,278
Source: Blockchainprep FZE LLC: "Economic Appraisal of BLOCKCHAIN R&D PROJECTS" Blockchain Whitepaper December, 2018,pp 339.				

In this situation, the value of ὰ would be

$$\frac{0.6}{0.8} = 0.75$$

Whereas the value of β would be

$$\frac{0.6}{0.5} = 1.20$$

Therefore, adjusted NPV would, then be:

= USD.8,60,308x0.75x1.20-USD.29,14,900=-21406

But in this case, the cash inflow is less than that of the cash outflow- whereas the present value of the cash inflow has become to be USD.8.603 lakh and outflow has been USD.29,149 lakh which shows that the economic appraisal of the project has not been done properly.

Thus, and adjusted NPV has been as negative i.e. USD.21.406 lakh.

In the third example, the probability of technical success of specific is estimated 0.6 and the probability of alternative project is 0.5 only. The probability of commercial success of specific project is 0.5 only, and the probability of commercial success of alternative project is 0.8 only. The present value of cash inflow is USD.2,00,000/- (based on certainty cash flow), while the present value of cash outflows is USD.1,00,000/-

In this case the value of alpha would be as

$$\frac{0.6}{0.5} = 1.20$$

Whereas the value of beta would be as

$$\frac{0.5}{0.8} = 0.625$$

Therefore, adjusted NPV would, then, be :

= USD.2,00,000x1.2x 0.625-USD.1,00,000=50,000

In these three cases, it is found that adjusted NPVs have become different. In the case of first and third, the adjusted NPV have become positive whereas the case second it has negative result i.e. -21.406 which indicates that if the second project had been rejected at the earlier stage, then the wastages of resources would have been saved. The difference of adjusted NPV are due to differences of probabilities of specific project and of alternative projects.

In the first case, the alpha co-efficient is 1.33 because of the probability of specific project is 0.8 which is more than the probability of success of alternative project that is 0.6 only.

For β the probability of commercial success of specific project and probability of alternative project are 0.6 and 0.4 respectively. In this situation, the value of probability of commercial success of specific project is more than that of alternative project, and hence the value of β as 1.5. Thus the co-efficient of ὰ and β have become more than1, which show the positive results. The adjusted NPV becomes USD.346.003 lakh.

In the second case, the adjusted NPV has been found as USD.21.406 lakh shows the negative results. In this case, the probability of technical success of specific project is 0.6 only and probability of alternative projects is 0.8 which is more than that the of specific project. Thus, the co-efficient of ὰ has become 0.75 which is less than 1.

For β the probability of commercial success of specific project is 0.6 and the probability of alternative project is 0.6 and the probability of alternative project of 0.5 only. Thus the co-efficient of β has become 1.2 which is more than 1.

Here the co-efficient of beta is more than that of alpha. The adjusted NPV, THERFORE, HAS BECOME ONLY- USD.21406 which is lower than that of the first and the second cases.

In third case, the author found that the adjusted NPV USD.50,000. In this case, the co-efficient of alpha is 1.2 and the co-efficient of beta is 0.625. Thus, the adjusted values of NPV for this BLOCKCHAIN R&D project is estimated to be USD.50,000 only

CONCLUSION

The first two case studies of one BLOCKCHAIN R&D organization have been discussed in reality the first case has been approved as positive shows adjusted Net Present Value(ANPV) by applying this model, whereas the second case ANPV as negative. The second case shows that wastages of resources would have been saved if the economic appraisal of this project had been done before started. The third case which has imaginary figure for explanation the model has also positive ANPV.

The model developed above is an attempt to develop of simple method for BLOCKCHAIN R&D projects' evolution. It is basically based on relative chance of success of specific project vis-a-vis an alternative project which may be available. If an estimate of these probability can be made fairly accurately, I believe this model of an adjusted NPV would be a useful model which can be adopted by the BLOCKCHAIN R&D managers and funds allocators.

It must be acknowledged that in developed and developing countries as well as elsewhere, current or present or prevailing state of recession factors play an

important role in the informational technology project choice especially in the case of emerging new technologies like Block chain . Thus, these factors hamper the proper appraisal of the Block chain Projects in determining co-efficient of successes for Block chain Research and Development Projects given a considerable degree of failure rate in the Block chain Industry..

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FACTORS INFLUENCING RETENTION OF MILLENNIAL EMPLOYEES IN 4.0 ORGANIZATIONS

R. Santiago Antony Selvi[1] & Dr. VandanaMadhavkumar[2]

ABSTRACT

The necessary shift from the digital revolution (3rd Industrial Revolution) to an innovation-based mix of technologies (4th Industrial Revolution) has forced organizations to re-examine the way they execute business. Millennial generation employees drive this shift. Millennial is the generation that was born between1981 – 2000 and lived in the period of the information technology revolution with exposure to the internet and smartphones. The millennial has become a crucial element for human resources to driveindustry 4.0. The millennial workforce are the children of the Baby Boomers, they comprise a major part of the global workforce and are expected to reach 75% by 2025 due to the retirement of baby boomers. They are a more confident, goal-oriented, innovative, optimistic, tech-savvy, and multitasking workforce. However,they are known for their job-hopping tendency as they have a different attitude towards their career than the previous workforce. According to the past research in the area, 60% of the millennial workforce leave their employer within three years. This means a huge cost to replace and train new employees. Retaining the millennial workforce has emerged as a critical concern for human resource professionals in 4.0 organizations. They need more constructive retention strategies to retain this eminent workforce. The purpose of this study is to determine the key attributes of retention of the millennial workforce and provide suggestions on retention strategies through the review of literature in the area. For this study, 44 research papers were reviewed to collect relevant data. This study revealed that work-life balance, career development opportunities, meaningful work, continuous feedback&recognition, competitive compensation and benefits, work-engagement, and relationship with colleagues and superiors were the key attributes for the retention of the millennial workforce in 4.0 organizations. It implies that organizations need to redesign retention strategies based on the leading key attributes.

Keywords: *Industry 4.0, Millennial Workforce, Employee Retention, Career Development Opportunities, Meaningful Work, Work-Life Balance.*

INTRODUCTION

Industry 4.0(4IR) has become an urgent and critical priority for global business and other organizations. We are at the beginning of the 4th Industrial Revolution which is

1 Research Scholar#,Department of Management,PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India.

2 Associate Professor#, GRG School of Management Studies, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India.

Corresponding Author: (+91) 9443737892, Email ID: phdsantiagoantonyselvi@grgsms.ac.in

fundamentally changing the way we live, work, and connect. Industry 4.0 is builton foundations laid by the prior three industrial revolutions. The invention of the steam engine in the 18th century takes to the first industrial revolution. Electricity and electronic advancements led to the second industrial revolution. At the beginning of the 1950s, the emergence of computers and digital technology led to the third industrial revolution. Industry4.0 is a fusion of technologies such as artificial intelligence (AI), robotics, the Internet of Things, 3D printing, genetic engineering, quantum computing, and other technologies. Human resource is the key resource to achieve success in industry 4.0. The millennial workforce is set to replace the previous generationat work and is poised to be the major part of the workforce. Therefore, today, in the global HR market the main keyword is "Millennial Generation". Millennial is a digital generation; they have used technology more than the previous generation through the internet and smartphones. They are well educated, highly skilled, more confident, innovative, optimistic, have high self-esteem, are able to domulti-task and like to work for the well-being of others. In industry 4.0, the very big challenge for HR professionals is to attract and retain the millennial workforce. The millennial workforce is said to have high expectation from their employers such as receivingfeedback and recognition, work/life balance, high pay and benefits, career growth opportunities more flexibility, meaningful work good relationship with co-workers and superiors, and mentoring. The millennial workforce switch jobs very often as compared to the other generations. Gallup survey revealed that about 21% of millennial employees agreed to have changed jobs within last year, and 60% were found open to a different opportunity. Generally, the cost of turnover is very expensive. The millennial's job-hopping tendency leads to increase in the organization's turnover cost. It can be avoided by effective retention strategies, but the organizations cannot use the same strategy for all the generation – what works for Gen Xers and the previous generation may not work for millennial workforce. Therefore, organizations have to pay more attention to design retention strategies to make their workforce satisfied, happy and engaged, thus retaining them.

OBJECTIVES

The objectives of the study are to identify through review of literature,

a) the characteristics of the millennial workforce
b) key factors of retention of millennial employees

METHODOLOGY

Through literature review perspectives and insights into the factors of retention of millennial workforce have been identified. The literature review creates new knowledge about the topic reviewed. This research study begins by searching for and selecting related articles in the pool of existing literature. The focus of this study

is to identify the various factors, whichhighly influencethe retention of millennial generational employees. In the study, 44 articles have contributed substantially to the understanding on retention of millennial employees were analyzed and selected. The literature identified a range of factors commonly present in most of the literature reviewed that impact employee retention.

LITERATURE OF REVIEW

Millennial Workforce

Taylor (2014) &Caraher (2015) said that the millennial generation workforce was born between 1980 and 2000. The Millennial workforce has unique traits and characteristics than any other generation before them. Espinoza *et.al* (2010) found that the millennial workforce can handle multiple tasks at a time and are well versed in new and emerging technologies. Lancaster & Stillman (2010) stated that millennials are the first generation to grow up entirely immersed in the digital age, so they are tech-savvy, and are expected to utilize tab, the Internet, and other technological tools in the workplace as much as possible. Park and Gursoy(2012) state that the millennial workforce has a strong turnover intention. Queiri, Yusoff, &Dwaikat, (2015) revealed that the millennial workforce average ratio of years of service was 18 months compared to the previous generations like the Baby Boomers and the X Generation where it was 48 months. Tohmatsu (2018) found that Deloitte in the year 2018 released the Deloitte Millennial Survey, which consisted of data related to the surveys on 10,455 millennials from 36 countries all over the world. The survey showed that 43% of them had the intention to leave their organizations within 2 years and only 28% had an intention to stay more than 5 years in their organization.

Employee Retention

Cascio (2003) describes retention as initiatives taken by management to keep employees from leaving the organization, such as allowing harmonious working relations between employees and managers, rewarding employees for their effective performance, giving feedback and maintaining healthy and safe work environment. According to Gurumani, (2010) stated that employee retention is a process in which the employees are encouraged to remain with the organization for the maximum period of time. Retainingthe best employee is the responsibility of the employer, if not; the organization will lose the goodemployees. Singh and Dixit (2011) revealed that employee retention is critical tool for the long-term success of any organization. It is well known that employee retention leads to high level of production, quality, increase in sales and high customer satisfaction. It is a costly affair for an organization when it fails to retain its key employees. Nowadays employees often switch over their job, due to their dissatisfaction with their current job. Hence reputed organizations

are value their employees and fulfill their needs in order to keep them for long term. Kashyap and Rangnekar (2014) determined that compensation, meaningful work, career opportunities, work – life balance and training practices should be part of an employee retention strategy, since all these practices have impact on employee retention. The investment in corporate HRM practices will increase the employee's satisfaction level and reduces turnover intentions.Haider*et.al* (2015) explored that powerful human resource practices reduces the employee attrition rate at the same time it increases the employee retention within the organization. And also, this study reported that human resources practices like compensation,work – life balance and training and developmentare the predominant dimensions that influences the employee retention.Cappelli (2000) said that in the globalization era and high competition, simply planning and achievement ofhuman resource management practices are not enough for organizations to manage the high employee turnover. Traditional employeeretention strategies are unsuited for the changing needs and expectations of the global young employees.

Competitive Compensation and Benefits

Corporate Leadership Council (2004) said that compensation has a high impact on retention than performance. Competitive compensation and benefits packages are important to attract and retain a talented workforce; other drivers of engagement are far more effective in driving discretionary effort. Kumar and Arora (2012) state that 27 percent of employees mentioned compensation as the primary reason for leaving the company. Galetic (2016) explored that pay for performance and pay strategies influenced long-term retention, and high base pay preference was most important to the youngest millennials.Lin *et. al* (2011) showed that the companies which freely allowed their employees to select the perks and benefits were highly successful in attracting and retention of employees than the companies providing fixed benefits. Galetic *et.al* (2015) explored that young job seeker gives high priority to base pay and benefits when they decide to accept or reject a job offer. Nyce (2012) concluded that the right combination of benefits acts as a crucial component for attracting and retaining employees in a long term.Jones (2017) examined that among compensation elements, indirect compensation and benefits or perks are nowadays observed as a most valued leveraging tool.Galetic&Klindzic (2020) found pay and benefits as a retention tool but it depended on one's hierarchical position, individual behaviors, and length of service. Hassan *et. al* (2021) theoretically presented the body of knowledge by discovering the relationship between compensation and rewards, transformational leadership, and stress reduction as a determinant for millennial employees' retention. Vizano*et.al* (2021) reported that compensation highly influenced the middle-level manager's intention to stay and a good compensation can motivate employees and make them stay.

Career Growth Opportunities

According to Weng (2012), Organizational career growth showed power for managing turnover, in other words, organizational career growth, and occupational commitment acted as an additional force to managers in their efforts to manage turnover. Mamtha (2013) in her study focused on the career expectations of the Gen Y in India and described that by understanding the needs, expectations, and perceptions of youngsters, an organization can think of providing them what they expect in orderto attract, motivate and retain them. They need an intrinsic reward, personal growth, career development, and Work-life Balance. Freese (2013) discovered that career developmental opportunities could positively increase an employee's commitment to stay in an organization. Robson (2016) concluded that there was a crucial relationship between career development and organizational commitment. Specifically, achieving a high level of affective, continuance, and normative commitment is highly influenced by the career development at the organizations.

Work – Life Balance

Bajpai (2013) had designed the Work-Life Balance Retention (WLBR) Model, which was found to be awin-win technique for employers and employees. It had the power to increase the retention of hi-tech employees. One of the main benefits of providing work-life balance to hi-tech employees is attracting and retaining them in the organization for a longer period, which resulted in increased organizational commitment, reduced absenteeism, higher retention, greater productivity, and reduced work-life conflict. Geetha *et al* (2015) stated that there was a need fororganizations to design work policies to ensure employees have flexibility at their workplace. Flexible Work Arrangement (FWA), provided workplace flexibility, flexible work time, and working from home, created a friendly and positive work environment and this can be a very useful tool to retain women at work as it permits women to balance the double burden of work and family. Another relevant point is that workplace flexibility would motivate women who leave the workforce to re-enter the workforce market. It was concluded thatto have a positive link between at the workplace and women's work-life balance between work, life, and family. Krishna Kumar (2018) revealed some of the expectations of Gen Y employees from their organizations. New generation employees expected to live a well-balanced life where they can do fair justice to both personal and career responsibilities. They liked to work to be fun and flexible, and their ultimate employer s are those who come up with flexible work schedules, a friendly work environment, Telecommuting facilities, tech-savvy, open work culture, and friendly supervisors.

Meaningful Work

Patel (2017) find that Meaningful work is an efficient motivator for millennial workforce, they want a purpose - they don't just work for a paycheck. They want to be involved, work with other people, and feel like they are a part of something. Nadya (2021) has observed the effect of Jakarta and Bali hotel employees' meaning of work on their work engagement, organizational commitment, and turnover intention. The results of the structural equation model (SEM)indicated that meaning of work positively affected work engagement, organizational commitment and negatively affected turnover intention. Work engagementacted as a full mediator in the relationship. These findings provided suggestions to the management of the Indonesian hotel industry to increase employees' meaning of work and employees should be encouraged to have an interest in their job through learning and development programs. Leonardo and Gatari (2020) concluded that meaningful work could contribute to turnover intention without work engagement. Therefore, organizations need to design strategies with meaningful work to increase millennial workforce intention to stay longer.

Mentoring

Kim(2015) stated that mentoring relationship with an immediate supervisor has been linked to lower turnover intentions as supervisory mentors reduce stress, workload, and provide emotional and social support. Gong, Chen, and Yang (2014) determined that in mentoring mentors interact with mentees and sharing of experiences, insights, tried-and-tested good work practices, and mishaps or failures. During the session, mentees ask questions and gain knowledge from mentor, which resulted in non-formal learning opportunities.Fishman(2016) found that mentoring helps mentees to address their career and psychological needs to their mentors, which improves the professional and personal development of mentees and leads to positive work experience. Lenka (2017) said that in mentoring, knowledge transfer occurs.This promotes competency development as Gen Y mentees acquire and learn new knowledge.Naim (2018), examined that mentoring has effect on affective commitment and turnover intentions through satisfaction of developmental needs of Millennial mentees by personal learning. This study will close the gap between mentoring relationships and how it related to Millennial workers attitudinal outcomes such as employee's intention to stay or leave.

Continuous Feedback and Recognition

Thomson (2011)said that in order to grow the millennials must be challenged and the best way to challenge them is by providing regular feedback on what

they can do better and how they can do so.Fishman (2016) posited that in the workplace, millennial workforce wanted frequent praise and feedback and they do not stay in organizations that only provide annual review recognition. Morrell (2019) hadstated that millennial employees wanted regular feedback than their predecessors with regards to their performance and values from their HR managers. Praise, recognition, and attention from managers may highly motivate them than cash bonuses and a raise in base pay. Naim (2014) revealed that managers must know that regular feedback is an important method for an engaged workforce, and they should find opportunities to give continuous feedback and praise to millennial employees. Regular feedback opens doors to take corrective measures to rectify the mistake and helps to develop skills and knowledge.

Relationship with Superior and Co-workers

Hershatter (2010) identified that millennial employees like to have a close relationship with their employers. This relationship was identified as a critical factor that influences organizational commitment. Jamieson *et al* (2015) revealed that the millennial workforce remained at a job because of their relationships with others. They agreed that working with others was a positive experience and a reason to remain at a job. The relationships with peers or supervisors created reasons for millennial workers to leave an organization or job. Russo *et al* (2016) said that supervisor support in the organization promotes an increased level of work life balance (WLB) by offering flexible work schedules, whichwould enable employees to accomplish work and personal commitments and responsibilities.

Work Engagement

Shuck &Wollard (2010) said that work engagement is "a positive, fulfilling, work-related state ofmind". Rigoni (2016) stated that a recent Gallup poll said that if the millennial did not have engaged at work, 60% of them ready to leave their jobs, and a limited percentage of them will plan to continue with the same company in coming years. Schaufeli and Bakker (2004) researched that work engagement reduces the employee's intention to leave and increases their commitment level towards an organization.Wessblad (2008) examined that engagement has a directand adverse effect on turnover intention among blue - collar workers in manufacturing industry and concluded that engaged employees are highly involved in their work and organization. Hence, they exhibitedincreased intention to stay.Andrew and Sofian (2012) showed that work engagement will act as tool to influence the workers to stay in the organization for longer. Bailey *et.al* (2017) revealed that work engagement and employee retention has a strong positive relationship. Siahaan(2020) stated that meaningful work positively correlated with work engagement, if employees found meaning in their work, they will be more engaged in their work. On contrary, there is a work engagement that negatively correlates with turnover intention, it implies

that the high level of meaningful work leads to the reduced turnover intention. This helps to retain the workforce, especially for this millennial generation workforce.

CONCEPTUAL FRAMEWORK

In this conceptual framework, career growth opportunity, competitive compensation and benefits, work-life balance, mentoring, work engagement, continuous feedback and recognition, relationship with superiors and co-workers, and meaningful work are independent variables. They positively influence the dependent variable retention of the millennial employees.

DISCUSSION

Human resource plays a crucial role in organizational growth; they are the lifeblood of an organization. The greatest challenge organizations are facing today is retaining human resources. Employee retention is the organization's ability to keep its employees from leaving their workplace. Employee retention strategies are very essential for the organization to retain its valuable employees who are the real

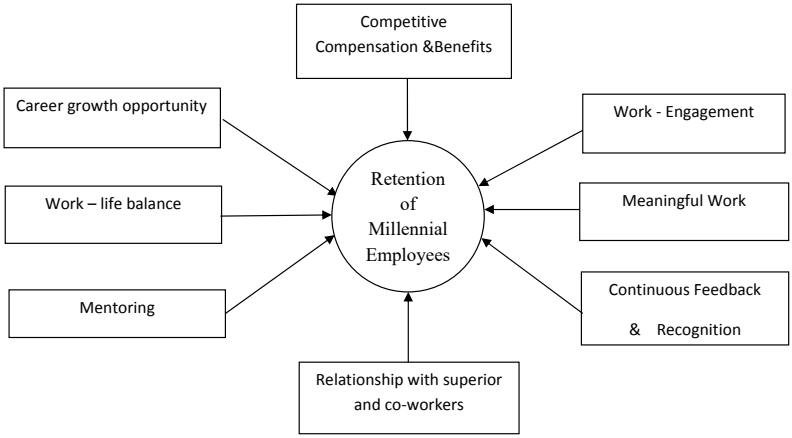

Figure 1: Conceptual Framework of the Factors Influencing Retention of Millennial Employees

contributors of its development. The millennial workforce tends job-hopping. It, directly and indirectly, affects the organizations' revenue and profit and also affect the overall performance of the organization. This study tries to identify the key factor that is highly influencing the millennial workforce to retain in their work for a long time. Therefore, organizations can design their retention strategy using

those key factors, which may control the job-hopping tendency of the millennial workforce.

Career growth opportunities create a great impact on retaining the millennial workforce in the workplace. The factor that has been frequently mentioned in the literature review is the opportunity for career growth. The millennial workforce wants to learn new things and invest in self-development in order to progress in their careers. Theyexpect to get promotions and grow quickly within their organizations. However, they are impatient and are not willing to wait more than two years to get promoted. If this desire for fast advancement is not fulfilled, it could lead to intention to leave the organization. Work-life balance is extremely important to the millennial workforce. Good work-life balance is the number one factor for them when selecting their job. "Work to live" and "not live to work" is millennial's mantra, so they are not ready to sacrifice their personal life for their professional life. They value time spent with their family and friends and like to spend their leisure time in interests out of their job. Organizations can provide Work-life balance support by offering different programs like flexible work, flexible work schedule, compressed workweek, work at home, telecommuting etc. Most of the millennial workforce accepts that their top priority is compensation and benefits. They accept to work in an organization for a long time, only when it is ready to give competitive compensation and benefits. The millennial workforce wants frequent praise and feedback and do not stays in organizations that only provide annual review recognition. Recognition need not be expensive to be effective. The effectiveness of recognition programs must be measured periodically with a focus on continuous improvement. Mentoring helps to address the psychological and career needs of millennial employees, it improves the personal & professional development of mentees. Dream employer of the millennial workforce is those who come up with flexible work schedules, provide a friendly work environment, open work culture, and friendly supervisors. They expect support from their superiors and co-workers to attain a balanced work-life. Work engagement plays important role in reducing employee turnoverand retaining millennial workforce.

IMPLICATIONS OF THE STUDY

With the arrival of the millennial workforce in the employment landscape, multigenerational workforce characterizes the workplace. The millennial workforce is replacing the earlier generations and will soon dominate the workplace. These Gen Y employees differ from the previous generations (baby boomers and Gen Xers) in terms of work-values, attitude, culture and career aspiration, and levels of creativity. It is a challenge to retain them, as they are impatient and tend to change jobs more frequently if their expectations are not met. Therefore, an insight into and understanding of the factors that influence retention of millennial workforce

will help organizations to develop retention strategies that meets the needs and aspirations of these employees.

CONCLUSION

The digital revolution is reshaping the way we work and live, it has a significant impact on the retention of new generation employees. This study concluded that in order to retain the young workforce, organizations need to concentrate more on retention strategies, whichprovide good career growth opportunities, competitive compensation &benefits, work-life balance, frequent feedback &recognition, friendly relationship with superiors & co-workers, meaningful work and work – engagement. These are the important factors expected by the millennial workforce from their employers and highly influencing them to stay longer in the workplace. Even though this study attempted to bring forth all the factors related to retention of the millennial workforce, this complex area of human resources needs further investigation.

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URL: www.grgsms.ac.in | Email to: prerana@grgsms.ac.in

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