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STUDY ON BLOCK CHAIN TECHNOLOGY & ITS APPLICATION

Ms.Kajal P. Visrani*
Mr. Vikas P R.Narkhde**
Dr. Sanjay R.Sugandhi***

ABSTRACT

This review explores the fundamental aspects of blockchain technology, including its architecture, types, and key characteristics. The study delves into the historical evolution of blockchain, its decentralized nature, and its application in various industries. Specifically, it scrutinizes different blockchain architectures such as public, private, and consortium, highlighting their consensus mechanisms and distinctive features. Additionally, the review discusses the key characteristics of blockchain. The latter part of the review delves into the practical applications of blockchain in diverse sectors, including financial services, supply chain, healthcare, public sector, and energy. Finally, the study discusses the future trends of blockchain technology and its evolving role in shaping various industries.

KEYWORDS: *Blockchain, Distributed Ledger, Consensus Mechanism, Cryptography, Decentralization, Public Blockchain, Private Blockchain, Consortium Blockchain, Financial Services, Supply Chain, Healthcare, Public Sector, Energy, Cost Reduction, Data Validity, Security, Historical Data Tracking, Future Trends.*

Introduction

A blockchain is a specific form of distributed ledger, however not all distributed ledgers necessarily use blocks or chain transactions. The blockchain is an immutable digital record used to track finances. It may be built to store not only financial transactions but also any other valuable information. Don and Alex Tapscott are the authors of the book "Blockchain Revolution" published in 2016. A blockchain, initially referred to as a compound term "block chain," is an ever-expanding compilation of digital information organized into packages known as blocks. These blocks are interconnected and safeguarded by the implementation of cryptographic techniques. The digitally captured data chunks are kept in a linear chain.

Every block in the chain consists of data, like as a bitcoin transaction, that is cryptographically hashed and time stamped. The hashed data blocks in the blockchain are linked to the previous block in the chain, guaranteeing the integrity and non-alteration of all data in the blockchain. A blockchain is a sequence of blocks arranged in chronological order. A block is a consolidated collection of data that is gathered and processed to be accommodated within it through the mining process. Every block is distinguished by a cryptographic hash and timestamp. Each newly produced block on the blockchain includes a hash of the previous block, ensuring that the blocks are arranged in chronological order from the Genesis Block to the most recent block. This procedure is iterated repeatedly to expand and sustain the network.

The concept of blockchain was initially defined in 1991. A team of academics aimed to develop a program that would assign a precise timestamp to digital documents, ensuring that they cannot be

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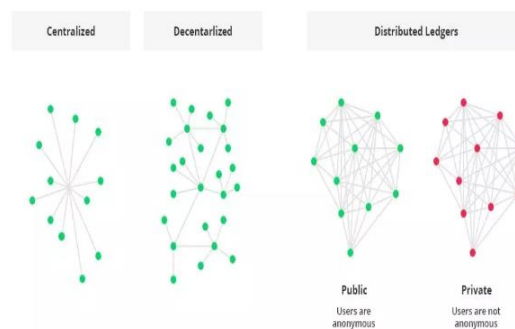
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fraudulently dated or altered. In addition, Satoshi Nakamoto altered and redesigned the technique. In 2008, Nakamoto pioneered the development of the inaugural cryptocurrency, known as Bitcoin, which operates on a blockchain framework.

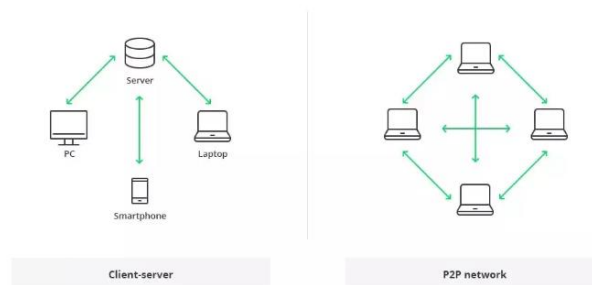
Blockchain Architecture

Essentially, a blockchain is a sequential series of blocks that store specific information, acting as a safe and authentic database. These blocks are interconnected inside a peer-to-peer network. Put simply, blockchain is a decentralized network where computers are interconnected instead of relying on a single server.

The blockchain technology enables the decentralized distribution of digital information, eliminating the need for duplication. This decentralized ledger offers visibility, confidence, and robustness in data protection.



Blockchain Architecture vs Database



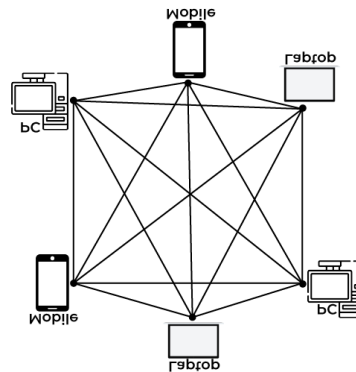
The conventional architecture of the World Wide Web employs a client-server network. In this scenario, the server functions as a centralized database, where all the necessary information is stored in a single location. This setup facilitates easy updates and is managed by a group of administrators who possess appropriate permissions. In the distributed network of blockchain architecture, each member has the responsibility of maintaining, approving, and updating new entries.

The blockchain is an autonomous, dispersed record (public or private) of many types of transactions organized within a peer-to-peer network. This network is comprised of numerous computers, and the data can only be amended if there is universal consensus among all the computers in the network.

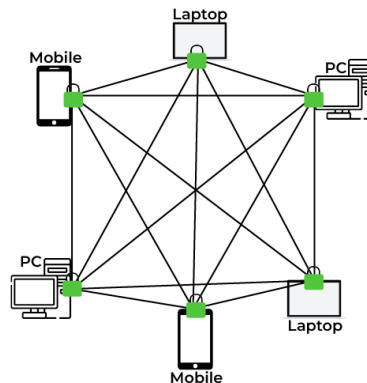
Types of Blockchain Architecture

There exist three clearly differentiated types of blockchain topologies. A blockchain is a decentralised record-keeping system in which every participant possesses a localised version. The degree of centralization or decentralisation in a blockchain system might vary based on its particular structure and environment. This statement specifically pertains to the architectural design of the blockchain and the entity that has control over the ledger.

- Public Blockchain Architecture:** A public blockchain design facilitates inclusive participation and unrestricted entry to the system, guaranteeing universal accessibility to both data and functions. Examples of public architectures include Bitcoin, Ethereum, and Litecoin blockchain systems. In a public blockchain, all records are transparent and accessible to the public, allowing for participation from anybody in the consensus mechanism. Conversely, this approach is less effective as it requires a significant amount of time to incorporate each new record into the blockchain framework.[1]



- Private Blockchain Architecture:** Unlike public blockchain architecture, the private system is exclusively controlled by users belonging to a certain company or authorized individuals who have received an invitation to participate. A private blockchain is regarded as more centralised due to its control by a certain company, resulting in enhanced privacy. In contrast, a public blockchain functions without any restrictions and is therefore decentralised.[1]



Consortium Blockchain Architecture

This blockchain architecture can consist of a finite number of firms. Procedures within a consortium are developed and regulated by the initially chosen users.[1] The user's text is a reference to a source or citation.

Property	Public blockchain	Consortium blockchain	Private blockchain
Consensus determination	All miners	Selected set of nodes	Within one organization
Read permission	Public	Public or restricted	Public or restricted
Immutability level	Almost impossible to tamper	Could be tampered	Could be tampered
Efficiency (use of resources)	Low	High	High
Centralization	No	Partial	Yes
Consensus process	Permissionless	Needs permission	Needs permission

- **Consensus determination:** Within a public blockchain, every individual node has the ability to participate in the consensus process. Only a specific group of nodes is responsible for validating the block in a consortium blockchain. Regarding a private chain, it is completely under the control of a single organisation, which has the authority to select the ultimate consensus.
- **Read permission:** Transactions in a public blockchain are openly accessible to the general public, however the visibility of transactions in a private blockchain or consortium blockchain varies.
- **Immutability:** Due to the decentralised nature of a public blockchain, tampering with transactions is highly improbable, as the records are distributed across numerous participants. Transactions in a private blockchain or a consortium blockchain can be easily tampered with due to the limited number of participants.
- **Efficiency:** The user's text is empty. The propagation of transactions and blocks on a public blockchain network is time-consuming due to the presence of several nodes. Consequently, the capacity for processing transactions is restricted, leading to increased delay. Reducing the number of validators can enhance the efficiency of consortium blockchain and private blockchain.
- **Centralized:** The primary distinction among the three categories of blockchains is in their level of centralization. Public blockchains are decentralised, consortium blockchains are somewhat centralised, and private blockchains are entirely centralised, as they are managed by a single entity or organisation.
- **Consensus process:** Individuals worldwide have the opportunity to participate in the consensus mechanism of the public blockchain. Unlike public blockchains, both consortium blockchains and private blockchains are permissioned. Due to its public nature, the blockchain is accessible to a wide range of users, which in turn leads to a high level of user engagement and community activity. A multitude of public blockchains are continuously emerging. Consortium blockchain has the potential to be utilised in various commercial applications. Hyperledger ^[7] is now in the process of establishing blockchain frameworks for business consortiums. Ethereum has also offered resources for constructing consortium blockchains ^{[8],[1]}

Components of Blockchain Architecture

Blockchain is a sequential arrangement of blocks that encompasses a full compilation of transaction records, akin to a conventional public ledger. Blockchain is a distributed system that allows multiple participants to conduct transactions without the involvement of intermediaries. Specialized nodes are responsible for verifying and validating these transactions.

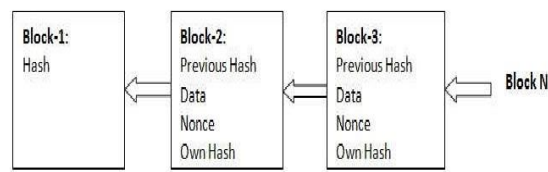


Fig. 1: Blockchain Architecture^[9]

- **Header:** It serves the purpose of identifying a certain block within the entire blockchain. It manages all the blocks within the blockchain. Miners regularly hash a block header by modifying the nonce value during the process of mining. Additionally, the block header includes three sets of block metadata.

Previous Block Address/Hash

It is utilized to establish a connection between the (i+1)th block and the ith block by means of the hash function. Essentially, it refers to the hash value of the preceding (parent) block in the chain.

- **Timestamp:** A mechanism that verifies data within a block and assigns a specific time or date of creation for digital documents. A timestamp is a distinct sequence of characters that serves to uniquely identify a document or event and provides information about its creation time.

- **Nonce:** A unique number that is used just once. It is an integral component of the proof of work within the block. If the value is smaller or equal to the current target, it is compared to the live target. Individuals engage in the process of mining, wherein they systematically generate, evaluate, and discard several Nonce values each second until they identify a Nonce that possesses significant value and meets the criteria for validity.
- **Merkle Root:** It is a data structure that consists of many blocks of data. A Merkle Tree efficiently records all the transactions in a block by generating a cryptographic hash of the entire transaction. It enables users to authenticate whether a transaction can be incorporated into a block or not.

Key Characteristics of Blockchain Architecture

- **Decentralization:** In centralized transaction systems, every transaction must undergo validation by a central trusted agency, such as the central bank. This process incurs costs and can lead to congestion and reduced performance on the central servers. Unlike the centralized form, the blockchain does not require the involvement of a third party. Consensus algorithms in blockchain serve the purpose of preserving data stability within a decentralized network.
- **Persistency:** Transactions can be swiftly confirmed, and any invalid transactions would be rejected by individuals or miners engaged in cryptocurrency mining. Once transactions are incorporated into the blockchain network, they cannot be deleted or reversed. Invalid transactions are not propagated further.
- **Anonymity:** Every user has the ability to engage with the blockchain using a unique address that does not reveal the true identity of the miner. It should be noted that blockchain is unable to ensure complete preservation of anonymity due to its permanent nature.
- **Auditability:** The blockchain system utilizes the Unspent Transaction Output (UTXO) architecture to store user data.
- Each transaction must reference a prior unspent transaction. After the current transaction is documented in the blockchain, the status of the previously unspent transactions referred to in it changes from unspent to spent. As a result of this approach, the transactions may be readily monitored and remain unaffected during the course of transactions.

Transparency

The transparency of blockchain is comparable to that of cryptocurrency, such as bitcoin, where every transaction is meticulously traced and recorded using unique addresses. Furthermore, it ensures the concealment of the individual's identity during and after the transaction for enhanced security. The transactions are only conducted by the block owner connected with the address. This process is transparent and ensures that no party involved in the transaction incurs any losses.

Cryptography

The blockchain concept is inherently predicated on ensuring security, necessitating the implementation of robust security measures for all blocks inside the blockchain network. Additionally, it employs cryptography to ensure security by encrypting the data using cypher text and cyphers.

Application of Blockchain

Financial Services

Multiple global stock exchanges are now testing a blockchain infrastructure that facilitates the issuing and transfer of private securities. In addition, several consortiums of financial institutions are exploring potential applications for trade finance, cross-border payments, and various other banking operations. ^[3]

Money Transfer

Blockchain-based money transfers have the potential to be quicker as well as cheaper than those made through current financial institutions. This particularly applies to cross-border transactions, which frequently exhibit a sluggish and costly nature. In the contemporary U.S. financial system, the process of transferring money between accounts can require several days, but a blockchain transaction can be completed within minutes.

- **Financial Exchanges:** Several companies have emerged in recent years, providing decentralised bitcoin exchanges. Utilising blockchain technology for exchanges enables expedited and cost-effective transactions. Furthermore, a decentralised exchange eliminates the need for investors to entrust their assets to a centralised authority, thereby allowing them to retain enhanced control and security. Blockchain-based exchanges generally focus on bitcoin transactions, but the underlying concept might also be extended to include more conventional investing options.
- **Leanding:** Lenders can utilise blockchain technology to facilitate the execution of collateralized loans by employing smart contracts. Smart contracts implemented on the blockchain enable the automatic execution of specific actions, such as initiating a service payment, issuing a margin call, fully repaying a loan, and releasing collateral. Consequently, the loan processing time is accelerated and costs are reduced, enabling lenders to provide more favourable interest rates.
- **Insurance:** Using smart agreements on a blockchain can offer enhanced visibility for clients and insurance companies. Storing all claims on a blockchain would prevent customers from submitting duplicate claims for the same incident. Moreover, smart contracts can expedite the payment procedure for claimants.
- **Real Estate:** Real estate transactions necessitate a substantial amount of documentation to authenticate financial details and ownership, and subsequently transfer property deeds and titles to new proprietors. Utilising blockchain technology for recording real estate transactions offers a heightened level of security and ease of validating and transferring ownership. It has the potential to expedite transactions, minimise paperwork, and result in cost savings.

Supply Chain

Blockchain technology has the potential to optimise supply chains by expediting and reducing the cost of product delivery, enhancing product traceability, facilitating efficient collaboration and information sharing across partners, and facilitating improved access to funding.

- **Improving Tracking and Transparency**

Companies can enhance the tracking of goods and monitoring of product conditions in the supply chain by integrating blockchain technology with Internet of Things devices, such as smart sensors and RFID tags. This allows for more accurate recording of the movement of goods and the measurement of factors like temperature and humidity at each stage. Due to the constant updating and time-stamping of transactions, organisations have the ability to inquire about the statuses and whereabouts of products at any given moment.

Blockchain provides enhanced transparency and precision in monitoring procedures, enabling organisations to promptly identify and handle possible concerns, such as non-compliance, counterfeit products, delays, and inefficiency. Organisations may choose to share track and trace data with their customers to confirm the genuineness of their items and ensure that they are following ethical supply chain procedures. In addition, blockchain promotes confidence among participants in the supply chain by providing transparent access to the essential data it gathers.

Enhancing Traceability

Traceability is a another application of blockchain technology in the supply chain. Traceability in supply chain management refers to the capacity to precisely determine the past and present whereabouts of inventory, as well as acquire a documented history of its custody, throughout the journey from raw materials to sellers and customers.

Supply chain partners can employ blockchain technology to efficiently monitor operations throughout the supply chain. Transactions take place instantly as the blockchain consists of decentralised open-source ledgers that store data, which may be duplicated by anyone. Through the utilisation of blockchain technology, stakeholders are able to retrieve comprehensive information pertaining to products, including details such as dates, pricing, origin, quality, certification, destination, and additional relevant data.

- **Cutting Down on Counterfeiting**

The assessment of product quality and trustworthiness relies heavily on provenance. Blockchain allows parties to trace commodities across the whole supply chain, hence simplifying accurate verification

of the provenance of those products. Therefore, conducting a prompt verification of the origin of specific products minimises the occurrence of counterfeiting.

- **Addressing Food Safety Issues**

Several challenges related to food safety, such as the transmission of food borne diseases and the mixing of contaminants, are difficult to monitor on an individual basis. Moreover, the absence of data and transparency in conventional supply chains poses challenges for organisations to promptly address any problems, so potentially impacting their reputations and financial performance. Due to the blockchain's high reliability and integrity, it is especially well-suited for addressing these concerns. Blockchain facilitates the traceability of a food product's source, hence boosting the food industry's capacity to enhance the overall quality and reliability of food products. Provenance plays a crucial role in assessing the quality and dependability of items. Blockchain facilitates the traceability of a food product's source, hence boosting the food industry's capacity to enhance the overall quality and reliability of food products. Therefore, conducting a prompt examination of the origin of specific commodities decreases the occurrence of counterfeiting.

- **Encouraging More Sustainable and Ethical Sourcing**

The need for implementing blockchain technology in the supply chain is partially motivated by customers' desire to ascertain the precise origins of their products and ensure their ethical production. Blockchain technology can provide assurance to consumers that companies obtain their supplies and produce their goods in an ethical and sustainable manner.

Blockchain technology can authenticate the source of materials or products and provide this data to consumers, enabling them to make informed decisions about their purchases. The traceability and tamper-resistant characteristics of blockchain enable consumers to easily check the manufacturing process, as well as the origin and transportation details of products within the supply chain.

- **Enabling Better Communication and Collaboration**

There is extensive communication and negotiation among the several participants in the current supply chain over bills, contracts, order requests, and other matters, leading to potential conflicts and delays. Nevertheless, the utilisation of blockchain technology in the supply chain might enhance the efficiency of communication and cooperation among stakeholders. By facilitating the exchange of databases among several entities, blockchain technology eliminates the necessity of intermediaries to authenticate, document, and/or synchronise transactions. Furthermore, smart contracts incentivize all parties involved to fulfil their agreed-upon duties promptly.

- **Cost Reduction:** A significant amount of financial resources is allocated to maintaining centrally managed databases, such as those used by banks and governmental agencies, in order to ensure the currency and security of data, protecting it from cyber crimes and other malicious intentions.
- **History of Data:** The blockchain structure enables the ability to examine the complete transaction history at any given point in time. This archive is continually expanding, whereas a centralised database represents a fixed collection of information at a certain moment.
- **Data validity & security:** Once inputted, the data becomes highly resistant to tampering due to the inherent characteristics of the blockchain. The record validation method is time-consuming since it operates independently on each network rather than utilising combined computing capacity. Consequently, the system prioritises data security and authenticity over performance speed.^[4]
- **Life Sciences and Health Care:** Healthcare organisations are investigating the utilisation of blockchain technology to ensure the authenticity and reliability of electronic medical records, medical billing, claims, and other related documents.^[5]
- **Public Sector:** Authorities are investigating the use of blockchain technology to facilitate the management of asset registers, such as those for land and corporate shares.
- **Energy and Recourses:** Ethereum is being used to establish smart-grid technology that would allow for surplus energy to be used as tradable digital assets among consumers. Since all businesses track information and face the challenge of reconciling data with counterparties, blockchain technology has the potential to be relevant to everyone.^[6]

Conclusion

In conclusion, this review provides a comprehensive examination of blockchain technology, encompassing its evolution, architecture, key characteristics, and diverse applications. The blockchain's decentralised and distributed ledger structure, together with cryptographic security mechanisms, guarantees transparency, data integrity, and trust in diverse transactions. The differentiation between public, private, and consortium blockchain architectures underscores the versatility and adaptability of this technology across different domains. The key characteristics of blockchain, including decentralization, persistency, anonymity, auditability, transparency, and cryptography, contribute to its widespread adoption. These features address challenges in traditional systems, offering solutions for secure, transparent, and efficient operations. The study emphasises the transformative capacity of blockchain technology in several sectors, including finance, supply chain, healthcare, public sector, and energy. It offers concrete illustrations of how blockchain might be applied in practical situations.

Moreover, the review emphasizes the economic benefits of blockchain, such as cost reduction, enhanced data validity, security, and the ability to track historical data. The unchangeable and resistant-to-tampering characteristic of blockchain guarantees the accuracy of records, reducing the dangers linked to deception and manipulation. Future trends indicate that there will be ongoing innovation and integration of blockchain technology in several industries, which will have an impact on how organisations and governments handle data, transactions, and assets. Blockchain technology has the capacity to fundamentally change and redefine established concepts of trust, security, and transparency. As industries increasingly adopt and utilise blockchain solutions, it is evident that this technology will have a crucial impact on determining the future of digital transactions and data management. To fully harness the potential of blockchain and tackle future difficulties, continuous research, collaboration, and adaptation are required in response to its ever-changing terrain.

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AN EVALUATION OF INFORMAL CROSS BORDER TRADE ON ETHIO-KENYAN BORDERLINE WAS CONDUCTED WITH SPECIAL FOCUS ON MOYALE ETHIOPIA

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ABSTRACT

This study titled The Evaluation of informal cross -border trade on the Ethio-Kenyan Borderline was conducted with a special focus on Moyale, Ethiopia. Hence, to achieve the objectives of the study, a stratifying target population was predetermined through random sampling, and a sample of 294 informal cross -border traders was taken. For this reason, research tools such as questionnaires, interviews and secondary data surveys were used for data collection. Thus, after conducting the case study in Moyale town, Ethiopia, the questionnaire and interview data focused on the year 2022, while the secondary data of the contrabands report focused on five years of data from the ERCA of the moyale branch. The questionnaire survey data were collected, coded and entered into the Statistical Package for Social Sciences (SPSS, Version 25.0) for multiple variable regression model analysis. The findings reveal that five independent variables were found to be statistically significant and to positively affect the dependent variable, whereas the exchange rate was found to be an insignificant variable affecting informal cross-border trade. The study concluded that ministries should implement high -tax and limited -trade regulations. Moreover, bureaucratic regulations on imports and exports should be effective, the nontariff barriers imposed by the government should be transparent and awareness provident, and the number of employees involved in traders' businesses should increase over time. The contraband report of goods should increase over the years. The study recommends that cross -border traders be attractive due to their dynamic nature to accommodate all possible interested parties. The federal government should implement policies that decrease high taxes and limit trade regulations, and improve bureaucratic procedures, which are time consuming. Moreover, the nontariff barriers that are imposed by the government should be improved depending on community needs and wants, whereas the number of employees in traders' businesses should increase over the years to encourage formal traders to consider maximizing the benefit of the community at the border region. Finally ICBTs should adopt small-scale cross border trade to enhance the livelihood of communities in Moyale, Ethiopia.

KEYWORDS: *Informal Cross border Trade, East African Countries, Contraband, Ethiopian Revenue and Custom Authority, Moyale and Kenya.*

Introduction

Cross-border trade involves the buying and selling of goods and services between businesses in neighboring countries, with the seller being in one country and the buyer in the other country (Golub, 2015). Informal trade is the market-based production of legal goods and services that are deliberately concealed from public authorities and escape detection in official gross domestic product (GDP) (Akyuz,

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2017). The Common Market for Eastern and Southern Africa (COMESA) defines informal cross-border trade (ICBT) as a form of trade that is unrecorded in official statistics and is carried out by small businesses in the region (Njiwa, 2013). Further COMESA also states that ICBT characteristically involves bypassing border posts, concealing goods, underreporting, false classification, under invoicing and other similar tricks. In addition to seeking to evade taxes or fees imposed by governments, traders also try to avoid administrative formalities in areas such as health, agriculture, security and immigration, which are perceived as costly, complex and time consuming (Afrika & Ajumbo, 2012). Many individuals engage in informal trade across border trades in different countries worldwide. The trade is termed informal because traders are not registered and do not pay income taxes. According to Do Even and (Mwanabiningo, 2012), informal trade between countries has been seen as having adverse effects, especially following the implementation of structural adjustment programmes (SAPs) and the negative effects of financial crises that have been experienced by different parties worldwide. Governments across the globe are therefore typically concerned about the negative aspects of ICBT, which includes the fact that at times, informal imports present unfair competition with domestic industries, and products traded informally are often fake goods sold at lower prices, not subject to import taxes, and simply cheaper than locally manufactured equivalents. Thus, in terms of functions and utilities, ICBTs are considered to complement the macroeconomic stability of states by filling the gap created by the lack of regional economic integration and effective formal cross-border trade.

In Africa, the trend shows that those with tertiary professional or semiprofessional training, including university degrees, are receiving ICBT; their share has remained between 9 and 11% of individuals employed in informal trade (Njiwa, 2013). According to the 2016 UNDP report, 60% of the ICBTs are women dependent on their food security (UNDP, 2016). Various East African nations have neglected ICBT, yet it remains a critical activity for the rural economy and invisible regional integration, as shared by (Dihel and Goswami, 2016). Apart from the contribution of informal trade to employment in general, there is an observed trend toward a higher probability for low-skilled workers to work in the informal sector. In the Horn of Africa, ICBT has played a vital role in ensuring the food security of people surviving across the borders of societies. In the Horn of Africa region, securing food security is the primary national agenda of states. However, the food security dimension of ICBT is an area that has not been well studied. For the period 2002 to the first half of 2018, the number of metric tons of basic food items circulated informally in the region was greater than the formal number (Tegegne and Alemayehu, 2002), (UNECA, 2010). Without the circulation of such a large amount of food in the region, it is unthinkable to imagine the level of famine and starvation that could have affected the people in the Horn of Africa located at the peripheries. According to (Magara 2015) cross-border trade in the East African Community (EAC) is primarily informal, directly or indirectly escaping from the regulatory framework and often unrecorded or incorrectly recorded in official national statistics of the trading countries. Since the commencement of the EAC Customs Union in 2005, several official efforts have been made to increase formal trade links among partner states (Lesser & Moisé-Leeman, 2009). Despite the policy pronouncements to promote trade integration among EAC partner states, formal trade links still face several constraints. Consequently, some of the constraints push traders into engaging in informal trade, as there are also exclusive incentives that pull traders to remain in ICBT. However, the coexistence of ICBTs with formal trade integration has not been officially recognized. Therefore, the trend of CBT in the Horn of Africa has generally increased over time, and it has shown significant fluctuations in volume and changes in patterns (Mahmoud, 2010). Hence, informal CBT along the Horn of Africa is carried out mainly by traders of the same ethnic group on both sides of the border. While such an ethnic network nurtures trust and security in trade, it makes the government effort to control cross border trade largely ineffective and contributes to the growth of ICBT at the expense of formal CBT (Abdurahman, 2014). In the Ethiopian context, with its growing economy and as one of the largest land-locked countries in the world, Ethiopia has shown strong interest in developing long-distance trading and transport corridors in recent years (Ethiopian Herald, 2019). Being land-locked is one of the factors influencing the rate of informal cross-border trade in a country.

Statement of Problems

East African countries in general and Ethiopia in particular, have an immense history of cross-border trade, which represents a significant proportion of economic transactions (Vector O, 2010). This process is carried out across national boundaries or between people or business entities and is therefore defined as “the flow of goods and services across international border lands within a reach of distances.” It is therefore, broadly categorized into (1st) formal (official) and (2nd) informal (unofficial) cross-border

trade. (Habtamu et al., (2016), in the (1st) formal (official) (FCBT), refer to the types of international trades in legal goods and services that are carried out by legally registered traders that fulfill all the legal requirements of the trading countries. On the other hand, (2nd) informal (unofficial) cross -border trade (ICBT), is defined differently by different authors and institutions. Similarly, (COMESA, 2013) defines ICBT as illegal and unregulated (unregistered, undocumented or officially unaccounted) trade and consequently, criminalizes traders and their economic activities. Hence, COMESA suggests that such trades include those kinds of trade that make use of unofficial routes and avoid customs posts, and/or passes through unofficial routes. Similarly, Víctor (2010) noted that, unfair competition from ICBT players may have a long-term effect on weakening competition and, as such, may hinder the further activities of formal firms from entering or expanding in marketing.

In the same manner, a forum for social studies (FSS) (2017) indicated that much of Ethiopia's CBT is informal; only some formal CBT does occur. The Moyale corridor is one of the corridors for the export of contraband, with substantial amounts of contraband where livestock animals, agricultural products, khat, etc., dominate the export of contraband products. In 2014/15, the total value of seized contraband imports to Ethiopia was USD 20.9, and it reached 36.2 million USD in 2016/17. The Moyale corridor is also a gateway for informal imports from Kenya into the Ethiopian neighborhood, where imports are dominated by clothes, electronics, different motors and foodstuffs. The actual amount of seized contraband in informal trade is much greater than that in formal trade, and the fact that the value of informal cross -border trade is much greater than that of formal trade has created the essence of this study. The formal cross -border trade is a source of revenue for public authorities through customs duties and charges, and hence a source of funding for infrastructural investment (Golub, 2014). Nevertheless, the government cannot directly gain tax revenue from ICBT; ICBT indirectly increases tax revenue by widening the tax base through its effect on the expansion of business and employment opportunities in related and supplementary activities. There are different studies on informal cross-border trade in different parts of Ethiopia. (Tilahun Esmael 2014) study on Trade Facilitation in Ethiopia: The Role of WTO Accession in Domestic Reform. This study attempts to examine how Ethiopia's WTO Accession and trade facilitation instruments can be streamlined with domestic reform and that trade and investment policy in Ethiopia, with domestic legal and institutional reforms to facilitate trade, are the very factors that render the country's pursuit of WTO accession and trade liberalization fruitful. A (Wassie B, 2016) study on informal cross-border livestock trade restrictions in Eastern Africa; a case study in the Ethio-Kenyan Border Lands, revealed that cross -border livestock trade restrictions could lead to substantial drops in pastoral household welfare. (Conversely, Habtamu et al. (2016) also conducted a study on "The challenges and prospects of cross-border trade in Ethiopia" and found that the CBT plays a vital role in improving livelihoods by serving as a source of income, consumer goods and self-employment. Researchers from various fields, such as challenges and prospects of cross-border trade in Ethiopia, informal cross-border livestock trade restrictions in eastern Africa: case study in Ethio-Kenyan border lands, shoats and smartphone: the Ethio-Somaliland trade corridor and trade facilitation in Ethiopia. Therefore, this study essentially evaluates the factors that influence informal cross -border trade on the Ethio-Kenyan border to encourage formal traders and minimize informal cross -border trade on the Ethio-Kenyan corridor, with a specific focus on Moyale, Ethiopia. Hence, the study focuses on independent variables such as custom duty and tax, bureaucratic issues, nontariff barriers, exchange rates and unemployment. Moreover, the dependent variable informal cross -border trade, is measured in millions of birrs of contrabands that are reported annually. In connection with this, the findings are provident of insights that can help draw appropriate policies that minimize government losses and maximize benefits from CBT, especially for border communities in the region.

General Objective

This study evaluates the influence of informal cross-border trade along the Ethiopia-Kenyan border, with a focus on Moyale town.

Specific Objectives

Specifically, this Study

- Standardizes the effect of customs duties and taxes on ICBT in the study area.
- Influences of the official bureaucratic system on ICBT in the study area.
- Measures of the effect of nontariff barriers to trade on ICBT in the study area.
- Examines the effect of unemployment brought about by ICBT within the study area.
- The influence of the exchange rate on ICBT in the study area is also examined.

Research Hypothesis

In line with the above specific objectives, the following five hypotheses were tested in line with the review of the theoretical and empirical support.

- H₁:** Do custom duties and taxes have a positive significant effect on ICBT?
- H₂:** Do bureaucratic official procedures have a positive significant influence on ICBT?
- H₃:** Does the nontariff barrier have a positive significant effect on ICBT?
- H₄:** Is there any positive significant relation between unemployment and ICBT?
- H₅:** Does the exchange rate have a negative insignificant influence on ICBT?

Literature

Theoretically Review of the ICBT

Theoretically, cross-border trade involves the buying and selling of goods and services between businesses in neighboring countries, with the seller being in one country and the buyer in the other country (Golub, 2015). Informal trade is the market-based production of illegal goods and services that are deliberately concealed from public authorities and escape detection in official gross domestic product (GDP) (Akyüz, 2017). Informal trade between countries has been seen as bringing having adverse effects, especially following the implementation of structural adjustment programmes (SAPs) and the negative effects of financial crises that have been experienced in by different parties worldwide. Informal cross-border trade (ICBT) has since increasingly become globalized, with trading networks extending across continents (Doevenspeck and Mwanabiningo 2012). According to Magara (2015), cross -border trade in the East African Community (EAC) is primarily informal, directly or indirectly escaping from the regulatory framework and often unrecorded or incorrectly recorded in official national statistics of the trading countries. Informal cross-border trade (ICBT) accounts for approximately 40% of the GDP in African countries. Since the commencement of the EAC Customs Union in 2005, several official efforts have been made to increase formal trade links among partner states (Lesser & Moisé-Leeman, 2009). Despite the policy pronouncements to promote trade integration among EAC partner states, formal trade links still face several constraints. Additionally, according to Berhanu (2016), informal contacts strengthen regional integration networks and relationships more than formal links. While it may be relatively easy to eliminate constraints on formal trading, the same may not provide better incentives for traders already in the informal sector to shift or formalize their trading practices. Afrika & Ajumbo, (2012) report that most traders have no education and raise capital from their own resources or through loans from friends and relatives. Traders are generally not bankable nor do they have assets that banks would accept as collateral.

Empirical Studies

(Lesser and Moisé, 2009) researched ICBT and trade facilitation reform in Sub-Saharan Africa. They explained that the sector still constitutes an important part of developing countries' economies. In sub-Saharan Africa, the ICBT is estimated to represent 43% of the official (GDP), which is almost equivalent to that of the formal sector. This study considers measures that help reduce direct and indirect trade transaction costs arising from mandatory import- and export -related procedures; mechanisms that simplify trade-related regulations and requirements for selected low -value transactions; and policies that help enhance compliance levels with existing international trade regulations. In addition, the study explores a number of complementary measures (such as the provision of effective business support services to informal traders and enhanced dialog between traders and border agencies), which can further encourage firms to formalize their cross-border transactions. However, the paper does not suggest that, trade facilitation reform alone will help reduce ICBT trade or that governments will be able to fully eliminate its incidence in the region. (Ogolo, 2010), showed that, participants in ICBT come from both informal and formal sectors. The participants from the informal sectors operate entirely outside the formal economy, and those from formal firms fully evade trade -related regulations and duties by avoiding official border crossing posts and passing their commodities through "unofficial routes". They may partially evade trade-related regulations and duties even as they pass their goods through official routes that have border crossing points and customs offices yet involve illegal practices such as under invoicing. (Aikaeli and Mkenda, 2015) applied log it regression models to estimate the decision of micro and small entrepreneurs to participate in informal work, especially in the construction industry in Tanzania. The data were obtained from 2013 surveys conducted in six regions in

Tanzania, namely, Dar es Salaam, Tanga, Arusha, Mwanza, Dodoma and Mbeya, which included 1,445 respondents. The regression results indicate that education, income from other sources and gender affect the participation of entrepreneurs in informal work. Most informal entrepreneurs in Tanzania's construction industry are not well- educated and earn low incomes. Concerning gender, the regression results indicate that the probability of female workers becoming involved in the informal construction industry is greater than that of men. (Zuo, (2013) estimated the income determinants of informal work in China based on the 2006 Chinese General Social Survey (CGSS). A total of 10,000 households were involved from 28 provinces and cities in China. By applying multinomial log it (MNL) regression, this study showed that gender, duration of education, location and occupation are important determinants of income in informal work. Men in informal work gain more income than women, while people who have a longer duration of education will have a greater tendency to gain more hourly earnings in informal work than will those with a shorter education. By dividing the job category into managerial, professional, technical, and clerical, this study revealed that people who occupied managerial or professional positions were able to generate their income. Conversely, if people are working in technical or clerical positions, participation in informal work will reduce their income. In terms of location, people who live in large cities have a greater probability of generating more income through informal work than people who live in small towns.

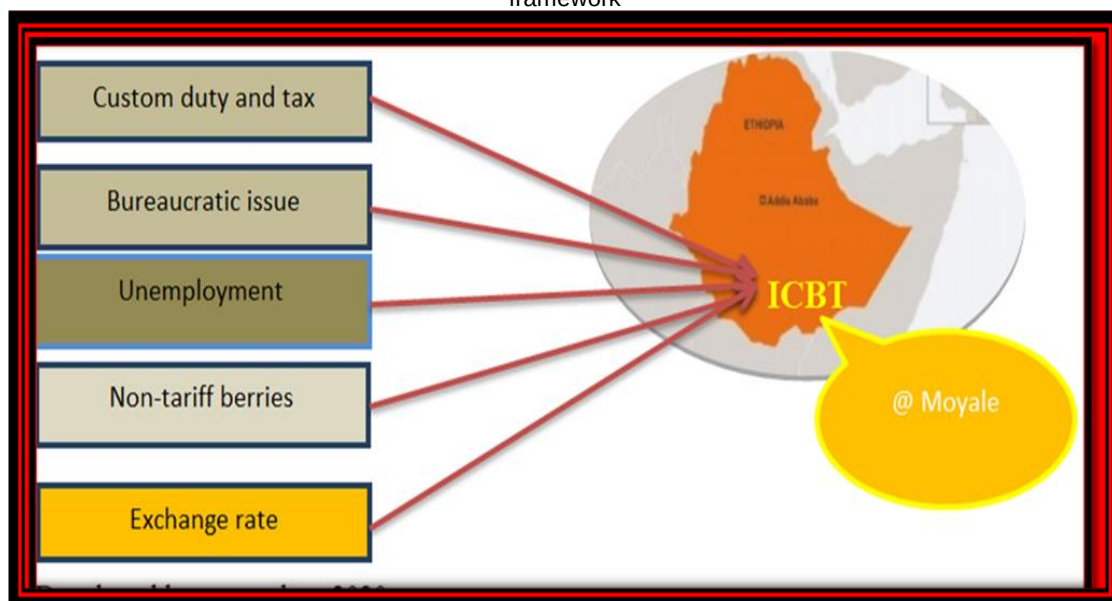
Literature Gap

The literature shows that inadequacies exist in providing a theoretical and empirical analysis of the factors hindering failure to achieve full potential for ICBT in Ethiopia. The researcher believes that this study fills some gaps in the area of ICBT factors not tested in previous studies, because the coming researchers and current policy recommendations, in addition to filling the literature, address the issue in depth by considering the relevance of fully leveraging cross-border trade performance and follow -ups as well as conducting awareness of alternative recommendations can be made to improve government losses from ICBT. The researcher also believes that no study has been carried out on the factors (the unemployment rate, exchange rate, custom duty and tax, nontariff barriers and bureaucratic issues) affecting ICBT in Ethiopia, as these factors may not be the only ones affecting cross -border trade. Therefore, a research gap needs to be filled by conducting a thorough survey on the factors affecting the smuggling trade in Ethiopia.

Conceptual Framework

This framework summarizes the model of the study in terms of variable relationships. The main variables of the study are; custom duty and tax, nontariff barriers, bureaucratic issues, exchange rates and unemployment. The variables considered in the study are independent variables that affect the ICBT on the Ethiopia Kenyan border. Figure 2.1 Conceptual

framework



Methodology and Data

Research Design

This research problem was studied through a descriptive research design. A descriptive study is generally based on making findings concerning questions such as who, what, where when, or how much. Descriptive studies are always handled with hypotheses that are clearly defined or investigative questions, and they serve a number of objectives in the study (Cooper & Schindler, 2011). The main advantage of using this design was that it enabled us to evaluate the factors and measure their effect on ICBT. The aim was to determine how informal cross -border trade could be easily controlled to increase government revenue as well as how to enhance the living standard border community in Moyale, Ethiopia. The major finding of this study is that it has the potential to provide insights that will be the outcome of ICBT and to guide appropriate guidelines that will help hearten traders shift from informal trade to formal trade to increase government revenue from cross -border trade and maximize the benefits from cross -border trade, especially for border communities in the region of Moyale, Ethiopia.

Research Approach

Research methodology comprises procedures (with a much wider scope) and the underlying philosophical concepts that encapsulate the practical procedures followed in any research study (Cooper and Schindler, 2003). To achieve the objective of the study and answer the research questions, the surveyors adopted both qualitative and quantitative research approaches and mixed research approaches. The rationale of using a mixed approach was to gather data that could not be obtained by adopting a single method (Creswell, 2003). Hence, the basis of such an approach helps to neutralize the limitations of applying a single approach in connection with the qualitative and quantitative nature of the research questions. Therefore, the study employed mixed approaches.

Population and Sampling Design

• Population

The term “study population” refers to the total collection of elements that one would like to study or make inferences about (Cooper & Schindler, 2011). It represents the total collection of elements with common observable characteristics about which some inferences can be made (Cooper & Schindler, 2011). The population of this study included 1252 traders acquired from the Borana Zone Moyale Woreda trade office, from the Moyale town Oromia regional state, Ethiopia.

Table 1: Target Population

No	Area of businesses	Frequency	Proportion
1	Perishable goods	352	28.11%
2	Clothes and shoes	371	29.63%
3	Different agricultural outputs	423	33.79%
4	Electronics	48	3.84%
5	others	58	4.63%
	Total	1252	100%

Source: Moyale Woreda Trade Office (2022)

• Sampling Technique

A study sampling technique is a method that researchers use to select an appropriate list of respondents from the entire study population (Cooper & Schindler, 2011). To determine an appropriate sample size, this study utilized both simple random sampling and stratified sampling techniques. This process was performed carefully to construct a sample that would provide relevant, accurate and valid information that would aid accordingly in the study. Hence, this study adopted a stratified sampling technique in which the traders were categorized into their areas of market business according to their type of trade. For each business type, a simple random sampling technique was used because it gave each member of the population an equal chance of inclusion in the study.

Table 2: Stratifying Sample Technique

No	Area of Businesses Type	Frequency	Strata
1	Perishable goods	352	83
2	Clothes and shoes	371	87
3	Different agricultural outputs	423	99
4	Electronics	48	11
5	others	58	14
	Total	1252	294

- **Sample Size**

The sample size is a smaller set of individuals from the larger population (Cooper and Schindler, 2011). Since determining sample size is a very important issue for collecting accurate results within a quantitative survey design, a sample of 294 respondents was selected, as shown in the Table 3.2 The abovementioned sample population was using the following formula taken from Kothari (2004):

$$n = \frac{z^2 \cdot N \cdot \sigma_p^2}{(N - 1)e^2 + z^2 \sigma_p^2}$$

Where n = the size of the sample,

N = Size of the population, given as 1252,

e = Acceptable error given as 0.05,

σ_p = the standard deviation of the population and given as 0.5 where not known,

Z = standard variety at a confidence level of 1.96 at the 95% confidence level.

Therefore; $n = (1.96^2 \cdot 1252 \cdot 0.5^2) / ((1252 - 1)0.05^2 + 1.96^2 \cdot 0.5^2)$

= (1,202.4208) / (4.0879) **n = 294 Respondents**

Data Collection Instruments

To collect sufficient data to answer the research questions, three surveys were designed. The first survey was a demographic and structured questionnaire used for primary data collected from the sample frame. A structured questionnaire was also used to collect quantifiable data. The data collection instrument for the study was developed based on the literature of various scholars. The questionnaires used a Likert scale where 1= no degree, 2 = low degree, 3 = moderate extent, 4 = high degree and 5 = very high degree; to indicate the degree of agreement to which respondents had while evaluating informal cross -border trade. The second survey included key informant interviews aimed at collecting data from different common business types. Finally, yearly contraband report data from 2018 to 2022 were collected from the ERCA Office, Moyale branch.

Description of Variables and Measurements

In this study, five continuous independent variables and one continuous dependent variable were evaluated. These are outlined below:

- **Dependent Variable**

The dependent variable of this study was the ICBT, which was measured as the amount of contraband reported in million birr. The amount of contraband was defined as the revenue that was gained by the Ethiopian Revenue and Custom Authority of the moyale branch through the control of ICBT. The study focused on the total amount of contraband reported from the ICBT each year by the ERCA of the Moyale branch.

- **Independent Variable**

To measure the predictive factors that affect the ICBT of the ERCA in the Moyale branch, five variables were used as independent variables; these variables were collected from different studies. The variables, namely;

- **Customs Duty and Tax:** The ERCA normally charges customs duties and taxes as a percentage of the duty paying value of goods, which is the sum of the amounts paid for the imported or exported good up to the point of entry into or exit from the customs territory. To determine the correct customs duty and amount of taxes, ERCA thus needs to determine the value of goods (dictionary of trade policy, 2003).
- **A Nontariff Barrier:** Any restriction that makes importation or exportation difficult or costly. Sometimes, enforcement is strict, and other times, it is not, creating a great deal of regulatory uncertainty, particularly for smaller traders. Nontariff measures include laws, regulations, and policies other than tariffs that affect the movement of goods and services across borders (EAC of Non-Tariff Barriers Act, 2017).

- **Bureaucratic System:** The bureaucratic system is official in terms of time and money due to excessive regulations involving a number of ministries and agencies and related fees (Solomon et al, 2003). The bureaucratic issue measures the interims of the time consumption efficiency of regulation and related fees.
- **Unemployment:** Unemployment is the most important measure of the labor market difficulties of young people. The effects of unemployment early in a person's working life are well documented: unemployment may permanently impair his or her productive potential and therefore employment opportunities and can lead to serious social adjustment difficulties. In the context of sub-Saharan Africa, whether a young person has a job can often determine which side of the poverty line a household lays.
- **Exchange Rate:** Any foreign currency amount to be taken into account in valuation must be converted into an Ethiopian birr. For conversion, the official exchange rate declared by the National Bank of Ethiopia for the day when the goods declaration is registered must be used. Official exchange rates are released every Wednesday and are valid for a week, starting on Thursday (Ethiopian Customs Guide, 2017).

Model Specification

Different techniques of data analysis based on the nature of the data (such as quantitative and qualitative data; descriptive and inferential statistics) and research philosophy were employed. Significant variables, detecting anomalies, and testing any assumptions were extracted. Data processing includes Kothari, (2009), who edited, classified and tabulated the collected data to make it amenable to analysts. The questionnaires were checked for completeness and consistency, and gaps were edited and filled. The collected data were coded and entered into the Statistical Package for Social Science (SPSS) version 25.0. The researcher used inferential statistics (regression analysis) to establish relationships between the variables. Multiple regression models were used for this study to determine the factors affecting the incidence of ICBT on the Ethio-Kenyan border, as follows. The model employed in this study was adopted from different studies from different developing countries conducted in related areas, such as (Ngotho, 2014) and (Dietrich, 2015).

The regression model to be adopted was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

where

Y= informal cross-border X1= customs, Duty and Tax, and X2= bureaucratic system

X3= Non-Tariff Trade Barriers, X4= Unemployment Rate

X5= Foreign Exchange Rate

ϵ = Error term

β = constant

$\beta_1 \dots \beta_5$ = the slope, which represents the degree to which the ICBT changes as the independent variable changes by one unit.

Data Analysis and Interpretation

To analyze the research data, ordinary least squares (OLS) with multiple variables were used to assess the relationships between the dependent and independent variables (via SPSS) computer programmer software. The data collected from the field were analyzed predominantly quantitatively. The interpretation of quantitative data involved organizing information into units, synthesizing, and searching for meaningful patterns and analyzing the data collected through secondary data. In the section on data analysis and interpretation, each variable was presented and discussed by using descriptive statistics related to the variables under study, followed by analysis of the P - value to determine the significance of the explanatory variable on the dependent variable selected for the study.

Results and Discussion

• Introduction

This chapter describes the results of the research study performed to test the conceptual model and research hypotheses; thus, it provides general characteristics of the respondents, and evaluates the survey constructs and the descriptive statistics of the survey data. Descriptive statistics are used to check

initial data for any violations of the assumptions of statistical techniques that are employed to test the research hypotheses and the model. It also examines the reliability and validity of the survey constructs. Finally, the results of the statistical analysis were reviewed to test the research hypotheses, and the regression model was evaluated. Descriptive statistics are used to check initial data for any violations of the assumptions of the statistical techniques that are employed to test the research hypotheses and the model. The questionnaires were distributed to common informal traders in Moyale town. There was a total of 1252 common cross-border traders in Moyale town. Based on the data, 294 sample traders were selected to participate in this study. For these, 294 questionnaires were distributed, out of which 229 questionnaires were filled and collected, which gives the overall response rate of 77.89% that are used for the analysis of the study.

• Pearson's Product Moment Correlation Coefficient

The aim of correlation analysis is also known as Pearson's correlation coefficient, which is used to investigate the relationship between two variables. Specifically, a correlation coefficient determines the degree to which variation in one variable is related to variation in another variable (Malhotra, 1996:575). (Gravetter and Wallnau, 2000) define the Pearson correlation as, a measure of the degree and direction of linear relationships between two variables. A correlation score of -1.00 indicates that there is a perfect negative association between two variables, while a correlation score of 1.00 indicates that there is a perfect positive association between two variables. Therefore, for this study, a Pearson correlation coefficient was computed to determine the relationship between the dependent variable (informal cross -border trade) and the independent variables (custom duties and taxes, unemployment rate, bureaucratic system, nontariff barriers, and exchange rate). The results show that all the variables except for the exchange rate have linear and positive relationships with informal cross -border trade, ranging from substantial to strong correlation coefficients, as the exchange rate has a negative correlation with informal cross -border trade and all the other constructs.

Table 3: Pearson product moment correlation

Correlations		ICBT	CDT	UER	BT	NTB	EXR
Informal Cross Border Trade	Pearson Correlation	1	.525**	.470**	.607**	.447**	-.296**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
Custom Duties and Tax	Pearson Correlation	.525**	1	.202**	.304**	.221**	-.191**
	Sig. (2-tailed)	.000		.004	.000	.001	.006
Unemployment Rate	Pearson Correlation	.470**	.202**	1	.244**	.135	-.103
	Sig. (2-tailed)	.000	.004		.000	.055	.143
Bureaucratic system	Pearson Correlation	.607**	.304**	.244**	1	.387**	-.311**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
Non-Tariff Barriers	Pearson Correlation	.447**	.221**	.135	.387**	1	-.191**
	Sig. (2-tailed)	.000	.001	.055	.000		.006
Exchange Rate	Pearson Correlation	-.296**	-.191**	-.103	-.311**	-.191**	1
	Sig. (2-tailed)	.000	.006	.143	.000	.006	

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

Source: survey data, 2022

As shown in the table above, a significant and substantial positive correlation was found between informal cross -border trade (ICBT) and four other variables, namely, the bureaucratic system, custom duties and taxes, the unemployment rate, and nontariff barriers. Moreover, only the single variable exchange rate has a negative correlation with ICBT. As depicted in the above table, the bureaucratic system ($r = .607$, $p < .001$) had the most significant positive correlation with ICBT. On the other hand, a statistically significant and medium positive correlation was found between custom duties and ICBT ($r = 0.525$, $p < .001$). In addition, a statistically significant and positive correlation was found between the unemployment rate and ICBT ($r = .470$, $p < .001$). Again nontariff barriers were also found to have a statistically significant positive correlation with ICBT ($r = .447$, $p < .001$). However, the correlation between the exchange rate and ICBT was found to be negative (r value of -0.296 , $p < .001$). This is an indication that the bureaucratic system, custom duties and taxes, unemployment rate, nontariff barriers, and exchange rate play significant roles in determining informal cross -border trade. The highest correlation was found between the bureaucratic system and the r value ($r = 0.610$), followed by custom duties and taxes ($r = 0.525$), the unemployment rate ($r = 0.470$), and nontariff barriers ($r = 0.447$). From this,

we can understand that as the correlation value of variables falls between 0.447 and 0.607, there is a substantial positive correlation between the four independent variables and the dependent variable. The exchange rate has a negative correlation with informal cross -border trade (ICBT). The exchange rate was negatively correlated with not only ICBT but also all other variables. As shown by the correlation results, the bureaucratic system had the highest correlation (0.607) with informal cross border trade. This is an indication that bureaucratic procedures strongly affect ICBT. That is, the trade rules and regulation -related procedures of the government strongly affect ICBT. This means that time consuming, inefficient, and unclear trade rules and regulations highly strongly attract a vast variety of people in informal trade. This finding is similar to that of (Awang et al., 2013), who indicated that inefficient bureaucratic export/import procedures and regulations significantly increase the cost of joining the formal economy.

• Regression Analysis

As indicated in the previous sections, five hypotheses were proposed for this study. The data were tested at 0.05 significance level and a confidence level of 95%. The researcher conducted a regression analysis to test the research hypotheses that illustrate the relationship between ICBT and its five determinants (i.e., custom duties and taxes, the bureaucratic system, the unemployment rate, nontariff barriers and the exchange rate). The aim of the regression analysis was to determine a suitable regression equation that can be used to explain the variables that affect ICBT. The findings of the model summary and ANOVA.

• Model Summary

Table 4: Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.784 ^a	.614	.604	.25659	.614	63.010	5	198	.000

a. Predictors: (Constant), Exchange Rate, Unemployment Rate, Non-Tariff Barriers, Custom Duties and Tax, Bureaucratic system
Source: survey data, 2022

The coefficient of correlation R from Table 4.2 is 0.784, which indicates a strong positive correlation between informal cross border trades and its five determinants. From Table 4.1, the coefficient of correlation R is 0.819, which indicates a strong positive correlation between cross -border trade and the growth of women's entrepreneurial business at the Moyale Ethio-Kenyan border. The regression results (R²) shown in Table 4.2 below indicate that the independent variables (custom duties and taxes, the bureaucratic system, the unemployment rate, nontariff barriers and the exchange rate) explain 60.40% % of the variance in ICBT. This is an indication that only 39.6% of the variance is explained by other variables outside the variables mentioned above.

1.1 ANOVA

Table 5: ANOVA (Analysis Of Variance)

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.742	5	4.148	63.010	.000^b
	Residual	13.036	198	.066		
	Total	33.778	203			

a. Dependent Variable: Informal Cross Border Trade

b. Predictors: (Constant), Exchange Rate, Unemployment Rate, Non-Tariff Barriers, Custom Duties and Tax, Bureaucratic system

Source: survey data, 2022

Analysis of variance (ANOVA) Table 4.3 shows that the F-ratio is 63.010 at 5 degrees of freedom, and that at 198 degrees of freedom is statistically significant at the 95% confidence level. This result is significant at $p < .001$ (because the value in the column labeled Sig. is less than .001). This result tells us that there is less than a 0.01% chance that an F-ratio this large would happen if the null hypothesis were true. Therefore, we can conclude that our regression model results in a significantly better prediction of ICBT than did the use of the mean value of ICBT. In brief, the regression model overall predicts ICBT significantly well (the model is a good fit).

Secondary Data Interpretation**Table 5: Revenue reports of the ERCA of Moy Branch for the fiscal years from 2018 to 2022**

No	Tax Description	Amount of Revenue Collected Per Year From 2018 To 2022 By Birr				
		2018	2019	2020	2021	2022
1	Import Custom Tax	84,836,725	81,170,944	103,176,466	124,942,876	125,207,241
2	Excise Tax	767,521	4,569,140	19,856,264	4,652,900	5,111,375
3	Value Added Tax	85,150,800	84,880,601	98,906,767	113,562,275	32,503,405
4	Sur Tax	50,230,052	50,718,720	64,449,697	75,105,969	82,811,501
5	Withhold Tax	9,161,808	9,123,845	12,838,998	13,745,940	14,046,666
6	Contraband Goods	16,452,0879	68,879,288	90,404,196	69,121,451	69,124,909
	Total collected	394,667,785	299,342,538	389,632,388	401,131,411	328,805,097

Source: ERCA Moyale branch 2022

The secondary data taken from the ERCA of the Moyale branch indicate that, the amount of informal or illegal trade across Ethiopian borders with Kenya for the values of contraband goods and custom duties and taxes grew over the year.

In 2018, more than 16.5 million Birr were collected, as contraband export/import goods; in the next fiscal year, 2019, more than 68.9 million Birr were reported, and more than 90.4 million Birr were reported in the ETB in 2020. As the interviews show, more than 75% of the seized contraband goods were collected from illegal imported goods by the ERCA branch of Moyale, which reflects the strong increase in informal cross -border trade goods from Kenya. However, due to civil war at Moyale Town from 2021 to 2022, the amount of contraband goods was reduced, but illegally traded goods were not reduced until now. As Table 4.4 above indicates, the amount of import custom duty revenue collected from the fiscal year of 2018 to 2021 increased from 84,836,725 to 125,207,241, respectively, while the amount of value added tax revenue collected from formally imported goods in the fiscal year of 2018 to 2022 increased from 85,150,800 to 119,669,152, respectively. This high amount of import custom duties and VAT revenues made the price of formally imported goods more expensive.

Additionally, the surtax imposed on legally imported goods was very high, but compared to the import custom duty and tax, it was medium and ranged from 50,230,052 to 82,811,501 from the fiscal years of 2018 to 2022. Additionally, compared with the import custom duty tax, VAT and surtax, the withhold tax and excise tax were taxed at lower levels and did not increase more per year. The withhold tax collected from the fiscal years of 2018 to 2022 ranged from 9,161,808 to 14,046,666, while the excise tax ranged from 767,521 to 5,111,375 for the fiscal years of 2018 to 2022. The secondary data from the ERCA of the Moyale branch indicated that the imported custom duty and value added tax (VAT) strongly affects the price of formal imported goods.

Conclusion and Recommendations

The last chapter of the paper discusses the conclusions drawn from the analysis of the study, and possible recommendations are made.

Conclusion

The objective of this study was to investigate the factors influencing informal cross -border trade, with a focus on the Ethio-Kenyan border, specifically on Moyale, Ethiopia. In this study, quantitative and qualitative research methods and regression analysis were used. The variables considered dependent variables were informal cross-border trade, and the independent variables, such as custom duties and taxes, bureaucratic issues, nontariff barriers, exchange rates and unemployment rates, were explained through descriptive statistics for all the variables. Informal cross border trade constitutes a significant portion of cross -border trade on the Ethio-Kenyan border in Moyale, Ethiopia, and for several contraband goods, the amount of informal flows has increased substantially over time. Based on the discussion and analysis presented in chapter four, the researcher constructed the regression equation shown below.

$$ICBT = 0.107 + 0.332 BS + 0.284 CDT + 0.276 NTB + 0.170 UER - 0.0671 EXC$$

Bureaucratic system from regression result shows that positive effect on ICBT and significant at 99% confidence interval, custom duty and tax shows positive significant effect on ICBT at 99% confidence interval, non-tariff barriers have positive and significant in moving ICBT at 99% confidence interval, Unemployment have positive and significant effecting on ICBT at 99% confidence interval.

Finally, the regression exchange rates have a negative sign since their coefficient is statistically insignificant, so they are not related to an increase in ICBT in Moyale, Ethiopia. However, from the findings, there were linear increases in ICBTs across the four independent variables over the years. The majority of traders engaged in ICBT were adult females, and dealers in ICBT were quite mixed, including males, children, illiterate individuals and those with primary education, secondary education, tertiary education, rich and poor people, different tribes and different nations of Ethiopia. The study concludes that bureaucratic regulations on imports and exports were inefficient and time consuming. A ministry has implemented high taxes and so many obstacles that limit formal traders due to excess nontariff trade barriers, such as license limitations, quantity limitations, time limitations, and capital limitations.

Recommendations

Informal cross -border trade can be reduced through the state initiation of cross-border policy dialog, reducing formal trade transaction costs, simplifying procedures, and offering technical assistance and support to formal traders. "Creating a supportive environment for informal traders could be the start of a successful process of formalization for informal traders. To establish efficient and effective cross -border trade policies, the federal government needs to generate accurate and systematic data that would allow precise cost-benefit taxation of ICBT to design evidence -based and informed policies that heartn informal traders to shift to formal traders to increase government revenues and minimize government losses. The government should reduce the rate of taxes imposed on import goods, especially import customs duties and value -added taxes, while also focusing on widening the formal economy of countries to increase government revenues. The informal economy is an alternative source for shrinking of formal trade; hence, there is a need to find an enabling environment where formal trade can coexist without hurting the state economy. A supportive environment for informal traders across stands to benefit more can be realized by initiating the process of informal trade formalization within the country. The government will be able to collect better information on trading goods, values and quantity trading and improve nontariff trade barriers to policy makers; thus, the country will be able to increase revenue collection across the border to finance national development as the need for traders to smuggle goods decreases. The Ethiopian government should join EAC and WTO members to reduce and remove NTBs, with a focus on identifying specific NTBs and establishing NMCs to raise awareness and improve transparency over NTBs.

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BUILDING FOR THE FUTURE: SUSTAINABLE DESIGN STRATEGIES IN GREEN LIBRARIES

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ABSTRACT

This comprehensive review explores the imperative of integrating sustainable design principles into library architecture to meet environmental and societal needs. This paper delves into a comprehensive examination of sustainable design strategies tailored specifically for green libraries, emphasizing the integration of environmentally friendly features and technologies to minimize ecological footprints and maximize occupant well-being. Key topics include passive design techniques, renewable energy systems, efficient water management, and the use of eco-friendly materials. Through the exploration of case studies and examples drawn from diverse library projects worldwide, this paper highlights successful applications of sustainable design principles, showcasing innovative approaches to reducing energy consumption, enhancing indoor air quality, and promoting environmental stewardship. By synthesizing principles and best practices from the fields of architecture, environmental science, and library studies, this paper offers valuable insights for architects, designers, librarians, and policymakers seeking to create sustainable library spaces that inspire, educate, and empower communities.

KEYWORDS: Green libraries, sustainable design, environmental architecture, passive design techniques, renewable energy systems, eco-friendly materials, occupant comfort, case studies.

Introduction

Libraries stand as bastions of knowledge, community, and culture, serving as focal points for learning, collaboration, and inspiration. In an era characterized by escalating environmental challenges and a growing consciousness of sustainability, the role of libraries extends beyond their traditional functions to encompass a profound responsibility towards the planet and its inhabitants [1]. Recognizing this imperative, the integration of sustainable design principles into library architecture emerges as a crucial endeavor, promising not only to mitigate environmental impacts but also to enhance the well-being of library users and communities at large [1].

The imperative of sustainable design in library architecture is underscored by a confluence of factors. As custodians of information and resources, libraries hold a unique position to lead by example in promoting environmental stewardship and resilience. Moreover, the built environment, including libraries, significantly contributes to global carbon emissions, resource depletion, and environmental degradation. Addressing these challenges necessitates a paradigm shift towards sustainable design practices that prioritize energy efficiency, resource conservation, and occupant health and comfort [2].

This paper seeks to delve into the multifaceted realm of sustainable design strategies in green libraries, illuminating the transformative potential of integrating environmentally friendly features and technologies into library architecture. Through a comprehensive exploration of key topics, including passive design techniques, renewable energy systems, efficient water management, and the use of eco-friendly materials, this paper aims to provide architects, designers, librarians, and policymakers with actionable insights and best practices for creating sustainable library spaces [2].

The objectives of this paper are twofold: first, to elucidate the rationale behind integrating sustainable design principles into library architecture, and second, to offer a systematic examination of sustainable design strategies tailored specifically for green libraries [3]. By synthesizing principles and

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best practices from the fields of architecture, environmental science, and library studies, this paper endeavors to inspire and empower stakeholders to envision and realize libraries as beacons of sustainability and innovation [3].

In pursuit of these objectives, the following sections will explore in depth various sustainable design strategies, drawing upon case studies and examples from diverse library projects worldwide. From passive design techniques that harness natural elements to renewable energy systems that power libraries with clean, sustainable energy, each topic will be scrutinized to uncover its potential for reducing ecological footprints and enhancing occupant well-being. Through this exploration, readers will gain a deeper understanding of the transformative power of sustainable design in shaping libraries of the future.

Background and Context

In recent decades, library architecture has undergone a significant evolution, reflecting changing societal values, technological advancements, and environmental concerns. Traditional libraries, once characterized by imposing facades and cavernous interiors, have evolved into dynamic, multifunctional spaces that foster collaboration, innovation, and community engagement [4]. This evolution has been paralleled by a growing emphasis on sustainability, as architects, designers, and stakeholders increasingly recognize the imperative of reducing environmental impacts and promoting resilience in the built environment [4].

The current state of library architecture reflects a shift towards sustainable design principles and practices. This shift is driven by a confluence of factors, including escalating concerns over climate change, resource depletion, and environmental degradation. Libraries, as prominent public institutions, are not exempt from the environmental impacts associated with construction, operation, and maintenance. As such, there is a growing recognition of the need to minimize the ecological footprint of libraries and to adopt sustainable design strategies that prioritize energy efficiency, resource conservation, and environmental quality [4].

Moreover, the evolving role of libraries in society has further underscored the importance of sustainability in library architecture. Beyond serving as repositories of knowledge and information, libraries have become vibrant hubs of community activity, offering a diverse array of programs, services, and resources to meet the evolving needs of their patrons. In this context, sustainable design principles are seen not only as a means of reducing environmental impacts but also as a way to enhance the quality of the library experience for users [5].

The environmental and societal challenges driving the need for green libraries are manifold. Climate change, driven by human activities such as fossil fuel combustion and deforestation, poses unprecedented threats to ecosystems, communities, and economies worldwide. Rising temperatures, extreme weather events, and sea-level rise are just a few of the manifestations of climate change that have profound implications for the built environment, including libraries. By adopting sustainable design principles, libraries can mitigate their contributions to climate change and help build more resilient communities [5].

In addition to environmental concerns, societal challenges such as urbanization, population growth, and resource scarcity further underscore the need for green libraries. As urban populations continue to swell, the demand for public amenities, including libraries, is increasing. Sustainable design strategies can help address this demand by optimizing space utilization, improving accessibility, and reducing operating costs. Furthermore, by promoting environmental awareness and stewardship, green libraries can serve as catalysts for positive social change, inspiring individuals and communities to adopt more sustainable lifestyles [5].

In summary, the current state of library architecture reflects a growing emphasis on sustainability, driven by environmental and societal challenges. Green libraries, characterized by their commitment to sustainable design principles and practices, hold the promise of mitigating environmental impacts, enhancing community resilience, and fostering a culture of sustainability for generations to come.

Imperative for Sustainable Design in Libraries

Sustainable design in library architecture is not merely an option but an imperative in today's world. Several compelling arguments underscore the necessity of integrating sustainable principles into the design, construction, and operation of libraries [6].

- **Environmental Responsibility:** Libraries, like all buildings, have a significant environmental footprint. From energy consumption to material usage, libraries contribute to resource depletion, pollution, and greenhouse gas emissions. Embracing sustainable design principles allows libraries to reduce their environmental impact, minimizing energy consumption, conserving resources, and mitigating pollution. By incorporating renewable energy systems, optimizing building orientation, and utilizing eco-friendly materials, libraries can become exemplars of environmental stewardship, demonstrating a commitment to sustainability that resonates with patrons and communities [6].
- **Resilience to Climate Change:** Climate change poses unprecedented challenges to the built environment, including libraries. Rising temperatures, extreme weather events, and shifting precipitation patterns threaten the structural integrity and functionality of library facilities. Sustainable design strategies, such as resilient building materials, passive heating and cooling systems, and green infrastructure, enhance libraries' resilience to climate change impacts, ensuring their continued operation and service to communities in the face of adversity [7].
- **Financial Savings:** Sustainable design not only benefits the environment but also offers tangible financial savings for libraries. Energy-efficient building systems, such as lighting, HVAC, and insulation, reduce operational costs by lowering energy consumption and utility bills. Moreover, green building certifications, such as LEED (Leadership in Energy and Environmental Design), can enhance the market value of libraries, attracting funding, donations, and partnerships. By investing in sustainable design, libraries can achieve long-term financial sustainability while fulfilling their mission to serve the public [7].
- **Enhanced Occupant Experience:** Green libraries prioritize the comfort, health, and well-being of their occupants. Indoor environmental quality, including air quality, lighting, and acoustics, significantly impacts patrons' experience and productivity within library spaces. Sustainable design features, such as natural ventilation, daylighting, and low-emission materials, create healthier and more comfortable environments for users, enhancing their overall satisfaction and engagement with library services and resources [8].
- **Educational Opportunities:** Green libraries serve as educational resources themselves, offering opportunities to educate patrons and communities about sustainability and environmental conservation. Through interactive exhibits, educational programs, and sustainable design features integrated into library spaces, patrons can learn about green building practices, renewable energy technologies, and environmental initiatives. By fostering environmental literacy and awareness, green libraries empower individuals to make informed choices and take action towards a more sustainable future [8].

In conclusion, sustainable design is essential in library architecture due to its environmental, economic, and social benefits. Green libraries not only reduce environmental impacts and enhance resilience to climate change but also offer financial savings, improve occupant experience, and provide educational opportunities for patrons and communities. By embracing sustainable design principles, libraries can fulfil their mission as stewards of knowledge and champions of sustainability, inspiring positive change for generations to come.

Imperative for Sustainable Design in Libraries

- **Passive Design Techniques:** Passive design techniques leverage natural elements such as sunlight, wind, and thermal mass to optimize energy efficiency and enhance occupant comfort in library spaces. Examples of passive design techniques include [9]:
 - **Daylighting:** Incorporating large windows, skylights, and light shelves to maximize natural daylight penetration into library interiors, reducing the need for artificial lighting and creating a brighter, more inviting environment for patrons.
 - **Natural Ventilation:** Designing libraries with operable windows, vents, and atria to facilitate natural airflow and ventilation, promoting indoor air quality and reducing the reliance on mechanical cooling systems [9].
 - **Thermal Mass:** Utilizing materials with high thermal mass, such as concrete or brick, to absorb and store heat during the day and release it gradually at night, stabilizing indoor temperatures and reducing the need for heating and cooling [9].

- **Passive Solar Design:** Orienting library buildings to optimize solar exposure, minimizing heat gain in summer and maximizing heat retention in winter, thereby reducing heating and cooling loads and improving energy efficiency [9].
- **Renewable Energy Systems:** Renewable energy systems harness clean, sustainable sources of energy to power green libraries, reducing reliance on fossil fuels and mitigating greenhouse gas emissions. Several renewable energy technologies suitable for libraries include [10]:
 - **Solar Photovoltaics (PV):** Installing rooftop solar panels to generate electricity from sunlight, offsetting grid energy consumption and reducing utility costs while promoting renewable energy adoption.
 - **Wind Turbines:** Integrating small-scale wind turbines into library landscapes or rooftops to harness wind energy and supplement electricity generation, particularly in areas with favorable wind conditions [10].
 - **Geothermal Heating and Cooling:** Utilizing geothermal heat pumps to tap into the stable temperatures of the earth below the surface, providing efficient heating and cooling for library spaces while minimizing energy consumption and emissions.
 - **Biomass Heating:** Employing biomass boilers or stoves that burn renewable organic materials, such as wood pellets or agricultural residues, to provide heating for library buildings, offering a carbon-neutral alternative to traditional fossil fuel heating systems.
- **Efficient Water Management:** Efficient water management strategies in green libraries aim to conserve water resources, minimize water waste, and promote sustainable water use. Key strategies include:
 - **Low-Flow Fixtures:** Installing low-flow faucets, toilets, and urinals to reduce water consumption and minimize wastewater generation, conserving water without sacrificing functionality or comfort [11].
 - **Greywater Recycling:** Implementing greywater recycling systems to capture and treat wastewater from sinks, showers, and laundry facilities for non-potable uses such as landscape irrigation or toilet flushing, reducing demand on freshwater sources.
 - **Rainwater Harvesting:** Collecting rainwater from rooftops and paved surfaces for onsite reuse, such as irrigation, toilet flushing, or cooling systems, reducing stormwater runoff and supplementing municipal water supplies.
 - **Xeriscaping:** Landscaping library grounds with drought-tolerant native plants and efficient irrigation systems to minimize water use and maintenance requirements while enhancing biodiversity and ecological resilience [11].
- **Eco-Friendly Materials:** Eco-friendly materials play a crucial role in reducing the environmental impact of library construction and renovation projects. Sustainable materials suitable for green libraries include [12]:
 - **Recycled Materials:** Incorporating recycled content materials, such as recycled steel, glass, or plastic, into building components and finishes, diverting waste from landfills and conserving natural resources.
 - **FSC-Certified Wood:** Using wood products certified by the Forest Stewardship Council (FSC), which ensures that timber is sourced from responsibly managed forests, promoting sustainable forestry practices and biodiversity conservation.
 - **Low-VOC Finishes:** Selecting paints, adhesives, and sealants with low volatile organic compound (VOC) emissions to improve indoor air quality and reduce exposure to harmful chemicals for library patrons and staff [12].
 - **High-Performance Insulation:** Installing high-performance insulation materials, such as cellulose, recycled denim, or spray foam, to minimize heat loss and thermal bridging, improving energy efficiency and occupant comfort.

By incorporating these key sustainable design strategies into library architecture, green libraries can minimize environmental impacts, enhance energy efficiency, promote resource conservation, and create healthier, more sustainable environments for patrons and communities.

Conclusion

In conclusion, the imperative for sustainable design in library architecture is undeniable, as evidenced by the myriad environmental, economic, and social benefits it offers. Green libraries, characterized by their commitment to sustainable principles and practices, represent not only a response to the pressing challenges of climate change and resource depletion but also a vision for a more resilient, equitable, and sustainable future. Through the integration of key sustainable design strategies such as passive design techniques, renewable energy systems, efficient water management, and eco-friendly materials, libraries can minimize their environmental footprint, reduce operating costs, and enhance the well-being of patrons and communities. By maximizing energy efficiency, optimizing indoor environmental quality, and promoting sustainable resource use, green libraries serve as exemplars of environmental stewardship and innovation, inspiring positive change at local, national, and global scales.

Moreover, green libraries offer educational opportunities to engage patrons and communities in sustainability initiatives, fostering environmental literacy, awareness, and action. By providing access to information, resources, and programs that promote sustainability and environmental responsibility, libraries empower individuals to make informed choices and contribute to building a more sustainable society. As we look to the future, the imperative for sustainable design in library architecture will only continue to grow in importance. Libraries, as vital community assets and cultural institutions, have a unique opportunity and responsibility to lead by example in promoting sustainability and resilience in the built environment. By embracing sustainable design principles and practices, libraries can fulfill their mission as catalysts for positive change, driving innovation, equity, and environmental stewardship for generations to come. In essence, green libraries embody the intersection of environmental responsibility, community empowerment, and knowledge dissemination, serving as beacons of sustainability and inspiration in an ever-changing world. By harnessing the transformative power of sustainable design, libraries can truly become agents of change, shaping a more sustainable, equitable, and resilient future for all.

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STATUTORY WELFARE MEASURES AND ITS IMPACT ON CEMENT INDUSTRY

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ABSTRACT

The workplace should have everything needed to keep employees safe and comfortable. This includes having the right tools, equipments and materials, providing a clean and well-ventilated environment, and offering ergonomic furniture or accessories. The following study provides the overall working condition and welfare measures carried out in the selected two cement factories. The study analyses overall opinions of the respondents on welfare measures and their satisfaction and dissatisfaction level on the measures taken by the organizations. The study shows the welfare measures implemented by the organizations were satisfactory in most of the cases and needs improvements in some measures.

KEYWORDS: Workplace Safety, Comfort, Tools, Equipment, Materials, Clean Environment, Ventilation, Ergonomic Furniture, Welfare Measures, Cement Factories.

Introduction

Employee welfare is a broad area of social welfare both conceptually and operationally. It includes a broad field of state of well-being, happiness, satisfaction, conservation, and human resources development which helps to motivation of employee. Every Organization provides welfare facilities to their employees to keep their level of motivation high. It is necessary to secure the cooperation of employee force to increase the production and to earn higher profits. The cooperation of employee force is possible only when they are fully satisfied with their employer and welfare measures provided by an organization.

The term Labor Welfare' refers to the facilities provided to the workers in and out a the factory premises such as canteens, rest and recreation facilities, housing and all other services that contribute to the wellbeing of workers. Welfare measures are concerned with general wellbeing and efficiency of workers. In the early stages of industrialization, welfare activities for factory workers did not receive adequate attention. Employers were not inclined to accept the financial burden of welfare activities. Wherever employers provided for such amenities, it was more with a paternalistic approach to labour rather than recognition of workers' needs

The employee welfare schemes can be categorized into two viz. statutory and non-statutory welfare schemes. The statutory schemes are those facilities that are compulsory to provide by every organization to all employees as compliance to the laws governing employee health and safety.

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The non-statutory schemes vary from organization to organization and from industry to industry. The welfare measures play an important role in every employee, because without welfare measures, they cannot work effectively in the organization. If people do not want to work, it is impossible for every organization to attain its goals. The different welfare measures which are provided by the employer to the employees will have a quick impact on the health, physical, mental efficiency alertness, morale and overall efficiency of the worker, which contributes to the higher productivity

Every workplace thrives on the satisfaction of the employees. This is why one must consider employee welfare and management to ensure that all employees are happy, healthy, safe, and productive. Employee welfare refers to all aspects of a workplace environment that support the well-being of its staff.

This includes physical safety, mental health, and stress-management programs. It also encompasses employee benefits such as health insurance, vacation time, retirement plans, and other support services. The main goal of employee welfare is to ensure that the workplace is enjoyable and safe for everyone. When managed properly, it can lead to improved performance from staff members and a general boost in their morale. This, in turn, leads to higher productivity and better customer service.

Review of Literature

Bhati P. Parul & Ashok M. Kumar (2013)¹ they reviewed the welfare provisions extended to the employees in Jyoti CNC, Rajoo Engineering, Steel Cast, Atul Auto & Amul Industries and to know that whether any type of relation exists between welfare provisions and employee satisfaction in that sample sector they had chosen 50 employees each from Jyoti CNC, Rajoo Engineering, Steel Cast, Atul auto & Amul industries through Simple Random Sampling and administered them through structured Questionnaires, and analyzed the data using correlation, one-way ANOVA and Percentage & analysis method and found that the employees have a positive attitude towards their industry with respect to the welfare provisions offered by the sample select companies they have chosen.

Keerthi Sriya A & Dr. Panatula Murali Krishna (2014)² in their study entitled "Status of Provisions of the Factories Act, 1948 - A study at Penna Cement Industries Limited (PCIL), Tadipatri" they have concluded that the overall awareness levels of the various provisions of the Factories Act, 1948 is not very high but the satisfactory levels with the facilities provided by the sample organization seems to be enough among the sample employees who have been selected as respondents for the present study.

Satya Narayana Rama M., Reddy Jaya Prakash R. (2012)³ in their article entitled "Labour Welfare Measures in Cement Industry in India (A Case of KCP Limited, Cement Division, Macherla, Andhra Pradesh)", examined the level of satisfaction of staff with labor welfare measures in the organization. For the study, convenience random sampling method was adopted and the sample size for the present study has been 90 employees of KCP Limited which was covering almost all the departments of the select organization. The study put forth that majority of employees in the industry were satisfied with welfare measures given by organization. However, few were not satisfied with welfare measures provided by the sample organization. Therefore, there was a need for improvement in the existing welfare measures has been suggested to enrich the staff of the organization's standard of living and their satisfaction level.

Renapurkar (2013)⁴ compared both in the Rashtriya Ispat Limited, Vishakhapatnam about the employees and management opinions, A sample size selected has been 300 respondent selected for the survey. Who were the heads of departments and they were approached. The findings of the present defined that the employees' desire for a better canteen facilities, first aid and housing but the management was of the opinion that employees were already well benefited by the company.

The national planning committee⁵ has been appointed in the year 1937 with the fact to investigate on various issues pertaining to the labours. The committee investigated on the labour issues and drafted a report in the regard, based on the present report the committee has passed various resolutions on working environment, conditions and their living conditions, those who were working in the industries. The committee has suggested the system of compulsory insurance for all industrial workers. It also came up with suggestions that a due attention has to be paid towards and transportation issues of the employees and works per week has to be 48 hours or nine hours a day.

Research Gap

It is clear from the review of literature that plenty of research work had been done by many researchers on employee/ labour Welfare and its measures. Closer examinations of the review of literature, majorly found that, much research work were conducted on cement industry in different region. But only few research were found that, they had done there research on Cement industry. By analysing the review of literature no research work were conducted on Employee/ Labour Welfare and its measures in this region/ in Kalaburagi district and found the research gap.

To fulfill this research gap which can overcome the lacunae between industry and academic research, the topic entitled “**Statutory Welfare Measures in Cement Industry**” has been considered.

Overview of Statutory Welfare Measures

- Drinking Water: At all the working places safe hygienic drinking water should be provided.
- Facilities for sitting: In every organization, especially factories, suitable seating arrangements are to be provided.
- First aid appliances: First aid appliances are to be provided and should be readily assessable so that in case of any minor accident initial medication can be provided to the needed employee.
- Canteen facilities: Cafeteria or canteens are to be provided by the employer so as to provide hygienic and nutritious food to the employees.
- Spittoons: In every work place, such as ware houses, store places, in the dock area and office premises spittoons are to be provided in convenient places and some are to be maintained in a hygienic condition.
- Lighting: Proper and sufficient lights are to be provided for employees so that they can work safely during the night shifts.
- Washing places: Adequate washing places such as bathrooms, wash basins with tap and tap on the stand pipe are provided in the port area in the vicinity of the work places.
- Changing rooms: Adequate changing rooms are to be provided for workers to change their cloth in the factory area and office premises. Adequate lockers are also provided to the workers to keep their clothes and belongings.
- Rest rooms: Adequate numbers of restrooms are provided to the workers with provisions of water supply, wash basins, toilets, bathrooms, etc.
- Maternity & Adoption Leave – Employees can avail maternity or adoption leaves. Paternity leave policies have also been introduced by various companies.
- Medi-claim Insurance Scheme: This insurance scheme provides adequate insurance coverage of employees for expenses related to hospitalization due to illness, disease or injury or pregnancy.
- Sexual Harassment Policy: To protect an employee from harassments of any kind, guidelines are provided for proper action and also for protecting the aggrieved employee. For more information go through - Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013

Objectives of the Study

- To Study the *various* statutory measures provided to the employees
- To ascertain the impact of statutory measures on overall satisfaction of the employees

Hypotheses

H0₁: The impact of statutory welfare measures on satisfaction of Employees is insignificant

Research Methodology:

Research titled “Statutory Welfare Measure and It impact in Cement Industry” is both qualitative and quantitative study that demands the primary response and extensive literature survey. Current study is empirical in nature providing the evidence from the Cement Industry as the outcomes are based on the primary data majorly. For the current research, researcher has adopted survey method where a structured questionnaire consisting nominal scale and interval scale tested scientifically was

administered to gather primary responses and supported by the intense literature survey of national and international journals, research articles, theses, books, abstracts, government publication. Thus collected data is analyzed with the help of Frequencies, descriptive statistics, regression analysis to raw inferences and its implications.

Sampling Design & Sample Size

The population of the current study encompasses the employees working for the Cement factories spread across Kalaburagi districts. Sample frame of the study constitutes the total number of the employees working for the ACC Cement Co. Ltd and Vasavadatta Cement Co. Ltd. From this sample frame researcher has chosen 50 employees from each select cement factories using simple random sampling method. According to the CLM theory 10% of the sample size is the minimum requirement to carry out research. Following steps were involved in arriving at sample size:

- Identification of the number of cement factories in Kalaburagidistrict
- Collecting the total number of employees working for the ACC Cement Co Ltd and Vasavadatta Cement Co Ltd and to prepare sample frame
- Adopting CLM theory, 50 employees are selected using Simple random sampling method from each factory
- Sample Size: Sample size of the current study is 100 employees working for ACC Cement Co Ltd and Vasavadatta Cement Co Ltd. Table-1.1. Presents sample distribution.

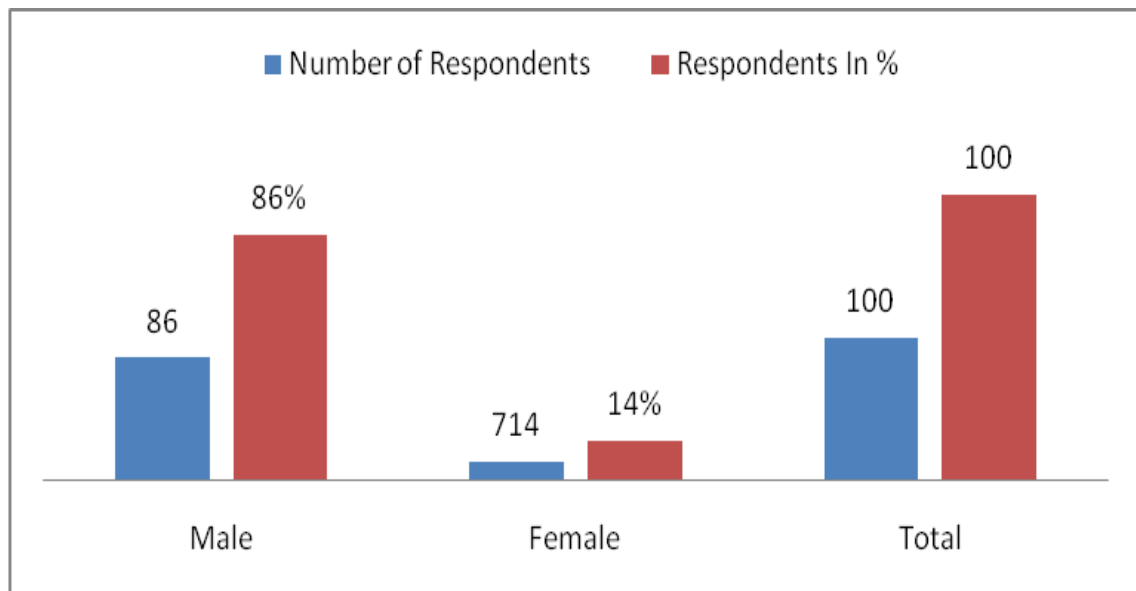
Table 1: Sample Distribution

Sl. No	Name of the District	Total Sample Selected for the Study
01	ACC Cement Co. Ltd	50
02	Vasavadatta Cement Co. Ltd	50
Total Sample Size		100

Results and Discussion

- **Gender-Wise Distribution**

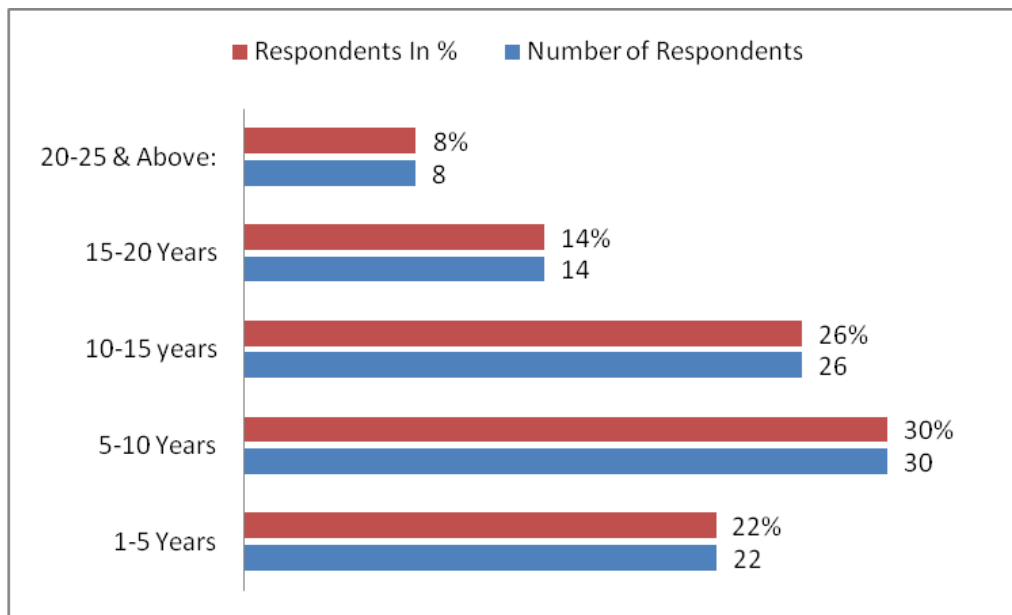
Chart 1: Gender wise Distribution of the Employees



Source: Field Survey

The above Chart 1 describes the gender wise distribution of the respondents. Out of the total respondents Maximum i.e. 86% of the Respondents were Male and rest 14% of the employees was Female.

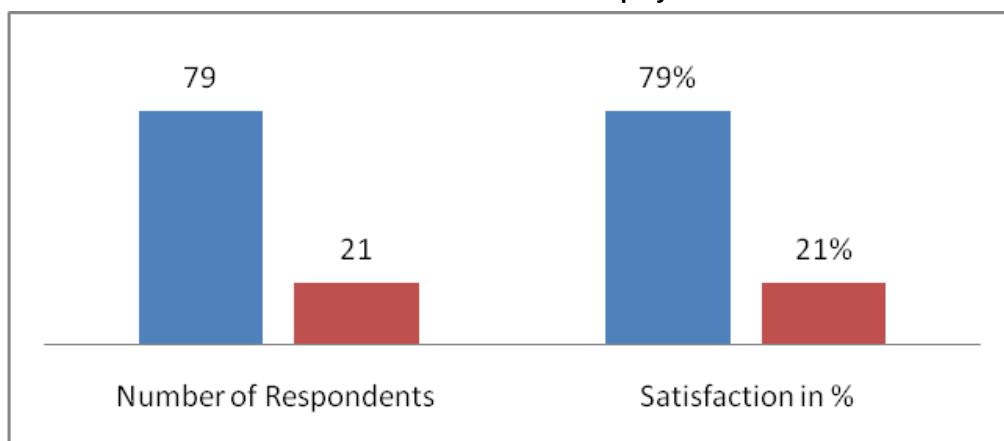
- Length of Experience**

Chart 2: Length of Service of the Respondents

Source: Field Survey

The above Chart 2 explains the length of the service of the respondents. Out of the total respondents i.e.22% of the respondents had a length of service between 01-05 Years, i.e.30% of the respondents had 5-10 Years, i.e.26% of the respondents had 10-15 Years, i.e.14% of the respondents had 15-20 Years and i.e.08% of the respondents had a length of work experience 20-25 years and above.

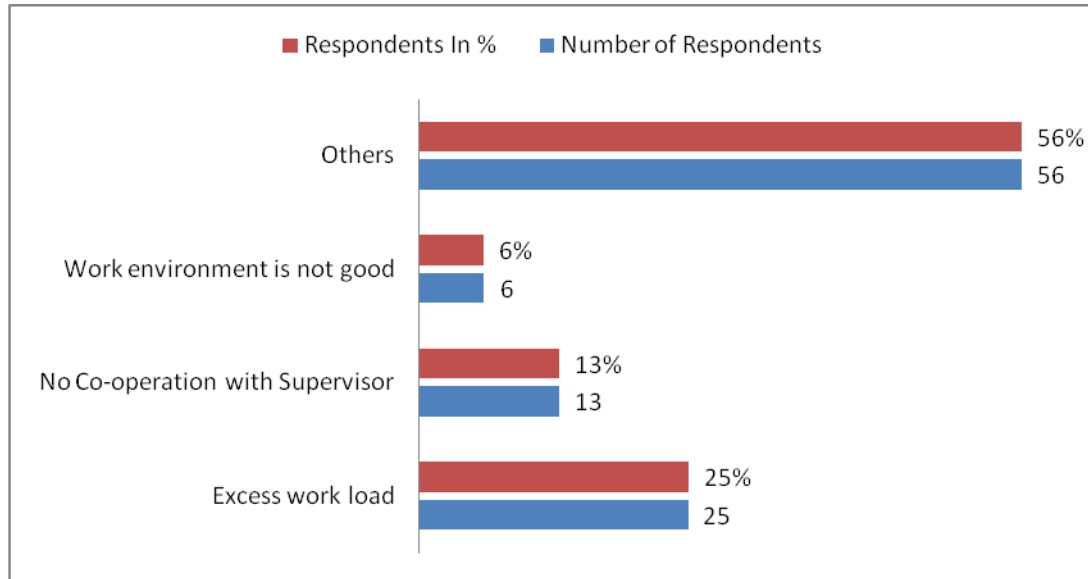
- Satisfaction of Employees**

Chart 3: Satisfaction of Employees

Source: Field Survey

The above Chart 3 Explain the opinion of the respondents whether they were satisfied with the working condition in select organization. Out of the total respondents, i.e. 79% of the respondents were opined that they were satisfied with the working condition and i.e. 21% of the respondents were opined that they were dissatisfied with the working condition in select organization.

- Reasons for Dissatisfaction**

Chart 4: Reason for Dissatisfied with the working condition

Source: Field Survey

The respondents were expressed the reason for Dissatisfied with the working condition in the above Chart-1.4. Out of the total respondents (i.e.25%) of the respondents opined that there is Excess workload, (i.e.13%) of the respondents were opined that there is No Co-operation with Supervisor, (i.e.06%) of the respondents were opined that, the Work environment is not good and (i.e.56%) of the respondents were opined that, they were dissatisfied with the working condition of the select organization due to other reasons.

- Statutory Welfare Measures**

As researcher intends to ascertain the satisfaction level of the statutory welfare measures adopted by the ACC cement co Ltd and Vasavadatta Cement co Ltd, considered the statutory variables; Canteen facility, shelter, restroom and lunch rooms, Medical and first aids box, Cleanliness, Arrangement for disposal of waste and effluents, Ventilation & temperature, Control measures for dust &fumes, Overcrowding, Drinking water facility and washing facilities.

Research tool to gather primary responses adopted 5 point rating Likert scale where 1= Highly Satisfied, 2=Satisfied, 3=Neither Satisfied nor dissatisfied, 4=Dissatisfied and 5=Highly Dissatisfied as it is an attitude measurement scale.

Table 2: Statutory Measures

	Statutory Measures	1	2	3	4	5
a)	Canteen facilities	27	47	6	10	10
b)	Shelters, Restroom & Lunch rooms	42	32	6	10	10
c)	Medical and first aid box	47	37	6	5	5
d)	Cleanliness	22	30	8	25	15
e)	Arrangement for disposal of waste and effluents	44	31	5	15	5
f)	Ventilation & temperature	53	33	4	5	5
g)	Control measures for dust & fumes	19	28	13	25	15
h)	Over crowding	60	34	2	1	1
i)	Lighting	56	34	3	4	3
j)	Drinking water facility	34	31	5	20	10
k)	Washing facilities	54	43	1	1	1

Source: Field Survey

Table 2 elucidates the satisfaction level of the employees towards the statutory measures adopted by the ACC Cement Co Ltd and Vasavadatta Cement Co Ltd. The analysis of the measures reveals; 27 % and 47% of the employees are highly satisfied and satisfied with the canteen facilities provided. 42% and 32% of the employees are highly satisfied and satisfied about the Shelters, Restroom & Lunch rooms provide. 46% and 37% of the employees are highly satisfied and satisfied with the medical and first aid box provided. 22% and 30 % employees are highly satisfied and satisfied with the Cleanliness, 44% and 31% employees are highly satisfied and satisfied with the Arrangement for disposal of waste and effluents, 53% and 33% of the employees are highly satisfied and satisfied with the Ventilation & temperature, 19% and 28% of the employees are highly satisfied and satisfied with Control measures for dust & fumes, 60% and 34% of the employees are highly satisfied and satisfied with Overcrowding, 56% and 34% of the employees are highly satisfied and satisfied with Lighting, 34% and 31% of the employees are highly satisfied and satisfied with drinking water, 54% and 43% of the employees are highly satisfied and satisfied with drinking water, Washing facilities.

• **Measuring the impact of Statutory measures on Satisfaction**

H₀: There is no significant impact of statutory measures of Satisfaction

Liner Regression is adopted to study the impact of statutory measures on the Satisfaction of employees ACC Cement Co Lts and Vasavadatta Cement co Ltd. The mean score of the Satisfaction is 1.79 and std. deviation is .833. Similarly mean score of Statutory Measures is 4.21 and std. deviation is .676

Table 3: Descriptive Statistics

	Mean	Std. Deviation	N
Satisfaction	1.7965	.83396	384
Statutory Measures	4.2176	.67654	384

Table 4: Model Summary of EMP and FP

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.683 ^a	.467	.466	.60961	.467	334.779	1	382	.000

a. Predictors: (Constant), Satisfaction

The Model summary presented in the **Table 4** elucidates the impact of statutory measures on satisfaction level. R square value is used to identify the Percentage change of total change in the dependent variable. The determining factor found to be $R^2 = .466$ significant at F value 334.779 indicating 46.6% of impact of statutory measures on satisfaction level.

Table 5: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	124.411	1	124.411	334.779	.000 ^b
Residual	141.960	382	.372		
Total	266.371	383			

a. Dependent Variable: Satisfaction

b. Predictors: (Constant), Statutory Measures

Table 6: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-1.757	.197		-8.932	.000	-2.143	-1.370
	Statutory Measures	.842	.046	.683	18.297	.000	.752	.933

a. Dependent Variable: Satisfaction

It is elucidated from the **Table-1.6** that statutory measures ($0.00 < 0.05$), have a significant impact on satisfaction level. As $p < 0.05$ for statutory measures under the study, **null hypothesis is rejected and alternate hypothesis is accepted** indicating that there is a significant impact of statutory measures of Satisfaction.

Findings

- The study carried out involves maximum number of male respondents because of the fact that the nature of work involves majorly on physical capacity of the employees.
- The respondents taken for the study are having a work experience of 5 to 15 years.
- In the selected cement industries the respondents are satisfied with the working conditions in the organization and few are not satisfied with the working conditions because of the reasons like, excess work load, no cooperation between employees, working environment and other reasons.
- The study has found that majority of the respondents opined that they are satisfied with the welfare measures provided by the organizations.
- It is observed that the drinking water facilities, Control measures for dust & fumes and arrangements for disposal of waste are rated as dissatisfied.
- Canteen facilities and Shelters, Restroom & Lunch rooms are also the facilities rated dissatisfied.
- There is an impact of statutory measures on the satisfaction level of employees and the impact is about 46.6%.

Suggestions

- ACC Cement Co Ltd and Vsavadatta Cement Co Ltd must provide good work environment to their employees as it has an impact on the productivity and morale of the employees. Better the work environment better is the morale that leads to enhanced productivity.
- One of the reasons for the dissatisfaction found was the no cooperation from superiors. As the Teams and team work is the pillar of success of any company, it recommended to have collaborative approach team management and superiors must encourage the subordinated to sustain in the long run
- Excess work load leads to fatigue, dissatisfaction and low morale and low productivity. It is suggested to have well defined role, workload to ensure it is not burden to employees.
- Safe and clean drinking water facilities avoid the health issues of employees and it the right of the employees also. Hence companies must provide clean drinking water and hygiene canteen facility.

Conclusion

The study titled "Statutory Measures and its impact in Cement Industry" was an empirical evidence from the Cement factories distributed in Kalaburagi. From the analysis of the study, it was concluded that the selected ACC Cement Co Ltd and Vasavadatta Cement Co Ltd are providing average to good measures of working conditions and welfare measures for the employees. There are major problems faced by the employees in the working environment of both the organizations which can be sorted out if the proper policies and planning carried out by the management in the future.

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CROP INSURANCE: CONCEPT AND PRACTICES

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ABSTRACT

Agricultural infrastructure, including irrigation systems, storage facilities, and transportation networks, can be spoiled or destroyed during natural disasters. In addition, there are substantial data gaps or inadequate data regarding the influence of natural hazards and disasters on agriculture in developing countries. Government and development assistance to the agriculture sector remains relatively small compared to the economic impact and agriculture sector needs. Investing more in disaster risk reduction is essential for resilient livelihoods of farmers and food production systems of the country. In summary, natural disasters and hazards pointedly affect agriculture, emphasizing the significance of disaster preparedness of governments, farmers and related agencies, risk reduction, and sustainable practices to safeguard food security and livelihoods of the farmers.

KEYWORDS: *Agricultural Infrastructure, Transportation Network, Natural Disasters, Risk Reduction.*

Introduction

Agriculture is affected by natural disasters, hazards and risks beyond control, it is necessary to take precautionary measures to control agriculture produce damage faced by farmers. Natural hazards and disasters have significant impacts on agriculture resulting various impacts on the livelihoods of the farmers. As per the Food and Agriculture Organisation research, the agriculture sector absorbs approximately 22% of the economic impact caused by natural hazards and disasters in developing countries. Disasters such as floods, droughts, or storms can destroy crops and agriculture produce, leading to food scarcity and economic losses. Disrupted ecosystems and stressed crops or crops become more vulnerable to diseases and pests.

Given the high impact on agriculture underscores the need for enhanced disaster risk reduction and resilience building within the agricultural sectors. There are some key risk management tools that can be employed at various levels of farming such as Agricultural Diversification, Agricultural (crop) Insurance, Weather Index-Based Insurance, Warehouse Receipts System, Social Protection, Commodity Exchanges and Futures Markets, Agricultural Finance and Microfinance. Out this risk mitigation tools crop insurances are found the crucial for the farmers for agricultural-related issues. A crop insurance schemes assists in the stabilization of agriculture income and reduces the adverse impacts on the lives of the farmers.

Importance of Study at International and National Level

United States, China, Brazil, Argentina and India are the top agricultural producing countries in the world. These nations play a crucial role in global agriculture and contribute significantly to food production. In these country, government and private agencies have been providing different crop insurance products and scheme for disaster risk reduction and resilience building within the agricultural sectors. All these five top agrarian countries providing multi-peril insurance scheme for the insuring the farmland, agricultural produce and the farmers.

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In the United States, the Federal Crop Insurance Program (FCIP) offers a comprehensive safety net for farmers, providing coverage against various risks including price fluctuation. China's agricultural insurance system has been providing Multi-Peril Crop Insurance (MPCI), emphasizing premium subsidies and voluntary participation of farmers. Brazil's Government Premium Subsidies Program for Agricultural Insurance (PSR) focus on premium subsidies, risk mitigation, and support for farmers. PSR of Brazil's government play a dynamic role in ensuring the resilience of agricultural sector. Argentina's crop insurance landscape involves both private cooperatives and government-backed initiatives for its agricultural sector. In India, considering that majority of the farmers' livelihood is dependent on the quality and quantity of the yield they produce, crop insurance also aids in fighting poverty. In India, there are four major crop insurance policies naming PMFBY, RWBCIS, UPIS and CPIS.

Crop insurance plays an essential role in safeguarding the interests of farmers and ensuring the sustainability of agriculture. So here is need to study the crop insurance concepts and practices.

Objectives of the Study

- To review evolution of crop insurance concepts in India.
- To review crop insurance schemes in practices in India.

Evolution of Crop Insurance Concepts in India

The development of crop insurance in India has been a dynamic journey, adapting to changing needs of agriculture and challenges facing in implementation of crop insurance policies. In the year of 1915, Mr. J.S. Chakravarthi of the state of Mysore proposed a scheme for rain insurance to protect farmers against drought. The scheme was grounded on an area approach and intended to provide relief to farmers affected by insufficient rainfall in this region. Other states like Madras now Channai, Dewas, and Baroda also made attempts to introduce crop insurance relief from the loss by the natural disasters but achieved partial success. In 1947, crop insurance increased more attention for the implementation to protect the farmland and farmers against disasters and risk. The government of India decided to introduce a crop insurance bill in the year 1965 for crop protection.

The first official crop insurance program of Indian government was introduced in 1972-73 by the General Insurance Department of Life Insurance Corporation. Later, the General Insurance Corporation of India (GIC) experimented insurance scheme with an "Individual Approach". This scheme continued until 1978-79 and covered only 3,110 farmers. Prof. V.M. Dandekar suggested an approach called the "Homogeneous Area approach". Based on this approach, the GIC introduced the Pilot Crop Insurance Scheme (PCIS) in 1979. This scheme covered crops such as cereals, millets, oilseeds, potato, gram, and barley. Premiums decided from 5% to 10% of the sum insured. The scheme implemented till 1984-85, involving 13 states and covering 6.27 million farmers. Introduced on April 1, 1985, the Comprehensive Crop Insurance Scheme (CCIS) actively involved state governments. CCIS followed the Homogeneous Area Approach and linked to short-term crop credit. Over the years, CCIS covered 7.63 crore farmers across 12.76 crore hectares of farmland with a sum insured of ₹ 24,949 crores and collected a premium of ₹403.56 crores. However, the CCIS was discontinued after Kharif 1999 and substituted by the National Agriculture Insurance Scheme (NAIS). Introducing NAIS, it was a significant step taken by the government toward comprehensive coverage. It was covered multiple crops against various risks. Farm Income Insurance Scheme (FIIS) (2003-04) introduced aiming at income stabilization of the farmers. Weather-Based Crop Insurance Scheme (WBCIS) introduced for Kharif crops. The scheme was linked pay-outs to weather parameters such as rainfall, temperature, humid. Modified National Agriculture Insurance Scheme (MNAIS) focused on Rabi crops. The scheme improved coverage and risk assessment in comparison of NAIS.

Review the Existing Crop Insurance Schemes in India

Pradhan Mantri Fasal Bima Yojana (PMFBY) implemented from Kharif 2016. This scheme combined yield index-based and restructured WBCIS. PMFBY are having salient features such as covers food crops, oilseeds, and horticultural crops, compulsory for loanee and voluntary for non-loanee farmers (now becomes voluntary to all farmers from 2020), covers various risks, including drought, flood, hailstorm, pests, diseases, and more., upfront premium subsidy by the government, individual farm-level assessment for localized and post-harvest losses, actuarial premium rate based on risk, extensive use of technology for efficient implementation, indemnity level i.e. 70%, government acts as the reinsurer for extreme claims.

The Restructured Weather Based Crop Insurance Scheme (RWBCIS) employed from 2016 pointing to ease the suffering of insured farmers against the likelihood of financial loss due to projected crop loss resulting from hostile weather conditions. The objectives of this scheme is to provides financial protection to farmers by compensating them for deemed crop losses caused by adverse weather conditions. It uses weather parameters as proxies for crop yields in determining compensation. RWBCIS covers the food crops such as cereals, millets, and pulses, oilseeds, commercial and horticultural crops. The scheme addresses major weather hazards that lead to adverse weather incidents and resulted crop loss. It covers temperature, high temperature (heat), low temperature; rainfall, deficit rainfall, excess rainfall, unseasonal rainfall, rainy days, dry spells, hailstorm and cloud-burst; relative humidity, wind speed or a combination of these weather incidents. The government provides a subsidy equal to the difference between the actuarial premium and the premium paid by the farmer for crop insurance. RWBCIS uses weather triggers to determine the extent of deemed crop losses. Compensation is provided to farmers based on the actual weather conditions experienced during the crop season. Pay-out of the compensation structures are developed based on the weather parameters. The scheme covers both tenant farmers and sharecroppers. All farmers working in a notified area mentioned in the policy gazetted resolution and growing a notified variety of crops are eligible.

The Coconut Palm Insurance Scheme (CPIS) is implemented for the coconut palm by the Coconut Development Board, under the Ministry of Agriculture and Farmers Welfare, Government of India. Its primary objective is to provide insurance coverage for coconut palms against various risks and perils. The CPIS presented at aiming to insure coconut palms against natural disasters and hazards, pests and diseases, climatic risks, other perils resulted in coconut produce loss. The scheme is applicable to healthy nut-bearing coconut palms. All varieties of coconut are eligible for insurance coverage. The CPIS covers coconut palms in the age group from 4 years to 60 years. The scheme provides coverage against the following perils leading to death or loss of palm such as storm, hailstorm, cyclone, typhoon, tornado, heavy rains, flood and inundation, pest and diseases causing irreparable damage, accidental fire including forest fire and bush fire, earthquake, landslide, and tsunami, severe drought and total loss due to it. The scheme aims to provide timely relief to farmers who suffer income loss due to sudden palm death.

The Unified Package Insurance Scheme (UPIS) contributes to the overall well-being of farmers and the stability of the agriculture sector. The UPIS aims to provide financial protection to farming community in India. The UPIS ensures food security, crop diversification, enhanced growth and competitiveness of the agriculture sector, protection for farmers from financial risks. The UPIS covers seven sections first one is crop insurance which mandatory section. Second one is personal accident insurance; it provides coverage in case of accidental death or disablement at farming. Third one is life insurance, it protects the farmer and family members up to 70 years. Fourth one is building and contents insurance-fire & allied perils, it covers dwelling and its contents against fire-related risks. Fifth one is agriculture pump set insurance insures agricultural pump sets. Sixth one is student safety insurance, it ensures safety for school/college-going children of farmers. Seventh one is agricultural tractor insurance covers tractors owned by farmers. The UPIS is implemented in 45 selected districts on a pilot basis since kharif 2016 season. The UPIS Scheme covers both seasons in a full year, except for crop insurance which separately issues for kharif and rabi seasons and is renewable annually. The scheme covers the lonee farmers through banks/financial institutions, while non-loanee farmers covers through banks and/or insurance intermediaries. The UPIS provides to the insurance all needs of farmers involved in agriculture activities covering seven types of protections. It provides yield-based crop insurance based on land ownership and sown crops. In addition, it offers protection in case of accidental death or disablement, accidental insurance for school/college-going children, and life insurance for the farmer and family members. The government provides a subsidy equivalent to the difference between actuarial premium and the premium paid by the farmer for crop insurance.

Conclusion

Crop insurance scheme has been founding the risk mitigation tool for covering the natural disasters and hazards at top five agrarians' countries. Therefore, various crop insurance schemes have introduced and implemented for resilience to the crop loss due to agriculture risks. In India, prior the independence, government had been taking initiatives for introducing crop insurance for coping with the natural disasters and hazards due to dependence of farmers on the farming activities for their livelihoods. In current situation, government successfully implemented the four schemes for protecting the crops as well as the farmers.

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ENHANCED AUTOMATION THROUGH ARTIFICIAL INTELLIGENCE IN ICT TOOLS

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ABSTRACT

The transformative impact of artificial intelligence (AI) on automation within Information and Communication Technology (ICT) tools. Enhanced automation, facilitated by AI techniques such as machine learning, natural language processing, and robotics, has revolutionized traditional processes by delegating repetitive, rule-based tasks to intelligent algorithms. Through machine learning and predictive analytics, ICT tools can automate decision-making processes by analyzing vast datasets to uncover patterns and trends, enabling personalized experiences and targeted interventions. Robotic Process Automation (RPA) further streamlines operations by mimicking human interactions with digital systems, automating administrative tasks and freeing up human resources for strategic initiatives. Chatbots and virtual assistants leverage natural language processing to provide real-time assistance, automating customer support inquiries and administrative tasks within productivity tools. AI-powered analytics platforms automate data analysis and reporting, accelerating insights generation and informing data-driven decisions. In industrial settings, autonomous systems and robotics automate complex tasks, enhancing efficiency and safety. Continuous improvement through feedback loops ensures that AI-powered automation systems adapt and refine their behaviour over time, optimizing performance and reliability. While enhanced automation offers numerous benefits, it also presents challenges such as job displacement and ethical considerations, necessitating thoughtful governance and workforce reskilling initiatives. Overall, AI-driven automation represents a paradigm shift in ICT tools, driving productivity, efficiency, and innovation across various domains.

KEYWORDS: Artificial Intelligence, ICT Tools, Driving Productivity, Robotics Automate Complex Tasks.

Introduction

The integration of AI into ICT is rooted in decades of research and development in both fields. AI, as a discipline, dates back to the mid-20th century when researchers began exploring methods to mimic human intelligence in machines. Early AI systems were limited by computational power and lacked the sophisticated algorithms and datasets available today. However, advancements in computing technology, particularly in processing power and storage capacity, have accelerated the growth of AI applications.

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In parallel, the evolution of ICT has been driven by the proliferation of digital technologies such as computers, the internet, and mobile devices. These technologies have transformed how information is created, stored, transmitted, and accessed, leading to unprecedented levels of connectivity and data generation. The convergence of AI and ICT has led to the development of intelligent systems capable of analyzing vast amounts of data, automating tasks, and adapting to user behavior.

Enhanced automation refers to the utilization of advanced technologies, often incorporating artificial intelligence (AI), machine learning, robotics, and other cutting-edge methodologies, to streamline and optimize processes beyond what traditional automation methods can achieve. While traditional automation focuses on repetitive, rule-based tasks, enhanced automation extends this concept by leveraging more sophisticated algorithms and capabilities to tackle complex workflows, decision-making processes, and interactions within systems. Key characteristics of enhanced automation include: Intelligence, Adaptability, Integration, Scalability, Interactivity, Predictive and Capabilities.

Enhanced automation refers to the utilization of advanced technologies, particularly Artificial Intelligence (AI), to streamline and optimize traditional automation processes within various domains. While conventional automation typically involves the mechanization of repetitive tasks through predefined rules and scripts, enhanced automation integrates AI algorithms to imbue systems with the ability to adapt, learn, and improve autonomously. This form of automation leverages AI's capabilities in data analysis, pattern recognition, and decision-making to enhance efficiency, accuracy, and flexibility in automating complex tasks and workflows.

The purpose of this paper is to provide a comprehensive exploration of the impact, implications, and applications of enhanced automation through AI within Information and Communication Technology (ICT) tools. The paper aims to:

- **Examine the Evolution of Automation:** Provide an overview of the evolution of automation from traditional rule-based systems to enhanced automation powered by AI technologies.
- **Explore AI Techniques:** Discuss various AI techniques such as machine learning, natural language processing, and robotics and their role in enabling enhanced automation within ICT tools.
- **Discuss Key Applications:** Identify and analyze key applications of enhanced automation across different domains within ICT, including task automation, process automation, predictive maintenance, intelligent monitoring, and personalized user experiences.
- **Highlight Benefits and Challenges:** Evaluate the benefits of enhanced automation, including increased efficiency, productivity, and innovation, as well as the challenges such as job displacement, ethical considerations, and the need for robust governance frameworks.
- **Examine Future Trends:** Discuss emerging trends and future directions in enhanced automation through AI, including advancements in AI technologies, evolving business models, and potential societal impacts.

The paper will focus primarily on the role of AI in enhancing automation within ICT tools, encompassing a broad range of applications and domains. The scope of the paper includes but is not limited to: Automation of repetitive tasks and processes within ICT infrastructure management, software development, IT operations, and business operations. The integration of AI techniques such as machine learning, natural language processing, and robotics to automate complex tasks and workflows. Applications of enhanced automation in areas such as predictive maintenance, intelligent monitoring and alerting, personalized user experiences, and decision support.

Foundations of Enhanced Automation

Artificial Intelligence (AI) encompasses a diverse range of techniques and methodologies aimed at enabling machines to simulate human intelligence. These techniques are crucial in various domains, including but not limited to, natural language processing, computer vision, robotics, and decision-making. Below is an overview of some of the key AI techniques:

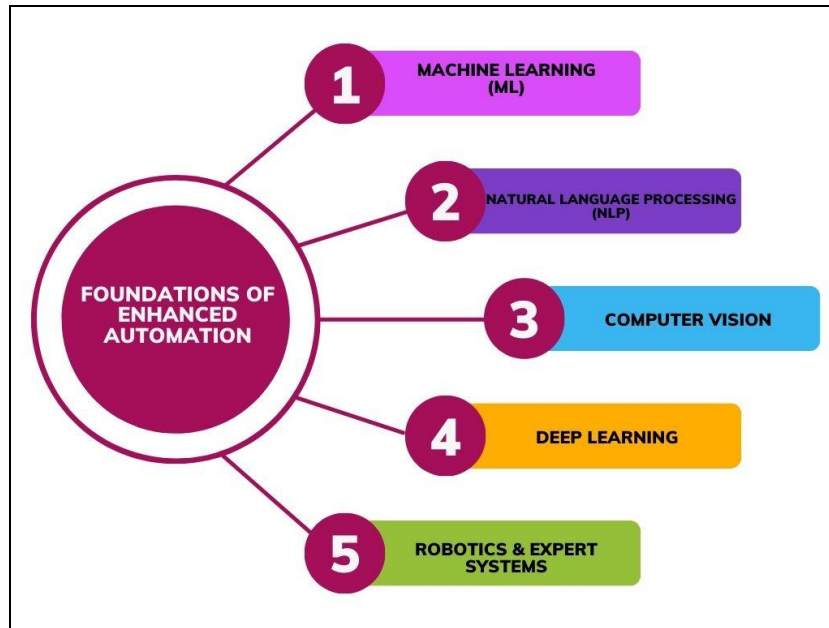


Fig. 1: Foundations of Enhanced Automation

Machine Learning (ML)

Machine learning is a subset of AI that focuses on developing algorithms and models that allow computers to learn from data and make predictions or decisions without being explicitly programmed. There are several types of machine learning approaches:

- **Supervised Learning:** In supervised learning, the algorithm is trained on labeled data, where each input is associated with a corresponding output. The model learns to map inputs to outputs by minimizing the difference between its predictions and the actual outputs.
- **Unsupervised Learning:** Unsupervised learning involves training the algorithm on unlabeled data, where the goal is to identify patterns or structures within the data without explicit guidance. Clustering and dimensionality reduction are common unsupervised learning techniques.
- **Reinforcement Learning:** Reinforcement learning is a type of learning where an agent learns to interact with an environment by taking actions and receiving feedback in the form of rewards or penalties. The agent learns to maximize cumulative rewards over time by exploring different actions and learning from the outcomes.

Natural Language Processing (NLP)

Natural language processing is a subfield of AI focused on enabling computers to understand, interpret, and generate human language in a meaningful way. NLP techniques allow machines to process and analyze large volumes of textual data, extract useful information, and perform tasks such as language translation, sentiment analysis, and text summarization.

- **Computer Vision**

Computer vision is the field of AI concerned with enabling machines to interpret and analyze visual information from the real world. Computer vision techniques allow machines to perceive and understand images or videos, identify objects, recognize faces, and extract useful information from visual data.

- **Deep Learning**

Deep learning is a subset of machine learning that utilizes artificial neural networks with multiple layers (deep architectures) to learn from large amounts of data. Deep learning techniques have achieved remarkable success in tasks such as image recognition, speech recognition, and natural language processing.

- **Robotics**

Robotics is a branch of AI focused on the design, construction, and operation of robots capable of performing tasks autonomously or semi-autonomously. Robotics encompasses various subfields, including manipulation, navigation, perception, and planning and control.

- **Expert Systems**

Expert systems are AI systems that emulate the decision-making abilities of human experts in specific domains. These systems utilize knowledge representation, inference mechanisms, and rule-based reasoning to solve complex problems and provide expert-level advice or recommendations.

These AI techniques are foundational to the development of intelligent systems and applications across various domains, driving innovation, automation, and efficiency in today's digital age.

Role of AI in Automation within ICT Tools

The role of Artificial Intelligence (AI) in automation within Information and Communication Technology (ICT) tools is transformative, revolutionizing how organizations manage, process, and utilize information. Here are some key roles of AI in automation within ICT tools:

Task Automation: AI enables the automation of repetitive, rule-based tasks within ICT tools, freeing up human resources for more strategic activities. Through techniques such as robotic process automation (RPA), AI-powered bots can mimic human interactions with digital systems, automating tasks such as data entry, document processing, and system monitoring.

- **Process Automation:** AI facilitates the automation of entire processes and workflows within ICT tools, optimizing efficiency and reducing operational costs. AI-driven workflow orchestration platforms streamline complex processes by scheduling tasks, managing dependencies, and dynamically allocating resources based on demand.
- **Intelligent Monitoring and Alerting:** AI-powered monitoring and alerting systems continuously monitor the performance, health, and security of ICT systems in real-time. These systems use AI algorithms to analyze telemetry data, detect anomalies, and generate actionable insights and alerts, enabling organizations to proactively manage and mitigate risks.
- **Predictive Maintenance:** AI-driven predictive maintenance systems analyze historical data, sensor readings, and environmental factors to predict potential failures or issues within ICT infrastructure. By proactively identifying and addressing potential problems before they occur, predictive maintenance minimizes downtime, reduces maintenance costs, and extends the lifespan of equipment and systems.
- **Natural Language Processing (NLP):** AI-powered NLP technologies enable machines to understand and process human language, facilitating tasks such as automated customer support, content categorization, and sentiment analysis within ICT tools. Chatbots and virtual assistants equipped with NLP capabilities can interact with users, answer queries, and perform tasks autonomously.
- **Data Analysis and Insights Generation:** AI algorithms can analyze large volumes of data to extract insights, identify patterns, and make predictions within ICT tools. AI-driven analytics platforms enable organizations to gain actionable insights from data, leading to better decision-making and strategic planning.
- **Personalized User Experiences:** AI-driven automation enables ICT tools to deliver personalized user experiences by analyzing user behavior, preferences, and context. Through techniques such as machine learning, ICT tools can tailor content, recommendations, and interactions to individual users, enhancing engagement and satisfaction.
- **Cybersecurity:** AI plays a crucial role in enhancing cybersecurity measures within ICT tools. AI-powered tools can detect and respond to cyber threats in real-time, identify anomalies in network traffic, and strengthen defense mechanisms against cyberattacks, safeguarding ICT infrastructure from potential security breaches.

Overall, the role of AI in automation within ICT tools is essential for driving efficiency, productivity, and innovation in today's digital landscape. By leveraging AI technologies, organizations can streamline operations, improve decision-making, and deliver superior user experiences across various domains.

Machine Learning and Predictive Analytics

Machine Learning (ML) and Predictive Analytics are two powerful techniques within the realm of Artificial Intelligence (AI) that play critical roles in data analysis, pattern recognition, and decision-making. **Machine Learning** is a subset of AI that involves training algorithms to learn patterns and relationships from data in order to make predictions or decisions without being explicitly programmed. ML algorithms can be broadly categorized into three main types:

- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

In supervised learning, the algorithm is trained on labeled data, where each input is associated with a corresponding output. The goal is to learn a mapping function from inputs to outputs, such that when presented with new, unseen data, the algorithm can accurately predict the output. Common supervised learning tasks include regression (predicting continuous values) and classification (predicting categorical labels).

In unsupervised learning, the algorithm is trained on unlabeled data, and the goal is to discover patterns, structures, or relationships within the data. Clustering algorithms group similar data points together based on their features, while dimensionality reduction techniques aim to represent the data in a lower-dimensional space while preserving its structure.

Reinforcement learning involves training an agent to interact with an environment in order to maximize some notion of cumulative reward. The agent learns by trial and error, exploring different actions and learning from the feedback it receives from the environment. Reinforcement learning has been successfully applied to tasks such as game playing, robotics, and autonomous vehicle control.

Predictive Analytics is a branch of advanced analytics that utilizes historical and real-time data to forecast future events or trends. It encompasses a variety of statistical techniques and machine learning algorithms to analyze patterns and relationships within data and make predictions. The predictive analytics process typically involves Data Collection, Data Preprocessing, Feature Selection and Engineering, Model Selection and Training and Deployment and Monitoring.

Machine learning and predictive analytics are powerful tools that enable organizations to extract insights from data, make informed decisions, and drive business outcomes across various domains. By leveraging these techniques, businesses can gain a competitive edge, optimize processes, and unlock new opportunities for growth and innovation.

Chatbots and Virtual Assistants in ICT Tools

Chatbots are computer programs designed to simulate human conversation, typically through text-based or voice-based interfaces. They leverage Natural Language Processing (NLP) and machine learning algorithms to understand user queries and provide relevant responses or actions. Chatbots can be deployed across various platforms, including websites, messaging apps, and social media platforms.

Key Features and Functions

Automated Customer Support: Chatbots can handle customer inquiries, provide assistance, and resolve issues without human intervention, improving response times and customer satisfaction.

- **Lead Generation and Sales:** Chatbots can engage with website visitors, qualify leads, and provide product recommendations or purchase assistance, driving sales and conversions.
- **Information Retrieval:** Chatbots can answer frequently asked questions, provide product information, and offer guidance on various topics, serving as virtual knowledge assistants.
- **Task Automation:** Chatbots can automate routine tasks such as appointment scheduling, order tracking, and form submissions, streamlining workflows and reducing manual effort.

Virtual Assistants

Virtual assistants are AI-powered software applications that can perform tasks or provide assistance to users through natural language interactions. They are often embedded within ICT tools such as productivity software, smart speakers, and mobile devices. Virtual assistants can perform a wide range of functions, from managing schedules and reminders to controlling smart home devices and accessing information on the internet.

Key Features and Functions

- **Personal Assistant:** Virtual assistants can manage calendars, set reminders, send emails, and perform other tasks to help users organize their schedules and stay productive.
- **Voice Commands:** Virtual assistants can be activated and controlled using voice commands, allowing users to perform actions hands-free and interact with technology more naturally.
- **Information Retrieval:** Virtual assistants can answer questions, provide weather updates, deliver news headlines, and retrieve information from the internet, acting as personal knowledge assistants.
- **Home Automation:** Virtual assistants can control smart home devices such as lights, thermostats, and security cameras, allowing users to automate and manage their home environment remotely.

Benefits of Chatbots and Virtual Assistants in ICT Tools

- **24/7 Availability:** Chatbots and virtual assistants can provide round-the-clock support and assistance to users, improving accessibility and responsiveness.
- **Scalability:** Chatbots and virtual assistants can handle multiple interactions simultaneously, scaling to accommodate growing user demand without additional manpower.
- **Cost Efficiency:** Chatbots and virtual assistants can automate routine tasks and inquiries, reducing the need for human intervention and lowering operational costs.
- **Enhanced User Experience:** Chatbots and virtual assistants offer personalized interactions, tailored recommendations, and intuitive interfaces, enhancing user satisfaction and engagement.

Chatbots and virtual assistants are valuable AI-powered technologies that enhance the functionality and user experience of ICT tools. By leveraging natural language processing and machine learning capabilities, these technologies enable organizations to deliver efficient, personalized, and accessible services to their users across various platforms and applications.

Role of AI-powered Analytics Platforms in Automating Data Analysis

AI-powered analytics platforms play a crucial role in automating data analysis within Information and Communication Technology (ICT) tools, revolutionizing how organizations extract insights and make data-driven decisions. These platforms leverage advanced Artificial Intelligence (AI) techniques such as machine learning, natural language processing, and predictive analytics to automate various aspects of the data analysis process.

Firstly, AI-powered analytics platforms automate data preparation and preprocessing tasks, allowing organizations to streamline the process of cleaning, transforming, and integrating data from multiple sources. Machine learning algorithms can automatically identify and address missing values, outliers, and inconsistencies in the data, ensuring its quality and reliability for analysis.

Secondly, AI-powered analytics platforms automate feature engineering, a critical step in extracting relevant insights from complex datasets. These platforms can automatically generate new features, select the most informative ones, and transform data into formats suitable for analysis. By automating feature engineering, organizations can accelerate the process of model development and deployment, leading to faster insights generation and decision-making.

Thirdly, AI-powered analytics platforms automate model training and evaluation, enabling organizations to build predictive models that can uncover patterns, trends, and relationships within the data. These platforms leverage machine learning algorithms to automatically select, train, and evaluate models based on predefined objectives and performance metrics. By automating model training and evaluation, organizations can reduce the time and effort required to develop accurate and robust predictive models.

Finally, AI-powered analytics platforms automate insights generation and reporting, allowing organizations to derive actionable insights and communicate findings effectively. These platforms can automatically analyze data, identify significant trends and anomalies, and generate interactive visualizations and reports. By automating insights generation and reporting, organizations can empower stakeholders to make informed decisions based on timely and relevant information.

AI-powered analytics platforms play a pivotal role in automating data analysis within ICT tools, enabling organizations to streamline processes, accelerate insights generation, and make data-driven decisions with confidence. By leveraging AI technologies, organizations can unlock the full potential of their data and gain a competitive edge in today's digital landscape.

Continuous Improvement and Challenges

Continuous improvement is a fundamental concept in the realm of Information and Communication Technology (ICT), representing the ongoing effort to enhance processes, products, and services to meet evolving needs and standards. However, along with its benefits, continuous improvement in ICT also faces several challenges. Let's delve into both aspects:

Continuous Improvement

- **Enhanced Efficiency:** Continuous improvement fosters efficiency by identifying and eliminating inefficiencies, redundancies, and bottlenecks in ICT processes. By streamlining workflows and optimizing resource utilization, organizations can improve productivity and reduce costs.
- **Innovation and Adaptability:** Continuous improvement encourages innovation by promoting a culture of experimentation, learning, and adaptation. Organizations that embrace continuous improvement are better positioned to leverage emerging technologies, explore new business models, and stay ahead of market trends.
- **Quality Enhancement:** Continuous improvement drives quality enhancement by focusing on identifying and addressing root causes of issues, rather than just addressing symptoms. By implementing robust quality management practices and feedback loops, organizations can deliver products and services that meet or exceed customer expectations.
- **Customer Satisfaction:** Continuous improvement leads to higher levels of customer satisfaction by continually seeking feedback, identifying pain points, and implementing solutions to address customer needs and preferences. By prioritizing customer-centricity, organizations can build stronger relationships and foster loyalty.
- **Employee Engagement:** Continuous improvement engages employees by empowering them to contribute ideas, solve problems, and drive change within the organization. By fostering a culture of collaboration, transparency, and recognition, organizations can harness the collective expertise and creativity of their workforce.

Challenges

- **Resistance to Change:** Resistance to change is a common challenge in continuous improvement initiatives, as employees may be reluctant to embrace new processes, tools, or ways of working. Overcoming resistance requires effective change management strategies, clear communication, and stakeholder engagement.
- **Resource Constraints:** Resource constraints, such as limited budget, time, and expertise, can hinder the implementation of continuous improvement initiatives. Organizations must prioritize and allocate resources strategically, focusing on high-impact areas and leveraging available tools and technologies.
- **Data Quality and Accessibility:** Data quality and accessibility issues can impede continuous improvement efforts, as organizations may struggle to collect, analyze, and interpret relevant data. Investing in data governance, data management, and analytics capabilities is essential for ensuring the accuracy, reliability, and usability of data.
- **Complexity and Integration:** The complexity of ICT systems and processes, coupled with the need for integration across disparate systems and platforms, poses challenges for continuous improvement efforts. Organizations must adopt agile methodologies, modular architectures, and interoperable standards to navigate complexity and facilitate seamless integration.
- **Cultural Barriers:** Cultural barriers, such as siloed mindsets, hierarchical structures, and resistance to collaboration, can hinder the success of continuous improvement initiatives. Cultivating a culture of openness, trust, and accountability is essential for breaking down barriers and fostering cross-functional collaboration. While continuous improvement offers numerous benefits for enhancing efficiency, driving innovation, and improving customer satisfaction in ICT, it also presents challenges related to change management, resource

constraints, data quality, complexity, and culture. Addressing these challenges requires proactive leadership, strategic planning, and a commitment to fostering a culture of continuous learning and improvement.

Conclusion

Key findings suggest that AI-driven automation within ICT tools offers significant benefits, including improved efficiency, productivity, and user experience. Machine learning and predictive analytics play critical roles in automating data analysis, while chatbots and virtual assistants enhance customer support and service delivery. Continuous improvement is essential for driving innovation and addressing challenges such as resistance to change and data quality issues. However, future directions indicate a shift towards more advanced AI techniques, such as deep learning and reinforcement learning, to tackle complex tasks and enable autonomous decision-making. Additionally, there is a growing focus on ethical considerations, transparency, and accountability in AI-driven automation. Potential developments include the integration of AI with Internet of Things (IoT) devices for real-time data processing and decision-making, as well as the adoption of AI-driven automation in new domains such as healthcare, education, and smart cities. Overall, AI-driven automation holds immense promise for transforming ICT tools and driving digital transformation across industries. Continued research, innovation, and collaboration will be crucial for realizing its full potential while addressing ethical, social, and regulatory implications.

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BUYBACK OF SHARES

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Neha**

ABSTRACT

Nowadays the buyback of shares become a common option to decrease the availability of shares in the market. Companies are opting to buy back irrespective of their profit and loss, this research paper aims to clarify the meaning, reasons, and conditions for the buyback of shares. Different studies conducted over the years are taken into consideration.

KEYWORDS: Buyback, Procedure, EPS, Tender Offers.

Introduction

The buyback of shares was first implemented in the USA in 1998. The Business Act of 1956 created the buyback idea. Buyback is the process of bringing back own shares by companies. It causes a reduction in the share capital. Companies will repurchase shares to either raise the value of the shares or to remove any threats of takeover. Buybacks raise the proportion of shares in the firm by lowering the number of shares available in the market.

Buyback of Shares Procedure

There are two methods available for buyback. It can be done through open market and tender offers. Proceeds from securities premium reserve and capital-free reserve are used for buyback operations. Buyback process:

- Firstly, the company approves the buyback proposal in a board meeting.
- Then public announcements are made with the pre-decided mode of buyback.
- In the event of a tender offer, the business submits a letter of offer to SEBI. In the case of an open market, offer buy back done through the stock exchange in the open market.
- The stock broker then submits the tender along with documents like physical shares certificate to the company registrar in case of tender offer.
- After verification, the registrar sends notice to the stock exchange regarding acceptance and non-acceptance.
- In an open market offer, the share is accepted upon order matching and is carried out on the decided dates. Following acceptance of the shares, the shareholder receives payment in cash for the shares offered for repurchase. Finally, the business reduced the stocks it bought back.

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Conditions For a Buyback

Subclause (2) of section 77A enshrines the conditions for a buyback, which are as follows:

- It should be authorized by the articles of association of the company
- A special resolution has been passed at the general meeting of the company.
- When buyback is for less than 10% special resolution at an annual general meeting is not required. Provided there should be at least three sixty-five days difference between the next buyback after proceedings.
- The ratio of debt owned by the company should not be more than twice the capital and its free reserves after such buyback.
- All the shares or other specified securities for buyback should be fully paid up.
- The buyback shares or other specified securities should be listed on any recognized stock exchange.

Recently, the Government allowed PSU companies to buy back their shares from the government as part of their strategy to raise a considerable amount of funds to control fiscal deficit.

Reason for Buyback

The following are possible reasons for which companies go for buyback of their shares.

- To return surplus cash to shareholders when a firm doesn't have any profitable opportunities.
- To increase the value of shares.
- To achieve or maintain a target capital structure.
- To replenish the pool of shares available for employees.
- To prevent or inhibit unwelcome takeover bids.

SEBI Guidelines of Buyback

- The buyback should be approved by a special resolution passed in a general meeting.
- It should be mentioned in the article of association of companies.
- The buyback should be for less than 20% of paid-up capital. The ratio of debts owned by the company should be less than twice the capital.
- All the share buybacks should be fully paid up.
- The buyback of shares should be listed on a recognized stock exchange.
- The buyback of shares can be made by making a proper announcement in at least one English newspaper, one Hindi newspaper must be properly circulated.
- The public announcement should be made before 30 days of the buyback. The guidelines of SEBI should be properly followed. The offer of buyback should remain open for at least 15 days.
- After the buyback, the company should complete verification and publish the notice to the SEBI.

Limitations of Buyback

- It creates the problem of insider trading.
- Buyback results in a consolidated hold of some investors over the organization.
- It results in a reduction in public share capital.

Journal Entries

For sale of Investment

Bank account Dr

Profit & Loss Dr

To investment account

To profit & loss account

For the Issue of Share/Debentures

Bank account Dr
 To share capital
 To debentures account

For Cancelling Shares

Equity share capital account Dr
 To shareholders account

For Making Payment

Shareholders account Dr
 To Bank account
 For transfer of Nominal value of shares
 Free reserve account Dr
 To capital Redemption Reserve Account

For Expenses Incurred

Expense account Dr
 Buyback expenses Dr
 To cash/Bank Account

Transfer of Expenses

Profit & Loss Account Dr
 To Buyback expenses account

Foreign Studies Related to Buy-Back of Shares

- Dan (1981) investigated that share buy-back led to positive share returns of approximately 15 percent and these positive returns were mostly permanent in that nature.
- David and Garrison (1989) studied the impact of common stock repurchasing on a firm's common stock returns. This was the first study conducted in an Indian scenario.

Indian Studies Related to Buy-Back

Chaudhary and Nanda (1994) explain that even when management's motivation for undertaking repurchases is to discharge free cash flow and not to signal under-valuation, undervalued firms are more likely to choose repurchases over dividends.

Saha (1999) reviewed the buy-back policy announced by the government. Buyback of shares has many benefits but also suffers from some drawbacks. He suggested that this strategy should be used after analyzing the financial position of a firm.

Difference between Dividend and Buyback**Dividend Buyback**

Dividend refers to a certain % amount of profit given. It refers to purchasing from existing shareholders.

Share dividend doesn't result in any changes in share ownership. It results in a reduction of share capital.

It is a method of raising capital by giving favorable returns. Buyback is a method of reducing existing share capital.

Significance of the Buyback

- The buyback of shares offers consolidated control over the company.
- Undervalued firms save their share price from falling.
- It results in increased EPS (Earning per share ratio).
- It shows the strong financial position of the company in the market.
- Buy Back offers a higher price than the market price to shareholders.
- It provides the company with a cheaper source of finance.

Importance for Companies

- The buyback option integrates the scattered capital of the business.
- Creates a huge pool of investment for future projects.
- It facilitates greater control over the company's affairs.
- It shows the company's sound financial position.

Importance for Shareholders

- Firstly, It increases the share price.
- Secondly, It returns a higher price than the market price of the share.

Examples of Indian Companies

- **Wipro:** The company has bought back shares four times in the past 6 years. The first buyback happened in May 2016. Under this, the company's board had approved a proposal to buy back up to 40 m equity shares.
- **Reliance Industries Data:** Reliance Industries has bought back shares worth Rs 3,900 crore from the public through a year-long share repurchase program. The company had offered to buy back the shares at a price of up to Rs 870 each under the Programme.

Methods for Buyback of Share

SEBI prescribes three methods of buyback of shares in India:

- Tender offer, a company buys back shares from existing shareholders at a fixed timeframe by issuing a letter of offer and tender form to all the eligible shareholders.
- Open Market Company uses the stock exchange or the book-building process to buy back shares through the open market. Under the stock exchange method, a company only buys back shares present on the stock exchanges. Promoters aren't allowed to participate in the open market offers. All other shareholders can participate in this offer.
- Under the book-building process, the buyback is done through bidding centers. A merchant banker handles the procedure, and the company determines the buyback price based on the outcome received.
- From Odd Lot holders: Here, the company buys directly from the odd-lot shareholders by contacting them.

The method followed in INDIA

- In India, in case of a tender offer, the proposal has to be first approved by the board, in a meeting in addition to a public announcement.
- Next, the company files a letter of offer with SEBI, after which interested shareholders tender their shares for the buyback.
- After being verified by the registrar, the tender form of the shareholders is either accepted or rejected for the buyback.
- If accepted, the shareholder receives the money. The shares remain the same if the tender is denied.
- Finally, the securities purchased in the buyback by the company are removed.

Conclusion

The buyback of shares is a good opportunity. It provides an easy exit route at a premium price. But, whether or not the buyback of shares is a good option for you depends on several factors.

One should consider factors like the need for a buyback, the company's growth prospects and future performance, and one's investment goals, holding capacity, and risk-taking capacity. After considering all these options, only then you must decide whether you want to retain your shares or sell them to the company in the form of buyback.

Buyback is a very effective tool for capital restructuring which in turn has a positive impact on the share prices. It offers investors to gain from selling their holdings. However, investors should decide whether such a buyback is a favorable option by analyzing the fundamentals of the company to check if staying invested is a better option than opting out of their holdings in such a company.

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TRANSFORMING HEALTHCARE IN INDIA: A CRITICAL ANALYSIS OF AYUSHMAN BHARAT SCHEME'S IMPACT AND IMPLEMENTATION

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ABSTRACT

The Ayushman Bharat Scheme, also known as the Pradhan Mantri Jan Arogya Yojana (PMJAY), is a flagship healthcare initiative launched by the Government of India in September 2018[1][2][3]. The scheme aims to provide financial protection and health coverage to over 100 million vulnerable families, with a focus on the poor and marginalized sections of society[4][5]. The primary objectives of the scheme are to: - Provide access to quality healthcare services - Reduce out-of-pocket healthcare expenses - Improve health outcomes for all. The scheme is a significant step towards transforming the healthcare landscape in India[6], and its success could have far-reaching implications for both public health and the economy.

KEYWORDS: *Ayushman Bharat Scheme, PMJAY, Out-of-Pocket Healthcare Expenses.*

Introduction

The Ayushman Bharat Scheme, also known as the Pradhan Mantri Jan Arogya Yojana (PMJAY), marks a pivotal initiative in India's healthcare sector, aiming to provide comprehensive health coverage to vulnerable populations. Launched in September 2018, the scheme targets over 100 million impoverished families, emphasizing accessibility, affordability, and improved health outcomes. With its ambitious goals, Ayushman Bharat holds the promise of transforming India's healthcare landscape, potentially addressing long-standing disparities and enhancing public health. However, a critical analysis of its implementation and impact is imperative to assess its efficacy and identify areas for refinement. This paper undertakes a comprehensive examination of the Ayushman Bharat Scheme, scrutinizing its influence on healthcare access, financial protection, quality of care, and broader implications for India's healthcare system.

Objectives

The primary objective of this research paper is to conduct a critical analysis of the Ayushman Bharat Scheme, evaluating its impact and implementation to understand its effectiveness in transforming healthcare in India. Specifically, the objectives include:

- Assessing the extent to which Ayushman Bharat has achieved its stated goals of providing access to quality healthcare services, reducing out-of-pocket expenses, and improving health outcomes for beneficiaries.
- Analyzing the implementation process of the Ayushman Bharat Scheme, identifying challenges encountered, successes achieved, and areas for improvement.
- Evaluating the impact of Ayushman Bharat on key healthcare indicators, such as healthcare utilization, financial risk protection, quality of care, and health outcomes, across different demographic and socioeconomic groups.
- Examining stakeholder perspectives, including those of the government, healthcare providers, insurers, and beneficiaries, to gain insights into the scheme's effectiveness and areas for enhancement.

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- Providing evidence-based recommendations and policy implications for optimizing the impact of Ayushman Bharat in transforming India's healthcare system and addressing persistent healthcare disparities.

Overview of the Ayushman Bharat Scheme

The Ayushman Bharat Scheme offers a range of key benefits and features to eligible beneficiaries[1]. These include: - Coverage of up to INR 5 lakhs per family per year for secondary and tertiary care hospitalization - Cashless and paperless access to healthcare services - Empanelment of public and private hospitals for service delivery - Comprehensive package of services, including diagnostics, drugs, and consumables - Provision of pre- and post-hospitalization expenses The scheme is the world's largest publicly funded health insurance program, with population coverage of 500 million[1]. Its implementation is expected to significantly improve healthcare access and financial protection for millions of Indians[7].

The implementation strategy and funding for the Ayushman Bharat Scheme involve a range of stakeholders and mechanisms[8]. The scheme is funded by a combination of central and state government contributions, with additional funding from the National Health Mission and other sources[4]. The implementation strategy involves a range of activities, including: - Identification and registration of eligible beneficiaries - Empanelment of public and private hospitals for service delivery - Development of IT infrastructure for effective implementation - Capacity building and training of healthcare providers - Monitoring and evaluation of scheme performance The scheme has the potential to incentivize the existing secondary and tertiary care public health facilities by infusing more insurance claim money[8]. In the long run, this scheme could lead to a significant improvement in the overall quality of healthcare services in India, making it more accessible and affordable for all[5].

Impact of Ayushman Bharat Schemes on Healthcare in India

The Ayushman Bharat Scheme, launched in 2018, has had a significant impact on improving the accessibility and affordability of healthcare in India[5]. The scheme aims to provide financial protection to vulnerable and low-income families by providing them with health insurance coverage of up to INR 5 lakhs per year. This has led to an increase in the number of people seeking healthcare services, especially in rural areas, where access to healthcare is limited[5]. The scheme has also made healthcare more affordable for families who previously had to bear the burden of high out-of-pocket expenses. This has resulted in significant improvements in the accessibility and affordability of healthcare services for millions of Indians[8].

The Ayushman Bharat Scheme has also helped to reduce the out-of-pocket expenditure (OOPE) of families seeking healthcare services. OOPE has been a significant barrier to accessing healthcare services in India, with many families unable to afford the cost of medical treatment[1]. The scheme has helped to reduce the financial burden on families by providing them with health insurance coverage, thereby reducing the need for OOPE[3]. The reduction in OOPE has also led to a decrease in catastrophic healthcare expenditure, which can push families into poverty[8].

The Ayushman Bharat Scheme has increased the utilization of healthcare services in India[5]. The scheme has encouraged people to seek timely medical care, leading to early detection and treatment of illnesses. This has resulted in better health outcomes for individuals and has also helped to prevent the spread of diseases. The scheme has also led to an increase in the utilization of public healthcare facilities, which were previously underutilized[9]. The increased utilization of public healthcare facilities has led to an improvement in the quality of healthcare services provided, as these facilities have received additional funding for infrastructure development and the recruitment of healthcare professionals[10]. In conclusion, the Ayushman Bharat Scheme has had a significant impact on transforming healthcare in India by improving accessibility and affordability, reducing out-of-pocket expenditure, and increasing the utilization of healthcare services. While there are still challenges in the implementation of the scheme, such as the need for better coordination between different healthcare schemes[7], the Ayushman Bharat Scheme has undoubtedly improved the lives of millions of Indians by providing them with access to quality healthcare services.

Challenges and Criticism of the Ayushman Bharat Scheme

One of the most significant challenges facing the Ayushman Bharat scheme is the implementation challenges and bottlenecks[8]. Due to limited overall governance and infrastructure, the simultaneous implementation of the scheme in a similar fashion across all states can prove to be another challenge. The

scheme requires the establishment of a robust healthcare infrastructure, which is a daunting task for many states. The lack of adequate infrastructure and trained personnel, particularly in rural areas, can also pose significant challenges to the scheme's implementation. These challenges can lead to delays in the delivery of healthcare services, which can negatively impact the scheme's effectiveness.

Another criticism of the Ayushman Bharat scheme is the inadequate funding and resource allocation[10][5]. The scheme requires significant investments in healthcare infrastructure, including hospitals, clinics, and medical equipment. However, the government's budgetary allocation for healthcare has been consistently low, with only 1.29% of GDP allocated to healthcare in 2020-21. This inadequate funding can lead to a shortage of resources, including medicines, medical equipment, and skilled personnel. This can result in poor quality of care and reduced access to healthcare services, particularly for marginalized communities.

The limited coverage and exclusion of beneficiaries is another significant criticism of the Ayushman Bharat scheme[7][3]. The scheme aims to provide healthcare coverage to vulnerable populations, including low-income families and senior citizens. However, the scheme's coverage is limited, with only a select few medical procedures covered under the scheme. Additionally, the scheme excludes certain categories of beneficiaries, including those who are not registered under the National Food Security Act. This exclusion can lead to a lack of access to healthcare services for those who need it the most, perpetuating existing health inequalities in the country.

Conclusion

In conclusion, the Ayushman Bharat Scheme represents a significant stride towards achieving universal health coverage and enhancing healthcare accessibility in India. Through its provision of financial protection and health coverage to millions of vulnerable families, the scheme has undoubtedly made substantial contributions to improving healthcare outcomes and reducing the burden of out-of-pocket expenses. However, critical analysis reveals several challenges and criticisms, including implementation bottlenecks, inadequate funding, and limited coverage, which warrant attention and remediation.

Despite these challenges, the Ayushman Bharat Scheme has demonstrated its potential to catalyze positive change in India's healthcare landscape. By addressing these shortcomings through targeted interventions, enhanced coordination, and increased investment, the scheme can realize its transformative vision of ensuring equitable access to quality healthcare for all citizens. Moving forward, continued evaluation, stakeholder engagement, and policy adaptation will be essential to harnessing the full potential of Ayushman Bharat and advancing the broader goal of healthcare reform in India.

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A STUDY ON THE FINANCIAL PERFORMANCE OF BHARATPUR URBAN COOPERATIVE BANK OF RAJASTHAN

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ABSTRACT

Urban Co-operative Banks (UCBs) are the back bone of banking system because they help the country develop. Since UCBs serve urban and semi-urban regions and possess tremendous service delivery potential in places where the private and public sectors were unsuccessful, their advancement in India contributes to the development of the country's banking system. Other urban cooperative banks in Rajasthan might learn a lot from this research, which aims to assess the bank's financial performance and development prospects. The study is mainly supported by secondary data which has been collected from the annual reports of Bharatpur Urban Cooperative Bank, data from annual reports of The Rajasthan Urban Co-operative Banks Federation Ltd. There are many financial and non-financial metrics that can be used to evaluate a bank's performance. In order to keep things simple for this study, we have focused on a few key metrics: membership base, share capital, net profit, deposits mobilization, loans and advances, and working capital. These metrics show that Bharatpur UCB has grown from FY 2010-11 to FY 2020-21.

KEYWORDS: *Urban Co-operative Bank, Membership base, Share Capital, Net Profit Deposits Mobilization, Loans & Advances and Working Capital.*

Introduction

Although not officially defined, "Urban Co-operative Banks" (UCBs) are the principal co-operative banks situated in metropolitan and semi-urban regions. The organizers of these groups set out to do two things: encourage frugality and self-sufficiency among the middle class and lower middle class, and make small-dollar loans available to those living in urban and semi-urban regions. Both the Banking Laws (Co-operative Societies) Act. 1965 and the Banking Regulations Act. 1949 regulate these institutions, which are overseen by the Reserve Bank of India. These banks are characterized mostly by - (a) Chartered with the appropriate state's board of cooperatives; (b) subject to both the Co-operative Societies Act and the Reserve Bank of India's regulations; The following are some of the characteristics of cooperatives: (c) They are owned and controlled by their members, who elect the board of directors democratically; (d) Members typically have equal voting rights, according to the principle of "one person, one vote"; (e) They have a limited area of operation; (f) Their shares are not listed or traded; (g) They are strong in assisting financially weaker sections; etc.

Objectives of the Study

The following are the major objectives of the study:

- To study the growth and performance of the Urban Co-operative Bank.
- To suggest suitable measures to improve the financial health of the bank.

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Methodology and Data Source

Secondary data, mostly culled from the bank's and The Rajasthan Urban Co-operative Banks Federation Ltd's annual reports as well as scholarly publications and periodicals, provides the backbone of the research.

Period of Study

The study covers a period of eleven financial years, ranging from FY 2010-11 to 2020-21 has been taken up as the time frame for the study.

Tools used for the Study

Mean, Standard deviation (SD), Coefficient of Variation (CV), Trend and Incremental Growth are used as a tool to analyze the financial performance of the bank.

Results and Analysis

• Share Capital

Each and every bank should strive to strengthen its share capital position annually as it is a crucial component of owned funds. The details of Share capital position has been presented in Table No. 1.

Table 1: Growth of Share Capital in Bharatpur Urban Cooperative Bank

Year	Share Capital (Rs. In Lakhs)	Trend %	Incremental Growth %
2010-11	23.25		
2011-12	28.66	23.26%	23.26%
2012-13	38.01	63.48%	32.62%
2013-14	47.26	103.27%	19.30%
2014-15	60.76	161.33%	24.34%
2015-16	70.85	204.73%	16.61%
2016-17	71.14	205.98%	0.41%
2017-18	69.31	198.11%	-2.57%
2018-19	66.86	187.57%	-3.53%
2019-20	62.70	169.68%	-6.22%
2020-21	54.96	136.39%	-12.34%

Mean- 53.97; SD- 16.48; CV- 0.31

The above table reveals that the share capital has shown a positive growth during the period 2011-12 to 2016-17 but after that it's become negative and share capital position of Bharatpur UCB comes to down.

• Deposits

Table 2: Growth of Deposits in Bharatpur Urban Cooperative Bank

Year	Deposits (Rs. In Lakhs)	Trend %	Incremental Growth %
2010-11	1872.26		
2011-12	2255.47	20.47%	20.47%
2012-13	2538.51	35.59%	12.55%
2013-14	2997.80	60.12%	18.09%
2014-15	3212.31	71.57%	7.16%
2015-16	3774.73	101.61%	17.51%
2016-17	4455.29	137.96%	18.03%
2017-18	4476.97	139.12%	0.49%
2018-19	4827.14	157.82%	7.82%
2019-20	5025.23	168.40%	4.10%
2020-21	5357.99	186.18%	6.62%

Mean- 3708.52; SD- 1146.61; CV- 0.31

The above table highlights the total deposits mobilized by the bank and has made steady progress during the period under study.

- **Working Capital**

For urban cooperative banks, working capital is like blood. When calculating working capital, urban cooperative banks use a variety of approaches.

Table 3: Growth of Working Capital in Bharatpur Urban Cooperative Bank

Year	Working Capital (Rs. In Lakhs)	Trend %	Incremental Growth %
2010-11	2205.87		
2011-12	2634.19	19.42%	19.42%
2012-13	2969.91	34.64%	12.74%
2013-14	3520.11	59.58%	18.53%
2014-15	3596.31	63.03%	2.16%
2015-16	4457.52	102.08%	23.95%
2016-17	4959.13	124.82%	11.25%
2017-18	4989.18	126.18%	0.61%
2018-19	5442.53	146.73%	9.09%
2019-20	5675.70	157.29%	4.28%
2020-21	6029.73	173.35%	6.24%

Mean- 4225.47; SD- 1246.66; CV- 0.29

- **Advances**

There are three distinct types of bank advances: short-term loans, medium-term loans, and long-term loans.

Table 4: Growth of Advances in Bharatpur Urban Cooperative Bank

Year	Advances (Rs. In Lakhs)	Trend %	Incremental Growth %
2010-11	477.44		
2011-12	713.57	49.46%	49.46%
2012-13	1010.42	111.63%	41.60%
2013-14	1283.15	168.76%	26.99%
2014-15	1508.98	216.06%	17.59%
2015-16	1588.50	232.71%	5.27%
2016-17	1413.10	195.97%	-11.04%
2017-18	1473.61	208.65%	4.28%
2018-19	1629.91	241.39%	10.61%
2019-20	1554.12	225.51%	-4.65%
2020-21	1354.25	183.65%	-12.86%

Mean- 1273.37; SD- 362.19; CV- 0.28

The above table shows advances made by the customer and it has made progress during the study period except 2016-17, 2019-20 and 2020-21.

- **Net Profit**

One way to evaluate a bank's performance is by looking at its profit. Table 5 displays the specifics of the bank's net profit, which is exhibiting a mixed pattern of growth and decline.

Table 5: Growth of Net Profit in Bharatpur Urban Cooperative Bank

Year	Net Profit (Rs. In Lakhs)	Trend %	Incremental Growth %
2010-11	12.78		
2011-12	21.39	67.37%	67.37%
2012-13	17.51	37.01%	-18.14%
2013-14	32.39	153.44%	84.98%
2014-15	27.85	117.92%	-14.02%
2015-16	23.55	84.27%	-15.44%
2016-17	-	-	-
2017-18	-	-	-
2018-19	37.63	-	-
2019-20	21.91	71.44%	-41.78%
2020-21	15.20	18.94%	-30.63%

Mean- 23.36; SD- 7.63; CV- 0.33

Conclusion

The Bharatpur UCB have expanded over the past 11 years from 2010 to 2021 both in terms of their presence as well as business but with an increasing trend in their growth rate. The capital base of the bank is getting strengthened year over year thereby reducing their dependency on external funds. The share capital has made a positive growth in previous years but after that it becomes negative. The deposits has made a positive growth during the period under study. The advances made by the bank has made positive trend and it will pave way. Deposits have made steady progress during the period under study. The earning profit of the bank is showing both increasing and decreasing trend during the study period.

Suggestions

- In order to meet the needs of both new and current consumers, UCBs should launch promotional campaigns and implement innovative programs. Gains in interest income may be achieved by UCBs via an increase in the growth rate of their customer base, which in turn can be used to improve the growth rate of deposits and loans.
- In order to compete with commercial banks, UCBs should modernize their technology and embrace current banking techniques such as online banking and ATMs.
- For improving their profitability, UCBs have to concentrate on controlling expenses and diversifying their areas of operations.
- Efforts should be made by the bank to foster innovation and creativity, with a focus on women and older persons.
- For customers' convenience, banks should streamline operations and simplify regulations.

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EXPLORING THE EVOLUTION OF AI IN E-COMMERCE: UNVEILING OPPORTUNITIES, NAVIGATING CHALLENGES, AND CHARTING FUTURE TRAJECTORIES

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ABSTRACT

The advent of artificial intelligence (AI) represents a turning point for the e-commerce industry, bringing with it a plethora of new potential as well as challenges. This paper explores the complex relationship between AI and e-commerce, looking at its many opportunities, underlying challenges, and bright futures. By means of a comprehensive analysis of extant literature and case studies, the paper explicates artificial intelligence's transformative influence on diverse aspects of e-commerce, including but not limited to customer experience enhancement, personalised recommendations, optimised supply chains, fraud prevention, and inventive marketing tactics. It also closely examines the difficulties that come with integrating AI into e-commerce, including worries about data protection, algorithmic biases, and ethical issues. In the world of e-commerce, artificial intelligence (AI) is a disruptive force that is changing consumer relationships, operational efficiency, and corporate development plans. This research probes the multifaceted dynamics of AI in e-commerce, unraveling its potential, complexities, and future pathways.

KEYWORDS: Artificial Intelligence, e-Commerce and Supply Chain Optimization.

Introduction

In recent years, the blend of artificial intelligence (AI) and e-commerce has ushered in a new era of innovation, fundamentally reshaping the way businesses engage with consumers and conduct transactions in the digital realm. As AI technologies continue to mature and increase, they present a myriad of opportunities for e-commerce companies to enhance customer experiences, streamline operations, and drive sustainable growth. However, along with these opportunities come a host of challenges, ranging from data privacy concerns to algorithmic biases, that necessitate careful consideration and strategic mitigation. This paper seeks to explore the transformative impact of AI on e-commerce, delving into the diverse opportunities it presents, the inherent challenges it poses, and the promising future directions it unveils. By synthesizing insights from existing literature, industry reports, and real-world case studies, we aim to provide a comprehensive overview of how AI is revolutionizing the e-commerce landscape. First, we will examine the opportunities afforded by AI in e-commerce, including but not limited to personalized recommendations, predictive analytics, supply chain optimization, and enhanced customer service. These AI-driven capabilities not only enable e-commerce businesses to better understand and anticipate consumer needs but also empower them to deliver tailored experiences that foster customer loyalty and drive sales. Next, we will address the challenges associated with the adoption and implementation of AI in e-commerce. From data privacy concerns and cybersecurity risks to algorithmic biases and ethical considerations, navigating the complex terrain of AI-powered e-commerce requires a nuanced understanding of the potential pitfalls and proactive measures to mitigate risks.

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Finally, we will explore the future directions of AI in e-commerce, highlighting emerging trends and technologies that are poised to shape the industry in the years to come. As AI continues to evolve, powered by advancements in machine learning, natural language processing, and computer vision, e-commerce companies have the opportunity to leverage these innovations to stay ahead of the curve and maintain a competitive edge in the global marketplace. By shedding light on the opportunities, challenges, and future directions of AI revolutionizing e-commerce, this paper aims to provide valuable insights for academics, practitioners, and policymakers alike. Ultimately, our goal is to contribute to a deeper understanding of the transformative potential of AI in e-commerce and to inform strategic decision-making in the rapidly evolving digital economy.

Review of Literature

Choudhury and Saha (2020) offer an extensive examination of the role of AI in e-commerce, delineating both its opportunities and challenges. Their work serves as a pivotal resource for scholars and professionals alike, providing valuable insights into how AI technologies are reshaping the e-commerce arena. Gupta and Agarwal (2018) contribute a comprehensive analysis of the opportunities and challenges engendered by AI in e-commerce. Their study not only underscores the transformative potential of AI but also offers crucial guidance for stakeholders navigating this dynamic landscape. Kim and Lee (2017) present a review paper that delves into the current trends and future trajectories of AI in e-commerce. Their insightful exploration of emerging applications and potential hurdles serves as a valuable compass for researchers and practitioners. Zhang and Li (2017) furnish a detailed review of AI applications in e-commerce, shedding light on both present implementations and future prospects. Their elucidation of AI's capacity to revolutionize online commerce renders their work indispensable for those immersed in this evolving field.

AI Revolutionizes Aspects in e-Commerce

AI revolutionizes various aspects of e-commerce including customer experience enhancement, personalized recommendations, supply chain optimization, fraud detection, and marketing strategies.

AI-Powered Personalization

AI enables personalized shopping experiences by analyzing vast amounts of customer data, preferences, and behaviors, allowing e-commerce platforms to tailor product recommendations and content to individual users. For instance, Amazon's recommendation engine uses AI algorithms to analyze browsing and purchase history, as well as demographic information, to suggest products that align with each user's interests and preferences. Similarly, streaming platforms like Spotify leverage AI to curate personalized playlists based on user listening habits and preferences. By harnessing AI technologies, e-commerce platforms can create highly targeted and relevant shopping experiences that resonate with each user on a deeper level. This level of personalization enhances user engagement, increases conversion rates, and fosters customer loyalty, ultimately driving business growth and profitability. Additionally, AI-driven personalization enables e-commerce platforms to adapt and refine recommendations in real-time, ensuring that the shopping experience remains relevant and compelling as user preferences evolve.

Intelligent Search and Discovery

AI plays a vital role in enhancing search functionality and product discovery on e-commerce platforms by leveraging advanced algorithms and data analytics. For instance, natural language processing (NLP) algorithms enable platforms to interpret and understand user queries in natural language, facilitating more accurate and contextually relevant search results. Semantic search algorithms further enhance search accuracy by analyzing the meaning behind user queries, ensuring that results align with user intent. Moreover, AI-powered recommendation engines utilize collaborative filtering and content-based filtering techniques to suggest products based on user preferences and behavior. For example, platforms like Amazon and Netflix use AI to analyze past user interactions and suggest relevant products or content, thereby improving product discovery and encouraging repeat purchases. Additionally, predictive modeling algorithms anticipate user preferences and behavior based on historical data, enabling platforms to personalize search results and recommendations in real-time. By harnessing AI technologies, e-commerce platforms can create more intuitive and personalized shopping experiences, leading to increased user engagement, higher conversion rates, and ultimately, greater customer satisfaction.

Predictive Analytics and Demand Forecasting

AI-powered predictive analytics and demand forecasting models enable e-commerce businesses to anticipate customer demand by analyzing historical data, market trends, and various external factors. For example, platforms like Walmart and Alibaba employ AI algorithms to predict future demand for specific products based on factors such as seasonality, promotional events, and economic indicators. By accurately forecasting demand, e-commerce businesses can optimize inventory management, minimize stockouts, and ensure timely replenishment, thus improving customer satisfaction and maximizing revenue potential. Additionally, AI-driven demand forecasting allows businesses to adapt quickly to changing market conditions and stay ahead of competitors in a dynamic e-commerce landscape.

Fraud Detection and Risk Management

AI plays a crucial role in detecting and preventing fraud in e-commerce transactions by analyzing vast amounts of transactional data in real-time. Machine learning algorithms identify patterns and anomalies indicative of fraudulent activity, such as unusual purchasing behavior or suspicious account activity. For instance, platforms like PayPal and Shopify utilize AI-powered fraud detection systems to identify and block fraudulent transactions before they occur. By leveraging AI technologies, e-commerce businesses can effectively mitigate fraud risks, protect customer data, and maintain trust and confidence in the online shopping experience, ultimately safeguarding both businesses and consumers from potential financial losses.

Conversational Commerce and Virtual Assistants

AI-powered virtual assistants in e-commerce revolutionize customer service by providing personalized and responsive interactions. These assistants, such as chatbots and voice-activated interfaces, utilize natural language processing (NLP) and machine learning algorithms to understand and respond to customer inquiries, offer product recommendations, process orders, and provide support throughout the shopping journey. For example, virtual assistants like Amazon's Alexa and eBay's ShopBot assist users in finding products, answering questions, and completing transactions seamlessly. By leveraging AI, e-commerce businesses enhance customer engagement, improve operational efficiency, and deliver a more intuitive and satisfying shopping experience, ultimately driving customer satisfaction and loyalty while reducing the burden on human customer service representatives.

Challenges in AI Revolutionizing e-Commerce

Before The integration of AI into e-commerce has undoubtedly brought about a multitude of opportunities, but it is not without its challenges. One of the primary hurdles lies in data privacy concerns. As AI systems rely heavily on vast amounts of consumer data to operate effectively, ensuring the protection of this data from breaches or misuse becomes paramount. Moreover, the issue of algorithmic biases poses a significant challenge. AI algorithms, if not properly designed and calibrated, can inadvertently perpetuate biases, leading to unfair treatment or discrimination against certain groups of consumers.

Additionally, ethical considerations emerge prominently. The use of AI in e-commerce raises questions about transparency, accountability, and the ethical implications of automated decision-making processes. Ensuring that AI-driven decisions align with ethical standards and societal values becomes crucial to maintaining trust and integrity within the e-commerce ecosystem. Furthermore, there are technical challenges to contend with. Developing and deploying AI systems within e-commerce platforms requires significant expertise and resources. Overcoming technical barriers such as scalability, interoperability, and system integration complexities can be daunting tasks for businesses, particularly smaller enterprises with limited technological capabilities. Moreover, AI adoption in e-commerce necessitates a cultural shift within organizations. Embracing AI-driven approaches often entails organizational restructuring, reskilling of workforce, and fostering a culture of innovation and experimentation. Resistance to change or lack of internal buy-in can impede the successful implementation of AI initiatives. Lastly, there are regulatory challenges to navigate. As AI technologies continue to advance rapidly, policymakers grapple with crafting regulations that balance innovation with consumer protection and privacy rights. Navigating the complex and evolving regulatory landscape poses a significant challenge for e-commerce businesses seeking to leverage AI technologies while remaining compliant with legal requirements.

Future Directions of AI Revolutionizing e-Commerce

The future directions of AI revolutionizing e-commerce are poised to transform the digital marketplace in profound ways. Firstly, advancements in AI-driven personalization will enable even more tailored and immersive shopping experiences, with virtual assistants seamlessly guiding consumers through their purchasing journey and offering hyper-personalized product recommendations. Secondly, the integration of AI with emerging technologies like augmented reality (AR) and virtual reality (VR) will enable immersive virtual shopping experiences, allowing customers to visualize products in real-world environments before making a purchase. Thirdly, AI-powered supply chain optimization will continue to streamline logistics processes, reducing costs and improving efficiency from production to delivery. Moreover, AI-driven predictive analytics will enable e-commerce businesses to anticipate and adapt to changing consumer behaviors and market trends in real-time, ensuring agile and responsive operations. Finally, ethical considerations and regulatory frameworks will play an increasingly crucial role in guiding the responsible development and deployment of AI in e-commerce, fostering trust and transparency among consumers. Overall, the future of AI in e-commerce holds vast potential for innovation, efficiency, and enhanced customer experiences, reshaping the digital marketplace in the years to come.

Conclusion

In conclusion, the integration of artificial intelligence (AI) into e-commerce presents a transformative paradigm shift, offering unprecedented opportunities, alongside novel challenges and promising future directions. AI-powered personalization enhances customer experiences, driving engagement and loyalty through tailored recommendations and intuitive interfaces. However, challenges such as data privacy, algorithmic biases, and ethical considerations loom large, demanding careful navigation and robust regulatory frameworks. Looking ahead, the future of AI in e-commerce holds immense promise. Advancements in AI-driven technologies, coupled with emerging trends like augmented reality and predictive analytics, will further revolutionize the digital marketplace. Virtual assistants and immersive shopping experiences will redefine consumer interactions, while supply chain optimization and real-time analytics ensure agility and efficiency in operations. Yet, realizing this potential requires a concerted effort to address challenges and foster responsible AI development. Ethical considerations must guide AI implementation, ensuring transparency, fairness, and accountability. Moreover, collaboration between industry stakeholders, policymakers, and researchers is essential to navigate the evolving landscape of AI-driven e-commerce. In essence, while AI revolutionizes e-commerce with unparalleled opportunities for innovation and growth, its successful integration necessitates a holistic approach that prioritizes ethical considerations, regulatory compliance, and continuous adaptation to evolving market dynamics. By embracing these principles, e-commerce businesses can harness the full potential of AI to deliver transformative experiences and drive sustainable growth in the digital age.

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ROLE OF TECHNOLOGY IN STARTUPS AND SMALL BUSINESS

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ABSTRACT

In current scenario the role of technology creates better options in dealing with startups and small business. Technology involves both tangible and intangible tools like machine to software. It creates day-to-day activities simple by saving time, money, energy, movements from one place to another place for work etc. For the success of any business or activity, it is necessary to follow current environment technology and efforts. The new ideas regarding business startups, technology provides various ways which is helpful to deal with different business activities and creates in startups self-dependent or independent. It provides the resources of different ideas, tools, activities etc. Under the study emphasis is given on the role of technology in startups and small business which creates business activities simple and easy going. It creates more interest development in business startups by youth generation, who have ideas and wants to invest in business. It defines positive effect related to technology in startups and small business which is helpful for the growth of the nation. The growth of the business increases employment for the businessman as well as for the other persons. It creates development of the economy and increases living of standard as well as social development of the society. It creates vital role for the development of the startups and small business by giving necessary information like marketing, production, management, planning, organizing, staffing, directing, controlling business threads and weakness, developing strategies and strengths etc. With the lack use of technology in business, creates problem for the development of the business. Under the work convenience sampling method is used by Chi-square (X^2). A schedule of questionnaire of 30 startups and small business was developed which defines positive relations regarding role of technology.

KEYWORDS: Technology, Startups, Small Business, Development.

Introduction

In modern time the requirement of technology creates small business. The term technology defines practical approach for serving problems in a scientific manner which is helpful for both human beings as well as business activities by way of mechanical, medical, communications, electronic, industries and manufacturing process etc.

The term startups mean any process operated by first time in way of company or business which involves investment in tangible as well as intangible goods or services. In the initial stage it involves high costs with limited revenue or may be loss or profit. Small business is a business which operates at a small level with limited resources like capital, labor, machines etc. It produces goods and services at a small level. Technology in startups and small business defines the scientific approach which deals with the startups and small business. The role of technology in startups and business –

- It creates better management of time and money. The process of startups and small business is different according to different needs and requirements but common.
- It provides the facility of security.
- It helps in taking better decision making.
- It maintains customer support by providing information about products or services.
- It provides options regarding marketing and business development.

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- It helps with better communication regarding business activities related to customers, employers as well as employees.
- It provides facilities related to product or services development with research work.
- It helps in facing the competitors' activities or strategies.
- It helps in management processes like planning, organizing, staffing, leading, directing, controlling etc.

The process of startups and small business is different according to different needs and requirements but common process of Startups and small business as follows:

- To generate an idea of business.
- To analyze the idea
- To identify the name, logo.
- To develop business plan
- To arrange funds for financial requirements.
- To decide the structure and legal requirements
- To decide the technology with team and product.
- To launch business.
- To hire employees and grow business.

Review of Literature

Hendry Khuan, Eva Andriani, Arief Yanto Rukmana (August 2023), West Science Journal Economic and Entrepreneurship. The Role of technology in Fostering Innovation and Growth in Start-up Business in Indonesia. Under this study defines the role of technology regarding innovation and growth in start-up business by using bibliometric analysis that creates better understanding regarding technology relationship with innovation and growth.

Munira Aminova, Edoardo Marchi (Jan 2021), Vrije Universiteit Brussel, Vesalius College, Brussels, Belgium. The Role of innovation on Start-up Failure vs. Its Success (International Journal of Business Ethics and Governance). Under this study emphasis was given on the innovation on start-up which defines positive relation with the performance by using innovation. It creates positive co-relation of startups business performance.

Jose Santisteban and David Mauricio, Orestes Cachay (2021). Ciudad Universitario, Lima, Peru. Critical success factors for technology-based startups- This study is related to the technological involvement in startups that gives surety for business success. It defines the importance of technology for business development by using t-test at a 95% confidence level (Entrepreneurship and small business).

Dae Soo Choi, Chang Soo Sung and Joo Y. Park (11 Jan 2020) Sustainability. How Does Technology Startups Increase Innovative Performance? The Study of Technology Startups on Innovation Focusing on Employment Change in Korea. Under this study defines the importance of technology by employment quality generation with the help of innovative performance. It shows the development of sales which creates more profit for business.

Ronalty Rocha, Maria Elena Leon Olave, Edward David Moreno Ordonez (2020) Iberoamerican Journal of Entrepreneurship and Small Business. Innovation Strategies: An Analysis of information technology startups. Under this work emphasis has been given on Innovation strategies by technology. It uses qualitative method of research and gives positive results regarding strategy development for the development of the startups.

A Susan, W Novianti (2019), Indonesia Benefits of Technology for business (10p Conf. Series Material Science and Engineering). It defines the benefits of technology for business by giving emphasis on the technology. It shows the importance of technology. It creates success of business for the achievement of the targets of the business.

Olga Nikolaeva Likhacheva, Lelya Germanovna Pashtova, Liubov Alexandrovna Slepneva (2018) Financial University under the government of the Russian Federation, Moscow, Russia. International Journal of Engineering & Technology. The Role of Startups in Digitalization and Innovative Development of Economy. Under this study defines the technological innovation of startups in digitalization which creates demand in domestic market and creates attraction for investment in ventures. While the conclusion of the study shows lack of development of startups due to lack of knowledge of regarding technology deadlines by the youth.

Santhosh T. (sept.2018) International Journal of Management and Humanities. Impact of Technology in Business. This study defines the importance of technology in business and describes reasons for new business failure due to lack of technology. For the development of business or success technology adoption creates better results.

Dr. Shashikala K. (June 2017) Associate professor of commerce, Mangalore, Karnataka, India. (Role of Technology for Startups). Under this work emphasis was given on technological importance for start-ups. Technology improves the performance of start-ups companies. The source of secondary data defines national growth of start-ups by using technology in business environment and creates social life development.

Sergio Andre Cavalcante (2013) Aarhus University, Aarhus, Denmark. European Journal of innovation Management. Understanding the impact of technology on firm's models. It makes strategic development in the easiest form which creates business development. It creates a relation between innovation and initiatives of the internal environment of the business.

Martin S. Bressler, Southeastern Oklahoma State University, Linda A. Bressler, university of Houston-Downtown, Mark Edward Bressler, Bressler Consulting Group (Nov 2011) Academy of Entrepreneurship Journal. A Study of Small Business Technology Adoption and Utilization. Under this study defines the importance of technology which reduces the cost of business purposes and increases the facility of business development. A questionnaire process was used to find out the result regarding the importance of technology.

Importance of the Study

The role of technology in startups and small business creates future opportunities for business development which provides facilities to deal with present as well as future challenges. This study helps in deciding the role of technology in startups and small business which defines the facilities of business development and maintaining the growth of the business. The business environment creates problems for the business due to external factors of threats and weakness. It saves time, money, effort, cost, physical burden etc. It encourages the people to invest in money or efforts in business activities which help in economic growth by employment generation.

Research Objectives

- To know about technology needs in the startups.
- To know about technology requirement in small business.
- To study the role of technology in business.
- To measure the relations of technology with startups and small business.

Hypothesis

Ho: There is no significant effect, regarding role of technology in startups and small business.
Hi: There is significant effect regarding the role of technology in startups and small business.

Research Methodology

It defines the method of collection of data which creates search again. Under this study the primary data was related to exploratory nature which done by questionnaire method. The responses of 30 business firms or companies, defines the role of technology in startups and small business. It involves time to time changes due to environmental factors which creates more opinion regarding search again the work.

Data Analysis & Interpretation

Data analysis & Interpretation related to role of technology in startups and small business followed by questionnaire method by collecting sample of 30 business firms or companies. Under questionnaire development responses regarding role of technology in startups and small business was taken in the form of strongly agree, neutral, disagree and strongly disagree. The Chi-square (X^2) method was used at 5% level of significance which defines significant effect regarding role of technology in startups and small business.

Hypothesis Testing

Step 1: Null Hypothesis (H_0) - There is no significant effect, regarding role of technology in startups and small business.

Step 2: Calculation of chi square test.

Table 1

Sr. No.	Scale of Responses	(Observed Frequency) Opinion Regarding Technology in Startups and Small Business
1.	Strongly agree	10
2.	Agree	9
3.	Neutral	8
4.	Disagree	2
5.	Strongly Disagree	1
Total		30

Expected Frequency = Total of Opinions/Total of Responses = 30/5 = 6 Observed Frequency = OF

Expected Frequency = EF

Table 2

OF	EF	[OF-EF]	[OF - EF] ²	[OF - EF] ² /EF
10	6	4	16	2.67
9	6	3	9	1.50
8	6	2	4	0.67
2	6	-4	16	2.67
1	6	-5	25	4.17
				Total = 11.68

Chi-square (X^2) = $\sum [(OF-EF)^2 / EF] = 11.68$

Step 3: Calculation of degree of freedom Degree of freedom $[v] = [n-1] = 5-1 = 4$

Step 4: In this hypothesis at 5 % significance level, degree of freedom of 4 is 9.488.

Step 5: The calculated value of X^2 is 11.68 which are more than the table value (9.488). Hence the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. The result of data shows that there is significant effect regarding role of technology in startups and small business.

Recommendations / Suggestions

The role of technology in startups and small business is a factor of environmental business which influences the business activities and describes the position of the business. The position of the business may be favorable or may be unfavorable due to technological factors which are important for the business activities. Its involvement in business activities provides the facilities of investment by youth people and generates the job opportunities as well as economic growth of the nation.

Purpose of the Study

This study is defining the role of technology in startups and small business which encourages the use of technology. Use of technology creates startups and small business activities simple and easy going which is helpful for business development as well as economic growth. Due to the advantages of technologies youth people or investors want to invest in these activities and provide facilities for job generation and participate in nation development.

Sample Design

Sample design is a process of obtaining data from a given population according to statistical methods which may be present in quantitative form as qualitative form or in both. These data define samples of population as per the need of the study of research work. These data were collected in a questionnaire from by different persons at some per determine methods of statistics. Under this study (X^2) Chi-square method is used by taking 30 business firms of startups and small business by taking scale of responses of strongly agree, neutral, disagree and strongly disagree.

Limitation

Under this study data was collected by process of primary sources which creates lot of time consuming money, travelling from one place to another, paperwork, persons responses regarding meetings, disinterest related to questionnaire filling, lost, forget to fill up wrongly filled, left it at home, taking several days to giving data responses. These activities create lack of interest or reduce confidence in research work.

Identification of the Problem

This study is helpful to find out the role of technology in startups and small business. It creates opportunities for the business units to deal with the environmental factors which create threads and maintain the growth of the business. Lack of technology business units' facts lot of problems which creates the season of classes or shut down of business units. Due to importance of change technology the viewpoint of youth change regarding Employment, creates investment in business and wants to self-dependent or independent. It generates employment for other people which maintains balance in the economy. It reduces the pressure of government jobs.

Conclusion

The finding of the study defines positive relation regarding role of technology in startups and small business. The data collected by way of questionnaire provides information about viewpoints of different units of startups and small business. Technology improvement and involvement is necessary for the growth of the business as well as the nation. It provides the resources for improvement of the other resources of business. Hence the finding defines the significant effect of technology in startups and small business.

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REPARAMETRIZED ACTIVE MEMBRANE FOR IMAGE SEGMENTATION

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ABSTRACT

Reparametrization of active membrane is an important step for getting the desire output in image segmentation applications. Without reparametrization membrane evolution leads to local concentrations as well as rarefactions of membrane vertices over the segmented object and hence results to a poor definition of the segmented object and instability in the membrane evolution. In this paper an effective reparametrization of active membrane is proposed which leads to a uniform distribution of membrane vertices over the object. The results show the efficacy of the proposed method.

KEYWORDS: Active Membrane, Reparametrization.

Introduction

Active membrane [1] is popular image segmentation tool like active contour [2], active-net [3] and level set [4] method. Active membrane has a great similarity with active net. It is a parametric surface evolution-based method which is evolved by optimizing two kind of energies internal and external. The internal energy of the membrane helps membrane to maintained its smoothness and uniformity of the vertices on the membrane while the external energy drives it towards the edge of the object present in the image. The membrane on an image is defined as a set of vertices placed in a regular interval in row and column direction on the top of the image surface. Every vertex is connected to its neighbourhood vertices both in the row and column directions. The internal energy of the membrane depends on the intervertices distances of the membrane points and external energy depends on the image properties such as image gradient, intensity etc. exist on the vertex points. When internal and external energies of membrane are optimized, they produce internal and external forces on the membrane vertices. External force generally refers as image force based on image properties and it drags the membrane vertices towards the object edge. When image force based on Gradient Vector Flow (GVF) [5] is used its influence is present on all over the image. In such situation all the vertices of membrane move towards their neighbourhood object edge. So, on due course of evolution, all the vertices of the membrane gather near the object edge. As a consequence, vertices which are away from the object edge moves away from each other. As the evolution continues all the vertices will eventually converges to the object edge and no more vertex remains on the object. The condition is displayed in the Figure 1.1. Convergence of all vertices of membrane to object edges creates irregular intervertices distances in the different parts of membrane and consequently results difficulties in two ways. First, since the internal force of the membrane depends on the inter vertices distance, the irregular intervertices distances between vertices create instability in membrane. Second object region is not clearly defined as all the vertices moves to the object edge.

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So here comes the need for presence of membrane vertices over object maintaining a uniform distance among them. What we can do by generating new vertex in between two neighbourhood vertices when they go apart from each other beyond a limit and deleting a vertex when it comes very closer to its neighbourhood vertex. The process is known as the reparametrization of the membrane. For a stable evolution and representation of object in image by membrane, reparametrization is a basic requirement.

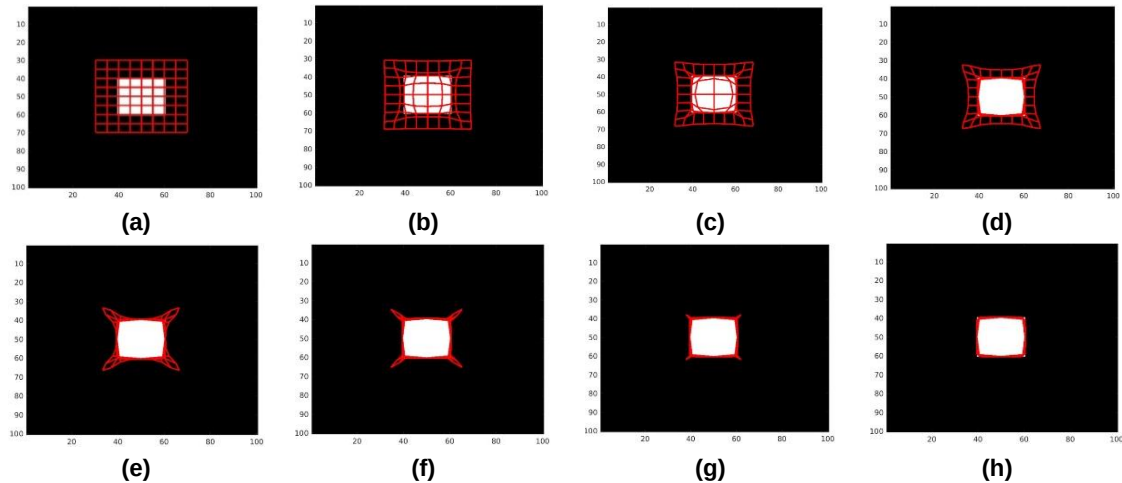


Figure 1: Evolution of Unparametrized Membrane

In this paper we have proposed a reparametrization method of active membrane to overcome the scenario shown in the Figure 1. In the next section we have described the methodology of our reparametrization method. In Section 3 the result of our proposed method is describe followed by the conclusion section.

Methodology

We divide the entire image into some superpixels. A superpixel consists of multiple but same number of image pixels in height and width directions. Figure 1 (a) shows an example of division of an image into superpixels. Here the image has 15 pixels both in row and column directions and the image is divided into superpixels having 5 image pixels in height and width directions of the image. As a result, the image is divided in 3×3 superpixels.

We assume that whenever a membrane is defined over a region on an image every superpixel on that region can accommodate only one membrane vertex on it. Figure 1 (b) depicts the membrane representation over the image represented in Figure 1(a). We place a single vertex over each superpixel of the image to maintain a regular gap between a vertex and its neighbourhood vertices. When the membrane evolves each vertex of its moves within the region of the superpixels that accommodates the particular vertex. If due to the course of movement a vertex within a superpixel comes to the boundary of that superpixel, it sometimes may cross the boundary and reaches to the region of neighbourhood superpixel. As a result, the superpixel from which the vertex left becomes empty unless vertex from any other superpixel substitutes that position. Now, if membrane is still present over the empty superpixel the old vertex which was over it will be taken back on the empty superpixel. In this case, the vertex is placed where it was in the previous iteration prior to leave the empty superpixel. However, if membrane is displaced from the empty superpixel the vertex leaving the empty superpixel is deleted and hence no returning of vertex happens in that case. The method is explained by Figure 1(c)-(h). Figure 1(c) shows the vertex (2,2) of Figure 1(b) moves to the boundary of the superpixel (2,2). In the next iteration if vertex (2,2) moves to superpixel (1,2) the superpixel (2,2) becomes empty as shown in Figure 1 (d). Now although superpixel (2,2) empty but membrane is still present over it as its four neighbourhood superpixels have membrane vertices over it. So, we return back the vertex (2,2) in its old position from superpixel (2,1) where it was in its previous position on the superpixel (2,2) as shown in Figure 2(e). However, the scenario is different if vertex (1,2) moves from superpixel (1,2) to superpixel (2,2) as illustrated in Figure 1(f). In this case membrane is shifted from superpixel (1,2). Hence vertex (1,2) would be deleted and resultant membrane configuration would be as depicted in Figure 1(g). Since vertex

connected with single link is not allowed for two dimensional membrane configurations, the vertex (1,1) and (1,3) of membrane deleted and final membrane in this case becomes as shown in Figure 1 (h).

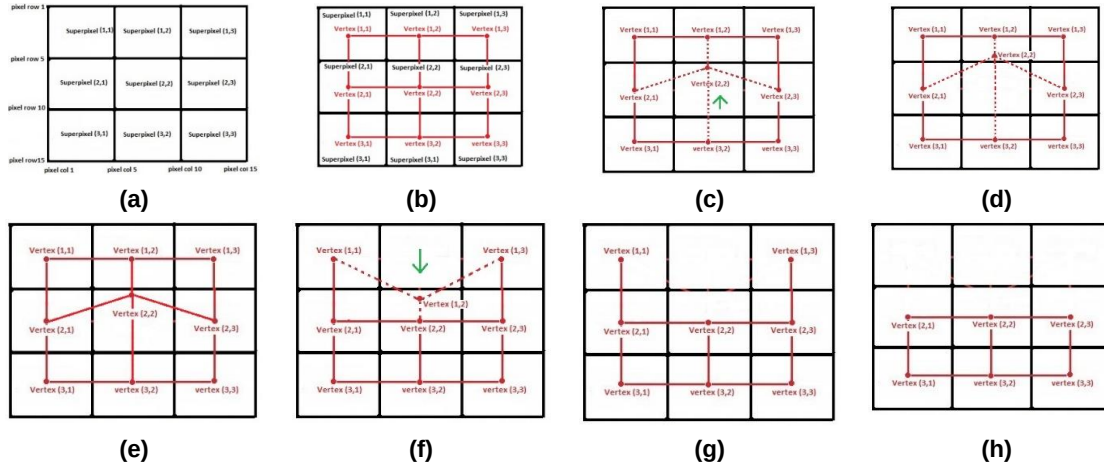


Figure 2: Membrane Reconfiguration Depending on the Pixel Movement

For implementations of this, after each evolution of membrane, we first find out the superpixels which contain membrane vertices. The superpixels which accommodate the membrane vertices are considered as positive superpixels. As in Figure 1(b) all the superpixels are positive superpixels. Similarly, the superpixels which have no membrane vertices on it currently but had vertices on it in the previous iteration is marked as negative superpixels. As for example in Figure 1(d) and (f) superpixel (2,2) and superpixel (1,2) are the negative superpixels respectively. The remaining superpixels which do not contain any membrane vertex both in the current and previous iteration are marked as neutral or zero superpixel. For example, in Figure 1(g) superpixel (1,2) becomes a zero superpixel after the deletion of the vertex (1,2).

We first consider the negative superpixels and examine the presence of membrane over it. For this we first track the current position of vertex which remained over it in the previous iteration. If the negative superpixel is surrounded by only positive superpixels we assume that the membrane is over it in current iteration. So the vertex which was shifted is repositioned in the previous position over negative superpixel. After this the negative superpixel is made positive. This has been explained already by Figure 1(b)-(e).

Next, we go for the negative superpixels having the three positive neighbourhood superpixels. Now in this condition there may arise three types of circumstances. The vertex which was on the negative superpixel may shifted toward a vertex interior to the membrane or towards a boundary vertex of membrane or toward a zero superpixel. An interior vertex of the membrane was a four connected vertex in the previous iteration while boundary vertex is a three connected vertex which constitutes the boundary of membrane. The last case where vertex shifts to a new zero superpixel happens when expansion of the membrane occurs. The scenarios are depicted in the Figures 2. The Figure 2(a) shows the vertex before shift. After evolution, the vertex may shift to pixel having inner nodes as shown in Figure 2 (b) or it may shift to another boundary pixel sidewise as in Figure 2 (c) or it may expand to a zero superpixel as illustrated in Figure 2 (d).

Among the three abovementioned conditions described in Figure 2 (b)-(d) if the vertex is shifted to inner node as described in Figure 2(b) the vertex is deleted and the negative superpixel is changed to a zero superpixel. This is because in this case the membrane is considered to be shrinking. The next vertices configuration in this case is shown in the Figure 2 (e).

In case of the Figure 2(c) the vertex which was shifted is retrieved in the previous position over negative superpixel as shown in Figure 2(f). After this the negative superpixel is made positive. On the other hand if it occurs in case of two connected vertex as in Figure 2(h) the vertex is deleted and the negative superpixel is changed to a zero superpixel as shown in Figure 2(i).

In case of the Figure 2(d) shifted vertex to zero pixel is converted to new vertex and is included in the membrane due to the expansion of membrane and hence to accommodate it to the membrane new neighbourhood vertices are created as illustrated in the Figure 2 (g).

In all above cases when a vertex of one superpixel enters to another superpixel having a vertex already there we either shift the vertex which enters later to its previous superpixel or delete it making the previous superpixel zero. This is done keeping in mind that a superpixel always holds only one vertex over it.

Except above-mentioned three conditions of Figure 1, if any other condition arises then we consider that the negative superpixel is an isolated one and it should be converted to zero.

Once all the negative superpixels are considered and alter them to either positive or zero we identify all the positive superpixel surrounded by the zero superpixels. The vertices above this type of superpixels are considered as isolated vertex since they are not connected to any part of membrane and therefore are deleted first.

Next we go for the superpixels marked as both positive and negative and connected with only one vertices of membrane as in Figure 1(g). The vertices above such type of superpixels are also considered isolated considering that it had more than one neighbourhood vertices in the previous iteration but due to shrinking of membrane now only connected to one neighbourhood vertices and hence are deleted as in Figure 1(h). On the other hand when superpixel marked as positive only and having only one positive superpixel as neighbourhood it is marked as new vertex included in the membrane due to the expansion of membrane and hence to accommodate it to the membrane new neighbourhoods created as illustrated in the Figure 2 (g).

Positive pixel more than one neighbourhood are taken as part of membrane undoubtedly.

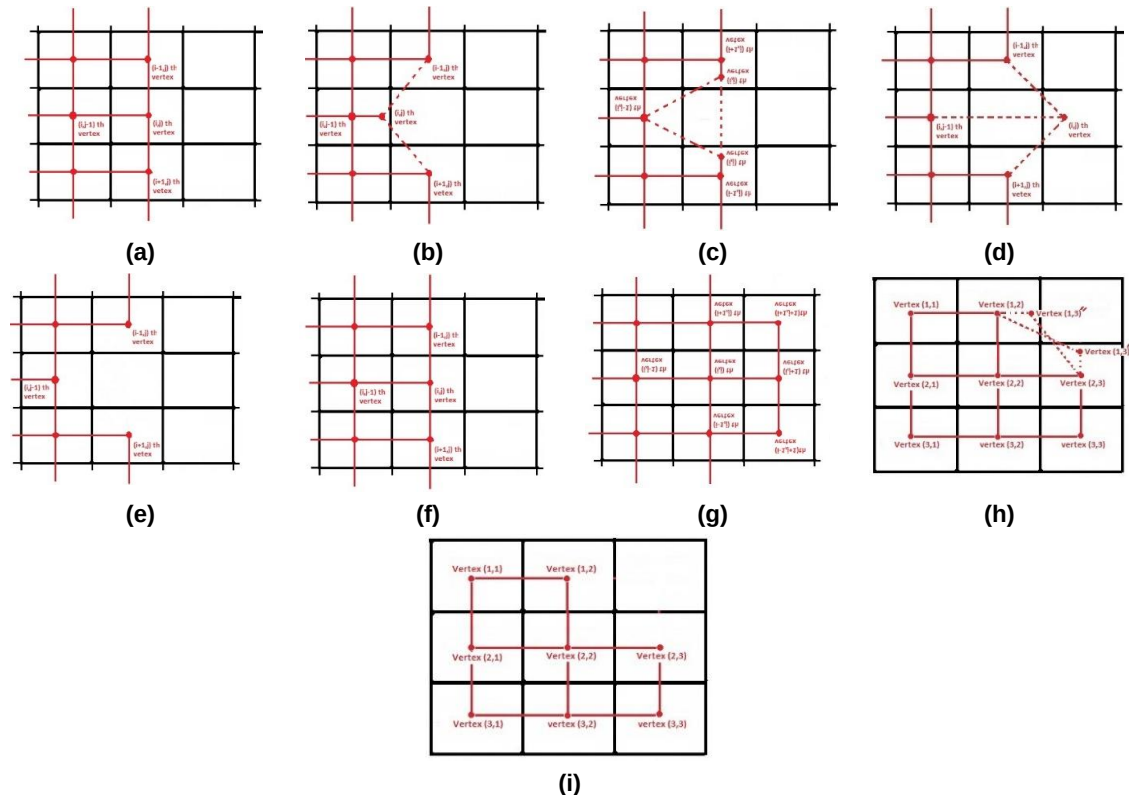


Figure 3: Membrane reconfiguration depending on the pixel movement
In the next section, we show the result of reparametrized membrane evolution.

Results and Analysis

The proposed methodology is implemented to detect only synthetic objects since our it demonstrates the efficacy of the reparametrization processes of the membrane. In case of real image, the uneven distribution of image gradients over object sometimes restrict the membrane vertices to go to the object boundary and hence convergence of all the membrane vertices on object boundary may not be evidence as clear as it can be shown in case of a noiseless synthetic image. In Figures 4 (a)-(k) we show the gradual convergence process of our proposed method. Compared to the Figures 1(a)-(h), in Figures 4 (a)-(k) we see that membrane vertices are uniformly distributed over object throughout the evolution and each superpixels which is taken five pixels in height and width accommodates only one membrane vertex over it. The numerical comparison of proposed method with [1] is discussed in the next section.

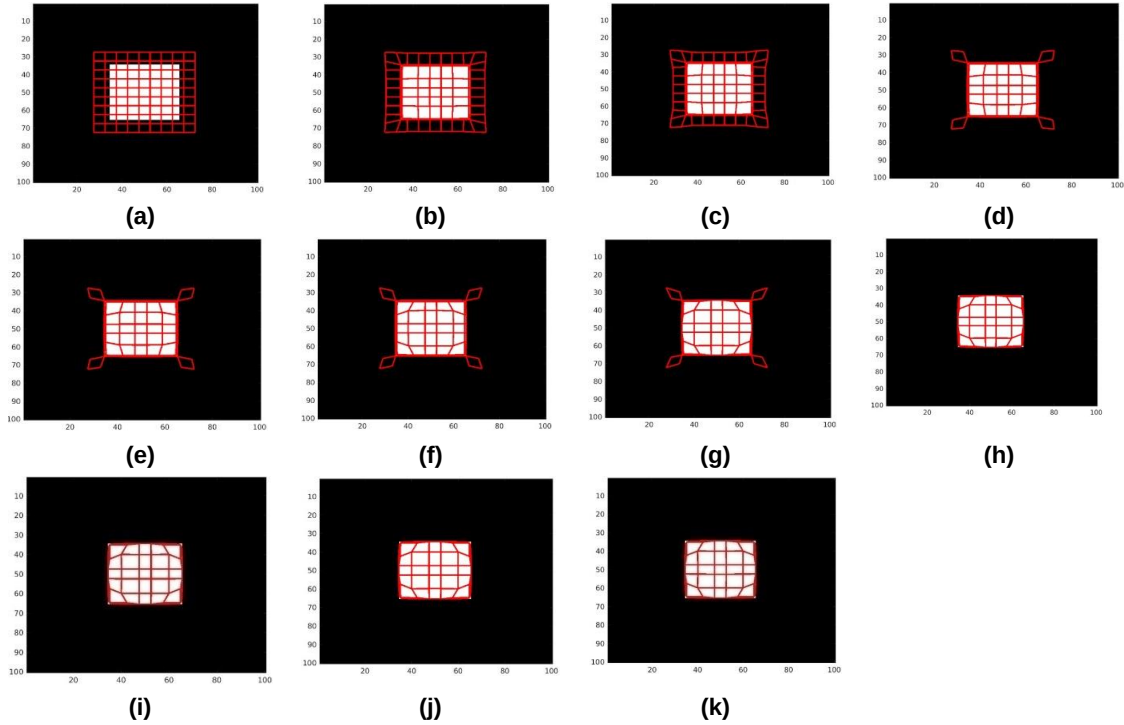


Figure 4: Evolution of Parametrized Membrane

Comparison

Since the regularity of membrane depends on the intervertex distance, we take the intervertex distance equal to be distance between two neighbourhood superpixels. Let ideally it should be h . If the intervertex distance deviated from h the regularization of membrane perished. So, to measure the average deviation of the membrane vertices from consecutive superpixel distance. we sum up the deviations of the all vertices of the membrane and divided it by the total number of vertices of the membrane. It is defined as,

$$d = \frac{\sum_{i=1}^N \sum_{k \in \mathbb{N}_i} |V_i - V_k| - h}{N} \quad (4)$$

Where N and $\mathbb{N}_i$ are the total number of vertices and total number of neighbourhood vertices of the i th vertex of the membrane, respectively. If we apply [1] without its topology adaptive property since there is no reparametrization process applied, in each iteration the number of vertices remains same throughout the membrane evolution. The scenario is depicted in the Figure 4(a) which shows the number of vertices throughout the membrane evolution of Figure 1 remains same to 100. But in case of the proposed method due to reparametrization each superpixel can only have one vertices of membrane. So as membrane sinks the number of subpixels covered by membrane reduces and hence number of vertices of membrane reduces to 60 after convergence as shown in Figure 4(b). In the Figure 4(c)-(d) we

have plotted the error d in (4) per iteration in the process described in [1] and proposed in this paper. We plot the change of d with respect to the iteration for the proposed methods and [1]. The plot shows d in the proposed method much less than the method proposed in [1]. Maximum value of d in [1] is 9.6 while in case of proposed method it is 6.2. Hence the proposed method is more regularized than the method in [1] which shows the efficacy of the proposed method.

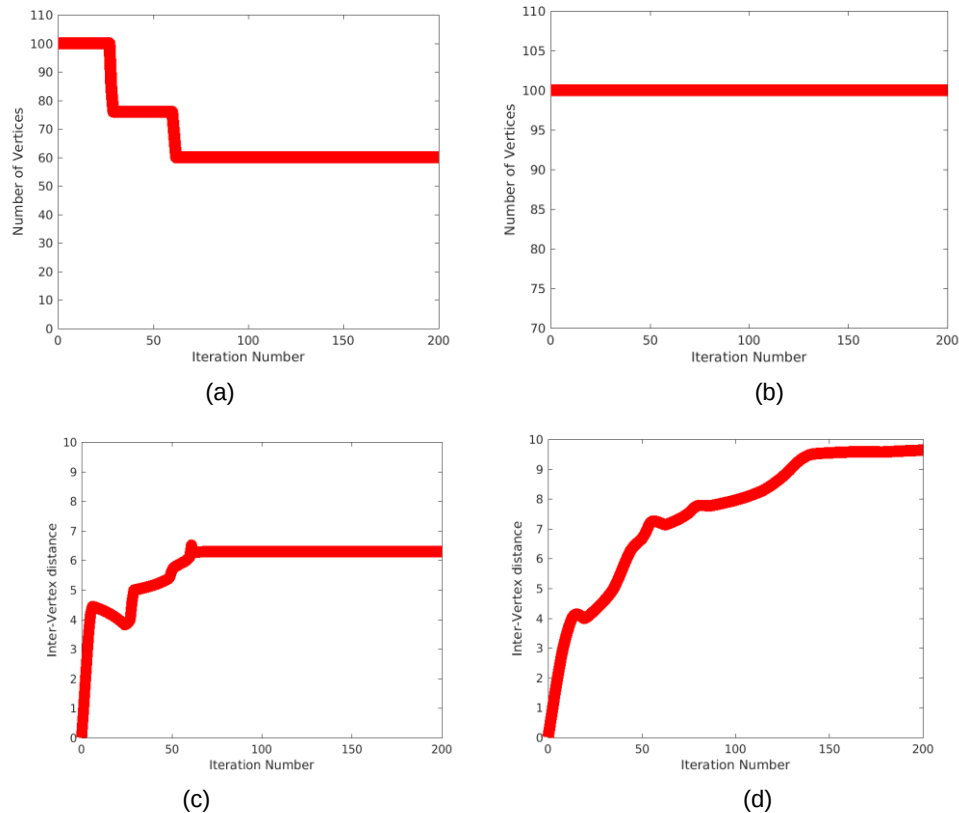


Figure 5: Membrane Reconfiguration Depending on the Pixel Movement

Conclusion

We have developed a new reparametrization method of parametric active membrane. The method keeps uniform distribution of membrane vertices over the segmented object throughout the membrane evolution process. Our goal is to use this technique to segment multiple objects in an image.

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समेकित बाल विकास योजना के विविध आयाम: अनूपगढ़ तहसील के विशेष सन्दर्भ में

सोनू चौहान*

सार

समेकित बाल विकास योजना भारत सरकार की सबसे वृहद् एवं महत्वपूर्ण योजना है। इस कार्यक्रम का मुख्य उद्देश्य नवजात शिशु की देखभाल और समग्र विकास है। यह योजना बच्चों और उनकी माँ को स्वास्थ्य, पौष्टिक भोजन और सीखने के अवसर देती है। इसकी स्थापना 1975 ई० में की गई। प्रायोगिक आधार पर पहली बार 33 परियोजनाएं शुरू की गईं, जिनमें 18 ग्रामीण क्षेत्रों में, 11 आदिवासी क्षेत्रों में और 4 झुग्गी झोपड़ी वाले क्षेत्रों में शुरू हुईं।

समेकित बाल विकास योजना के प्रमुख कार्यक्रम हैं:-

- सहायक पोषाहार
- पोषाहार एवं स्वास्थ्य शिक्षा
- रोग-निरोधन
- स्वास्थ्य परीक्षण
- शाला पूर्व शिक्षा

विशेष सुविधायें

समेकित बाल विकास योजना की स्थापना कुपोषण की विकट समस्या को हल करने हेतु की गई है। समेकित बाल विकास योजना पोषाहार कार्यक्रम की कई अंतर्राष्ट्रीय सहयोगी संस्थाओं में महत्वपूर्ण है।

शब्दकोश: समेकित, पोषाहार, कुपोषण।

प्रस्तावना

भारत, एक विकासशील देश, यहाँ आजादी के पाँच दशक बाद भी बच्चों और महिलाओं के स्वास्थ्य और पोषण का स्तर निम्न ही है। विकासशील देशों में कुपोषण एक बहुत बड़ा अभिशाप है, जिसके अर्न्तगत जन्म से लेकर पाँच वर्ष बच्चों एवं महिलाओं को ग्रसित होते देखा गया है। नवीनतम शोधों के परिणामों को देखकर इसके दो प्रमुख कारण स्पष्ट होते हैं-

- स्त्री अशिक्षा
- आर्थिक स्तर का निम्न होना

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समेकित बाल विकास योजना का उद्देश्य बच्चों का सम्पूर्ण विकास करना और छह वर्ष से कम आयु के बच्चों और माताओं को शिक्षा, स्वास्थ्य और पौष्टिक आहार जैसे महत्वपूर्ण आधारभूत सुविधाएं देना है। 2 अक्टूबर 1975 को समेकित बाल विकास योजना का उद्घाटन हुआ। समेकित बाल विकास योजना भारत सरकार की एक विशिष्ट योजना है। यह माताओं और बच्चों को उपहार है।

समेकित बाल विकास योजना के उद्देश्य

- 0 से 6 वर्ष तक के बच्चों और गर्भवती महिलाओं के आहार-पोषण एवं स्वास्थ्य में सुधार लाना।
- बच्चों की उचित शारीरिक, सामाजिक एवं मनोवैज्ञानिक विकास की नींव रखना।
- मृत्यु, रोग, कुपोषण और स्कूल छोड़ने की घटनाओं को कम करना।
- बाल विकास को बढ़ावा देने और विभिन्न विभागों के बीच नीति और कार्यों में प्रभावी समन्वय बनाना।
- शिक्षा द्वारा माताओं और बच्चों के स्वास्थ्य और पोषण की सामान्य आवश्यकताओं को पूरा करने की क्षमता में वृद्धि करना।

33 परियोजनाएं प्रायोगिक रूप से सर्वप्रथम समेकित बाल विकास योजना द्वारा शुरू की गईं। जिनमें 18 परियोजनाएं ग्रामीण क्षेत्रों में शुरू हुईं, 11 आदिवासी क्षेत्रों में और 4 झुग्गी झोपड़ी वाले क्षेत्रों में।

समेकित बाल विकास योजना कार्यक्रम का संगठन और क्रियान्वयन

बाल विकास परियोजना अधिकारी के जिम्मे एक पूरी परियोजना में कार्यक्रम लागू करना है क्योंकि वह अकेले सभी आंगनवाड़ी केन्द्रों की देखरेख और दिशा-निर्देश नहीं कर सकता इसलिए मुख्य सेविकाओं को देख-रेख का काम सौंपा गया है। आमतौर पर एक मुख्य सेविका ग्रामीण परियोजनाओं में 20 आंगनवाड़ी, आदिवासी परियोजनाओं में 17 आंगनवाड़ी तथा शहरी परियोजनाओं में 25 आंगनवाड़ी के काम की देखरेख करती है।

प्राथमिक स्वास्थ्य केन्द्रों और उपकेन्द्रों के डॉक्टरों, महिला स्वास्थ्य सहायकों और महिला स्वास्थ्य कार्यकर्ताओं द्वारा समेकित बाल विकास योजना कार्यक्रम की स्वास्थ्य सेवाएं प्रदान की जाती हैं।

जिला स्तर पर कार्यक्रम का समन्वय कलक्टर, उपायुक्त या डिप्टी कमिश्नर की जिम्मेदारी होती है। राज्य स्तर पर कार्यक्रमों का निर्देशन और कार्यान्वयन सचिव, सवमजा कल्याण विभाग या समेकित बाल विकास योजना से संबंधित विभाग की जिम्मेदारी होती है। महिला एवं बाल विकास (मानव संसाधन विकास मंत्रालय) केन्द्रीय स्तर पर योजना को लागू करने का निर्देश देता है।

समेकित बाल विकास योजना के कार्यक्रम

समेकित बाल विकास योजना के अन्तर्गत 6 वर्ष तक के बच्चों एवं गर्भवती महिलाओं के लिए सेवायें उपलब्ध करायी गई हैं—

• सहायक पोषाहार

गर्भवती महिलाओं, दूध पिलाने वाली माताओं और कम आय वाले परिवारों के बच्चों को अतिरिक्त पोषण मिलता है। एक वर्ष से कम आयु के बच्चे को 200 कैलरी, 8.10 ग्राम प्रोटीन, एक से छः वर्ष के बच्चे को 300 कैलरी, 10.12 ग्राम प्रोटीन, और गर्भवती महिलाओं और धात्री माताओं को 500 कैलरी, 25 ग्राम प्रोटीन का अतिरिक्त आहार एक वर्ष में 300 दिन दिया जाता है। गंभीर रूप से कुपोषित बच्चों को विशेष आहार प्रदान करने का प्रबंध है। प्रत्येक राज्य का खाना अलग है। साथ ही कुपोषित बच्चों को अधिक मात्रा में विटामिन दी जाती है। रक्तअल्पता नियंत्रण कार्यक्रम के तहत महिलाओं और बच्चों को लौह-लवण की गोलियाँ भी दी जाती हैं।

- **पोषाहार एवं स्वास्थ्य शिक्षा**

सभी महिलाओं को पोषाहार एवं स्वास्थ्य संबंधी शिक्षा दी जाती है जिसके अर्न्तगत आँगनवाड़ी केन्द्र है। जो स्कूल पूर्व बच्चों तथा उनकी माताओं को स्वास्थ्य, पौष्टिक आहार और शिक्षा के बारे में सेवायें प्रदान कर रही है।

- **रोग-निरोधन**

एक आँगनवाड़ी केंद्र के आसपास आने वाले सभी बच्चों को जानलेवा बीमारियों से बचाने के लिए टीके लगाए जाते हैं। महिलाओं को प्रसव पूर्व और प्रसवोपरान्त देखभाल के बारे में बताया जाता है। आयरन और फॉलिक अम्ल की गोलियाँ भी गर्भवती महिलाओं को दी जाती हैं।

- **स्वास्थ्य परीक्षण**

आँगनवाड़ी में सभी बच्चों को उपकेन्द्र से आई हुई नर्सों और प्राथमिक स्वास्थ्य केंद्र के डॉक्टरों द्वारा नियमित रूप से जांच और उपचार दिया जाता है। साथ ही, आँगनवाड़ी कार्यकर्ता बच्चों को दस्त या अतिसार होने पर उचित सलाह देती है और ओरल डिहाइड्रेशन घोल बनाने की कला सिखाती है।

- **शाला पूर्व शिक्षा**

तीन से छह वर्ष के बच्चों को खेल-खेल में अनौपचारिक रूप से कई तरह की शिक्षा दी जाती है ताकि उनका मानसिक विकास हो सके। आँगनवाड़ी की सेविकाओं का इस काम में बहुत महत्वपूर्ण योगदान रहता है।

समेकित बाल विकास योजना की समस्त सेवायें एक ही केन्द्र में उपलब्ध करायी जाती है जिसे आँगनवाड़ी कहते हैं। इस केन्द्र की सेविकायें बच्चों एवं महिलाओं से सीधा सम्पर्क बनाये रखती हैं।

- **विशेष सुविधायें**

स्वास्थ्य सेवाएं प्राथमिक स्वास्थ्य केन्द्रों और शहरी स्वास्थ्य प्रणाली के चिकित्सकों और नर्सों द्वारा प्रदान की जाती हैं। गंभीरतापूर्ण मामले अस्पतालों और अन्य विशिष्ट संस्थानों में भेजे जाते हैं। गर्भवती महिलाओं और बच्चों के स्वास्थ्य का विवरण कार्डों पर लिखा जाता है और उन्हें कार्ड प्रदान किये जाते हैं।

एक मुश्त सेवायें

समेकित बाल विकास योजना में बच्चों को एक मुश्त सेवाएँ जैसे पूरक पोषाहार, स्वास्थ्य जाँच, प्राथमिक स्वास्थ्य देखभाल, सहायक सेवाएं, प्रतिरक्षा पोषाहार और स्वास्थ्य शिक्षा और गैर अनौपचारिक स्कूल पूर्व शिक्षा प्रदान की जाती है।

इस प्रकार, समेकित बाल विकास योजना कार्यक्रम का लक्ष्य बच्चों का सर्वांगीण विकास करना है और छह वर्ष से कम आयु के बच्चों और माताओं को शिक्षा, स्वास्थ्य और पौष्टिक आहार जैसी आधारभूत सुविधाएं प्रदान करना है।

शोध प्रविधि

प्रस्तुत शोध का केंद्र राजस्थान राज्य की अनूपगढ़ तहसील है। इस शोध कार्य को पूरा करने के लिए निम्नलिखित उपकल्पनाओं को निरूपित किया गया है—

- ICDS सेवाओं का लाभार्थियों की विकास प्रक्रिया पर सकारात्मक प्रभाव पड़ता है।
- ICDS लाभार्थी के पोषण एवं स्वास्थ्य स्थिति में महत्वपूर्ण संबंध है।

शोध कार्य को सफलतापूर्वक सम्पन्न करने के लिए साक्षात्कार एवं प्रश्नावली विधि का सहारा लिया गया। सूचनाओं का अध्ययन एवं संग्रहीकरण प्राथमिक एवं द्वितीयक आंकड़ों के माध्यम से किया गया। पूरे साक्षात्कार के दौरान निरीक्षण पद्धति का उपयोग किया गया।

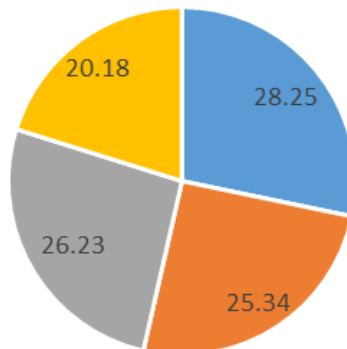
परिणाम

सर्वप्रथम आईसीडीएस योजना के तहत आंगनवाड़ी केन्द्रों में कार्यरत आंगनवाड़ी कार्यकर्ताओं से एकाधिक प्रतिक्रिया प्रश्न पूछे गये, उत्तरदाताओं से कहा गया कि वे एक प्रश्न के एक से अधिक उपयुक्त उत्तर दे सकते हैं, इन उत्तरदाताओं से प्राप्त मतों की आवृत्ति एवं प्रतिशत ज्ञात किया गया।

प्रश्न 1. अंपरिश्रमी माताओं के बच्चों के पोषण में सुधार के लिए प्खै योजना का कौन-सा पहलू सबसे महत्वपूर्ण माना जाता है?

क्र. सं.	कथन	प्रतिक्रिया की संख्या		कुल उत्तरदाताओं का प्रतिशत
		आवृत्ति	प्रतिक्रियाओं का प्रतिशत	
अ	बाल आहार संबंधी योजनाएं	126	28 ^७ 25	61 ^७ 76
ब	मातृत्व अवधि के दौरान चिकित्सा सेवाएं	113	25 ^७ 34	55 ^७ 39
स	बाल स्वास्थ्य चेकअप की सुविधा	117	26 ^७ 23	57 ^७ 36
द	प्राथमिक शिक्षा की सुविधा	90	20 ^७ 18	44 ^७ 12
	योग	446	100 ^७ 00	218 ^७ 63

अंपरिश्रमी माताओं के बच्चों के पोषण में सुधार के लिए
ICDS योजना का कौन-सा पहलू सबसे महत्वपूर्ण माना
जाता है



■ बाल आहार संबंधी योजनाएं ■ मातृत्व अवधि के दौरान चिकित्सा सेवाएं
■ बाल स्वास्थ्य चेकअप की सुविधा ■ प्राथमिक शिक्षा की सुविधा

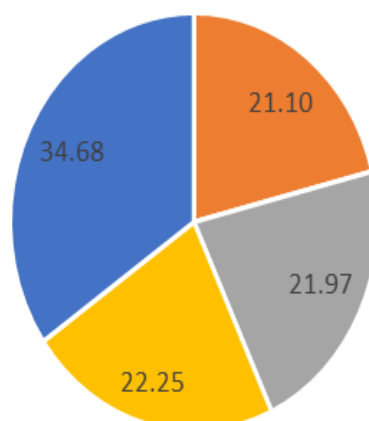
जब प्खै कार्यकर्ताओं से पूछा गया कि बच्चों के पोषण में सुधार के लिए प्खै योजना का कौन-सा पहलू सबसे महत्वपूर्ण माना जाता है तो सभी कार्यकर्ताओं ने अलग-अलग प्रतिक्रियाएं दी, कुल प्रतिक्रियाओं में से 28.25 प्रतिशत (कुल उत्तरदाताओं का 61.76 प्रतिशत) कार्यकर्ताओं ने बाल आहार संबंधी योजनाओं को महत्वपूर्ण बताया, 25.34 प्रतिशत (कुल उत्तरदाताओं का 55.39 प्रतिशत) कार्यकर्ताओं ने मातृत्व अवधि के दौरान चिकित्सा सेवाओं को महत्वपूर्ण बताया, 26.23 प्रतिशत (कुल उत्तरदाताओं का 57.36 प्रतिशत) कार्यकर्ताओं ने बाल स्वास्थ्य चेकअप की सुविधा को महत्वपूर्ण बताया, 20.18 प्रतिशत (कुल उत्तरदाताओं का 44.12 प्रतिशत) कार्यकर्ताओं ने प्राथमिक शिक्षा की सुविधा को महत्वपूर्ण बताया, अतः अंपरिश्रमी माताओं के बच्चों के पोषण में

सुधार के लिए ICDS योजना के चारों ही पहलू महत्वपूर्ण माने गये हैं, इस प्रकार ICDS सेवाओं का लाभार्थियों के पोषण एवं स्वास्थ्य पर सकारात्मक प्रभाव पड़ रहा है।

प्रश्न 2. ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के लिए कौन-कौन सी सेवाएं प्रदान की जाती हैं?

क्र. सं.	कथन	प्रतिक्रिया की संख्या		कुल उत्तरदाताओं का प्रतिशत
		आवृत्ति	प्रतिक्रियाओं का प्रतिशत	
अ	आहार सेवाएं	73	21.10	35.78
ब	स्वास्थ्य सेवाएं	76	21.97	37.25
स	शिक्षा सेवाएं	77	22.25	37.75
द	सभी विकल्प	120	34.68	58.82
	योग	346	100.00	169.61

ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के लिए कौन-कौन सी सेवाएं प्रदान की जाती हैं



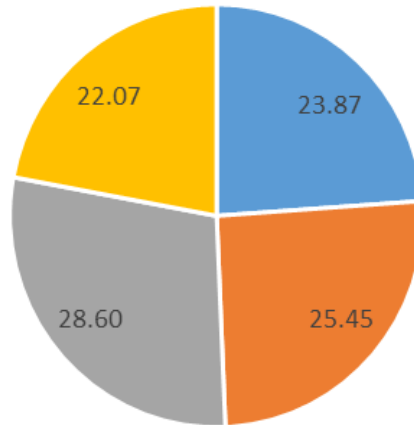
■ आहार सेवाएं ■ स्वास्थ्य सेवाएं ■ शिक्षा सेवाएं ■ सभी विकल्प

जब ICDS कार्यकर्ताओं से पूछा गया कि ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के लिए कौन-कौन सी सेवाएं प्रदान की जाती हैं तो सभी कार्यकर्ताओं ने अलग-अलग प्रतिक्रियाएं दी, कुल प्रतिक्रियाओं में से 21.10 प्रतिशत (कुल उत्तरदाताओं का 35.78 प्रतिशत) कार्यकर्ताओं ने कहा आहार सेवाएं प्रदान की जाती हैं, 21.97 प्रतिशत (कुल उत्तरदाताओं का 37.25 प्रतिशत) कार्यकर्ताओं ने कहा स्वास्थ्य सेवाएं प्रदान की जाती हैं, 22.25 प्रतिशत (कुल उत्तरदाताओं का 37.75 प्रतिशत) कार्यकर्ताओं ने कहा शिक्षा सेवाएं प्रदान की जाती हैं, 34.68 प्रतिशत (कुल उत्तरदाताओं का 58.82 प्रतिशत) कार्यकर्ताओं ने कहा सभी सेवाएं प्रदान की जाती हैं, अतः अंपरिश्रमी माताओं के लिए ICDS योजना के अंतर्गत आहार, स्वास्थ्य एवं शिक्षा सभी सेवाएं प्रदान की जा रही हैं, जो कि लाभार्थियों के पोषण एवं स्वास्थ्य को सकारात्मक रूप से प्रभावित कर रही है।

प्रश्न 3. ICDS योजना के तहत किस क्षेत्र में सुधार किया गया है ताकि अंपरिश्रमी माताओं के बच्चों का विकास सुनिश्चित हो सके?

क्र. सं.	कथन	प्रतिक्रिया की संख्या		कुल उत्तरदाताओं का प्रतिशत
		आवृत्ति	प्रतिक्रियाओं का प्रतिशत	
अ	आहार व्यवस्था	106	20.42	51.96
ब	चिकित्सा सेवाएं	113	21.77	55.39
स	मातृत्व अवधि की देखभाल	127	24.47	62.25
द	शिक्षा की पहुंच	98	18.88	48.04
	योग	519	100	254.41

ICDS योजना के तहत किस क्षेत्र में सुधार किया गया है



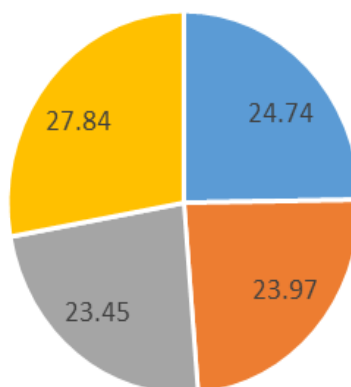
■ आहार व्यवस्था ■ चिकित्सा सेवाएं ■ मातृत्व अवधि की देखभाल ■ शिक्षा की पहुंच

जब ICDS कार्यकर्ताओं से पूछा गया कि ICDS योजना के तहत किस क्षेत्र में सुधार किया गया है ताकि अंपरिश्रमी माताओं के बच्चों का विकास सुनिश्चित हो सके तो सभी कार्यकर्ताओं ने अलग-अलग प्रतिक्रियाएं दी, कुल प्रतिक्रियाओं में से 20.42 प्रतिशत (कुल उत्तरदाताओं का 51.96 प्रतिशत) कार्यकर्ताओं ने कहा आहार व्यवस्था में सुधार किया गया है, 21.77 प्रतिशत (कुल उत्तरदाताओं का 55.39 प्रतिशत) कार्यकर्ताओं ने कहा चिकित्सा सेवाओं में सुधार किया गया है, 24.47 प्रतिशत (कुल उत्तरदाताओं का 62.25 प्रतिशत) कार्यकर्ताओं ने कहा मातृत्व अवधि की देखभाल में सुधार किया गया है, 18.88 प्रतिशत (कुल उत्तरदाताओं का 48.04 प्रतिशत) कार्यकर्ताओं ने कहा शिक्षा की पहुंच में सुधार किया गया है, अतः अंपरिश्रमी माताओं के बच्चों का विकास सुनिश्चित हो सके इसके लिए ICDS योजना के तहत सभी संभव प्रयास किये जा रहे हैं, इस प्रकार ICDS सेवाओं का लाभार्थियों की विकास प्रक्रिया पर सकारात्मक प्रभाव पड़ रहा है।

प्रश्न 4. ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों के लिए किस प्रकार के पोषण संबंधी सेवाएं प्रदान की जाती हैं?

क्र. सं.	कथन	प्रतिक्रिया की संख्या		कुल उत्तरदाताओं का प्रतिशत
		आवृत्ति	प्रतिक्रियाओं का प्रतिशत	
अ	स्वास्थ्य चेकअप	96	24.74	47.06
ब	पोषण की जानकारी	93	23.97	45.59
स	आहार सेवाएं	91	23.45	44.61
द	सभी विकल्प	108	27.84	52.94
	योग	388	100	190.20

ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों के लिए किस प्रकार के पोषण संबंधी सेवाएं प्रदान की जाती हैं



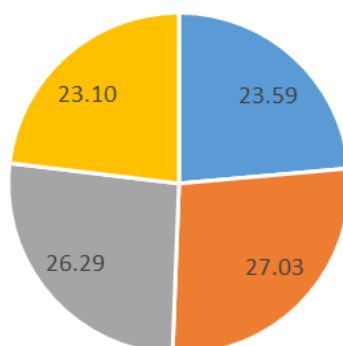
■ स्वास्थ्य चेकअप ■ पोषण की जानकारी ■ आहार सेवाएं ■ सभी विकल्प

जब ICDS कार्यकर्ताओं से पूछा गया कि ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों के लिए किस प्रकार के पोषण संबंधी सेवाएं प्रदान की जाती हैं तो सभी कार्यकर्ताओं ने अलग-अलग प्रतिक्रियाएं दी, कुल प्रतिक्रियाओं में से 24.74 प्रतिशत (कुल उत्तरदाताओं का 47.06 प्रतिशत) कार्यकर्ताओं ने कहा स्वास्थ्य चेकअप की सेवा दी जाती है, 23.97 प्रतिशत (कुल उत्तरदाताओं का 45.59 प्रतिशत) कार्यकर्ताओं ने कहा पोषण की जानकारी दी जाती है, 23.45 प्रतिशत (कुल उत्तरदाताओं का 44.61 प्रतिशत) कार्यकर्ताओं ने कहा आहार सेवाएं दी जाती है, 27.84 प्रतिशत (कुल उत्तरदाताओं का 52.94 प्रतिशत) कार्यकर्ताओं ने कहा प्ले योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों के लिए ये सभी सुविधाएँ देने के सभी संभव प्रयास किये जा रहे हैं, इस प्रकार ICDS सेवाओं का लाभार्थियों के पोषण एवं स्वास्थ्य पर सकारात्मक प्रभाव पड़ रहा है।

प्रश्न 5. ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों को पोषण के लिए किस प्रकार के आहार सामग्री प्रदान की जाती है?

क्र. सं.	कथन	प्रतिक्रिया की संख्या		कुल उत्तरदाताओं का प्रतिशत
		आवृत्ति	प्रतिक्रियाओं का प्रतिशत	
अ	दूध और दूध के उत्पाद	96	23.59	47.06
ब	अनाज	110	27.03	53.92
स	फल और सब्जियाँ	107	26.29	52.45
द	सभी विकल्प	94	23.10	46.08
	योग	407	100.00	199.51

ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों को पोषण के लिए किस प्रकार के आहार सामग्री प्रदान की जाती है



■ दूध और दूध के उत्पाद ■ अनाज ■ फल और सब्जियाँ ■ सभी विकल्प

जब ICDS कार्यकर्ताओं से पूछा गया कि ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों को पोषण के लिए किस प्रकार के आहार सामग्री प्रदान की जाती है तो सभी कार्यकर्ताओं ने अलग-अलग प्रतिक्रियाएं दी, कुल प्रतिक्रियाओं में से 23.59 प्रतिशत (कुल उत्तरदाताओं का 47.06 प्रतिशत) कार्यकर्ताओं ने कहा दूध और दूध के उत्पाद दिए जाते हैं, 27.03 प्रतिशत (कुल उत्तरदाताओं का 53.92 प्रतिशत) कार्यकर्ताओं ने कहा अनाज दिया जाता है, 26.29 प्रतिशत (कुल उत्तरदाताओं का 52.45 प्रतिशत) कार्यकर्ताओं ने कहा फल और सब्जियाँ दी जाती है, 23.10 प्रतिशत (कुल उत्तरदाताओं का 46.08 प्रतिशत) कार्यकर्ताओं ने कहा ICDS योजना के अंतर्गत अंपरिश्रमी माताओं के बच्चों को पोषण के लिए ये सभी आहार सामग्री प्रदान की जाती है, इस प्रकार ICDS सेवाओं का लाभार्थियों के पोषण एवं स्वास्थ्य पर सकारात्मक प्रभाव पड़ रहा है।

निष्कर्ष

समेकित बाल विकास योजना विश्व बैंक से प्राप्त राशि के आधार पर भारतवर्ष में चलायी जा रही है। इस संस्था का मुख्य उद्देश्य 0.6 वर्ष तक के आयु के बच्चों, गर्भवती महिलाओं के मृत्यु-दर और उनकी रोग दर में कमी लाना है। मृत्यु और रोग की चपेट में ऐसे बच्चे अधिक आते हैं जो कुपोषण के शिकार होते हैं। भारत

सरकार ने 1975 में समेकित बाल विकास योजना का प्रारंभ किया जिसके तत्वाधान में ग्रामीण खण्ड, आदिवासी खण्ड एवं गंदी बस्तियों में इस कार्यक्रम का संचालन आरंभ किया गया। इस कार्यक्रम का मुख्य उद्देश्य गर्भवती महिलाओं और 0.6 वर्ष तक के बच्चों की स्वास्थ्य सुरक्षा था।

समेकित बाल विकास योजना द्वारा प्रसारित कार्यक्रम क्रमशः निम्नांकित प्राप्त हुए—

- 0–6 वर्ष की आयु तक के बच्चों को पौष्टिक आहार का आवंटन करना।
- भावी माता एवं पूर्व–शालेय आयु के बच्चों को विटामिन एवं खनिज लवण की गोलियों का निःशुल्क आवंटन करना।
- संक्रामक रोग एवं बच्चों के अन्य रोगों से संबंधित मुफ्त टीकाकरण की व्यवस्था करना।
- पूर्व–शालेय बच्चों को स्कूल पूर्व शिक्षा देना।

समेकित बाल विकास योजना द्वारा चलाये गए विभिन्न प्रकार के कार्यक्रम का लाभ क्षेत्र की महिलायें एवं बच्चों को मिल रहा है। समेकित बाल विकास योजना से प्राप्त साधनों का पूरा लाभ उठाने में हीनता का अनुभव नहीं करती हैं; यह एक अच्छा संकेत है। यदि बच्चे सही मार्गदर्शन पाते हैं तो वे माता–पिता, परिवार या समाज के साथ–साथ अपने देश की प्रगति में भी एक महत्वपूर्ण योगदान देते हैं।

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THE IMPACT OF SOCIAL MEDIA MARKETING ON CONSUMER BEHAVIOUR: A COMPREHENSIVE ANALYSIS

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ABSTRACT

Studying the impact of social media marketing on consumer behaviour is fascinating. It delves into how platforms influence purchasing decisions, brand perception, and engagement levels. Factors like targeted advertising, influencer endorsements, and user-generated content all play pivotal roles in shaping consumer behaviour in the digital age. Social media marketing exerts a profound influence on consumer behaviour in purchasing products through a multitude of channels. Firstly, the platforms serve as expansive showcases for brands, increasing product exposure and fostering consumer awareness. This exposure is further amplified by social proof, as consumers rely heavily on reviews, ratings, and peer recommendations shared across these networks to inform their decisions. Collaborating with influencers adds another layer of credibility and relatability, as their endorsements resonate strongly with their engaged followers. Targeted advertising ensures that consumers are presented with personalized content tailored to their preferences and interests, thereby increasing the likelihood of conversion. Additionally, the interactive nature of social media allows for direct engagement between brands and consumers, enabling personalized interactions that can sway purchasing decisions. User-generated content serves as authentic testimonials, further influencing perceptions and encouraging purchases. Lastly, the creation of urgency and exclusivity through limited-time offers and exclusive deals triggers FOMO, prompting impulse buys. Collectively, these mechanisms harness the psychological triggers inherent in social media to shape consumer behaviour and drive product purchases effectively. This paper deals with how social media marketing influence consumers behaviour in purchasing a product.

KEYWORDS: Social Media Marketing, Consumer Behaviour, Brand Perception, Influencer Endorsements, Targeted Advertising.

Introduction

Studying social media marketing's impact on consumer behaviour involves delving into various facets like engagement metrics, influencer marketing, targeted advertising, and user-generated content. It examines how these factors influence brand perception, purchase decisions, and loyalty. Social media marketing has a significant impact on consumer behaviour. It influences purchasing decisions by creating brand awareness, fostering engagement, and shaping perceptions. Social proof, influencer endorsements, and personalized targeting contribute to consumers' trust and inclination towards certain products or services. Moreover, real-time feedback and customer interaction on social platforms empower consumers, giving them a voice in shaping brands' strategies and offerings. Consumer attraction to products showcased through social media marketing is multifaceted and dynamic. Visual appeal plays a crucial role, as captivating imagery or videos can instantly catch consumers' attention as they scroll through their feeds. Additionally, relatable or aspirational messaging resonates with

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individuals, triggering emotional connections and desires. Social proof in the form of likes, comments, and shares validates the product's value, signalling to consumers that others endorse it. Furthermore, the use of influencers or user-generated content adds authenticity and credibility, fostering trust among potential buyers. Interactive features such as polls, quizzes, or live streams engage consumers actively, making them feel involved in the brand's story. Ultimately, the seamless integration of product information, entertainment, and social interaction creates a compelling and persuasive environment that entices consumers to explore and consider purchasing showcased products.

Objectives

- To study the role of social media marketing in shaping consumer perception towards buying.
- To study how consumer behaviour is influenced by social media marketing.

Methodology

This study employs a comprehensive analysis based on secondary data to explore the impact of social media marketing on consumer behaviour. Secondary data sources include academic journals, industry reports, and credible online publications. The analysis focuses on existing literature and case studies to identify key factors such as influencer endorsements, targeted advertising, user-generated content, and engagement metrics that shape consumer perceptions and purchasing decisions.

Impact of Social Media Marketing on Consumer Perception and Behaviour

Social media marketing significantly shapes consumer perception by crafting and disseminating brand narratives, values, and experiences. Through strategic content creation and engagement, brands can cultivate specific associations and emotional connections with their audience, influencing how consumers perceive them. Consistent and authentic communication on social platforms helps build trust and credibility, fostering positive perceptions. Moreover, social media provides a platform for brands to showcase their unique selling points, differentiate themselves from competitors, and highlight their commitment to social responsibility or sustainability, all of which contribute to shaping consumer perceptions. Additionally, user-generated content, influencer endorsements, and real-time feedback mechanisms contribute to forming a dynamic and evolving image of the brand in the eyes of consumers. Overall, social media marketing serves as a powerful tool for brands to actively shape and manage consumer perception, ultimately influencing purchasing decisions and brand loyalty. Consumer behaviour is influenced by social media marketing in various ways:

- **Increased Exposure:** Social media marketing exposes consumers to a wide range of products and services they might not have encountered otherwise, expanding their options and influencing purchase decisions.
- **Social Proof:** Positive reviews, likes, shares, and comments on social media act as social proof, reassuring consumers about the quality and popularity of products or services, thus influencing their purchasing behaviour.
- **Influencer Endorsements:** Consumers often trust recommendations from influencers they follow on social media. Influencer marketing campaigns can sway consumer behaviour by leveraging the influencer's authority and credibility.
- **Personalized Targeting:** Social media platforms collect vast amounts of data about users, allowing marketers to tailor advertisements and content to specific demographics, interests, and behaviours, increasing the relevance and effectiveness of marketing efforts.
- **Interactive Content:** Interactive features such as polls, quizzes, and live videos engage consumers actively, encouraging them to participate and interact with brands, which can influence their perceptions and purchasing decisions.
- **FOMO (Fear of Missing Out):** Social-media often showcases limited-time offers, flash sales, or exclusive promotions, triggering FOMO among consumers and compelling them to make impulse purchases.
- **Brand Engagement:** Social media facilitates direct communication between brands and consumers, enabling brands to engage with their audience, address concerns, and provide personalized assistance, which can foster brand loyalty and influence repeat purchases.

Overall, social media marketing has a profound impact on consumer behaviour by shaping perceptions, influencing preferences, and driving purchasing decisions in the digital age.

Benefits of Social Media Marketing

Social Media Marketing Offers Numerous Benefits for Businesses

- **Increased Brand Awareness:** Social media platforms provide a vast audience for businesses to showcase their brand, products, and services, leading to increased visibility and recognition among potential customers.
- **Enhanced Customer Engagement:** Social media allows businesses to interact directly with their audience through comments, messages, and posts, fostering meaningful relationships and building customer loyalty.
- **Targeted Advertising:** Social media platforms offer sophisticated targeting options based on demographics, interests, and behaviours, enabling businesses to reach their ideal audience with tailored advertisements, leading to higher conversion rates and ROI.
- **Cost-Effectiveness:** Compared to traditional advertising channels, social media marketing often requires lower investment while offering potentially higher returns, making it a cost-effective option for businesses of all sizes.
- **Insightful Analytics:** Social media platforms provide detailed analytics and insights into audience demographics, engagement metrics, and campaign performance, allowing businesses to track and measure the effectiveness of their marketing efforts in real-time.
- **Brand Authority and Trust:** Consistent and authentic communication on social media builds trust and credibility with consumers, positioning businesses as industry leaders and influencers in their niche.
- **Improved Customer Service:** Social media platforms serve as channels for customer support, allowing businesses to address inquiries, resolve issues, and provide timely assistance, leading to higher customer satisfaction and retention.
- **Content Distribution:** Social media enables businesses to distribute content such as blog posts, videos, infographics, and user-generated content, amplifying their reach and driving traffic to their website or other online platforms.
- **Competitive Advantage:** Businesses that effectively leverage social media marketing can gain a competitive edge by staying ahead of industry trends, connecting with their audience in innovative ways, and adapting quickly to changes in the digital landscape.

Overall, social media marketing offers a multitude of benefits for businesses, including increased brand awareness, enhanced customer engagement, targeted advertising, cost-effectiveness, insightful analytics, improved customer service, content distribution, and competitive advantage.

Emergence In Modern Era

According to Wikipedia report, there are three hundred and more Social Networking Sites and 150 crore members all over the world (www.en.wikipedia.org). At a basic level, a social network is a web community where people move through profiles that represent themselves to others. The main reason for people today to browse these sites is that the emergence of social networking sites has brought about a massive shift among millions of people. Social networking sites make it easy to identify friends and create teams for interests, business, etc. It's very easy to transfer photos, share ideas about culture, cinema, sports, education and everyday events and happenings. Social networking sites are reuniting old friends and helping to continue broken bonds. Through social networking sites, knowledge increases in cultural, social and economic aspects.

The ultimate reason for the rise of social networking sites is its user-friendliness. Anyone can have an account and connect with anyone. Most of the content shared in social networking sites consists of personal details, photos, interests etc. Social networking sites are still very much in their nascent stage but it has many software applications that are used all over the world, when it reaches the maturity stage new applications will come. In essence, social media focuses on relationships with users through the sharing of information and interests between users. There are countless social networking sites around the world, including Facebook, MySpace, Orkut, and LinkedIn from Cyworld. Among the fastest growing list of social networking sites, Facebook is the global social networking site with over 300 million registered users worldwide.

Online Consumer Buying Process

The online consumer buying process typically involves several stages. Initially, consumers recognize a need or desire for a product or service, often prompted by various stimuli such as

advertising, recommendations, or personal experiences. Subsequently, they engage in information search, utilizing search engines, social media, reviews, and comparison websites to gather information about available options, features, prices, and reviews. Once armed with information, consumers evaluate their options based on criteria such as quality, price, brand reputation, and convenience. This evaluation stage may involve comparing products, reading reviews, and seeking recommendations from peers or influencers. After careful consideration, consumers make a purchase decision, selecting the product or service that best meets their needs and preferences.

Finally, post-purchase behaviour comes into play, where consumers may provide feedback, share their experience on social media, seek customer support, or engage in repeat purchases, thus completing the online consumer buying process. Throughout this journey, factors such as convenience, trust, social proof, and the overall user experience play critical roles in shaping consumer behaviour and influencing purchasing decisions. Daily more than one lakh different Types of tweets are sent, nearly Seven lakhs' contents are posted on Facebook, millions of information are searched in google, thousands of photos are sent through Instagram, six hundred websites are hosted. There were lot of business opportunities due to development and advancement of social media. In the business environment, consumers become the focal point because of the powerful presence of social media. Several studies were conducted to find out the influence of social media and results of these studies helps the firms to maintain a good position in the market with the help of social media.

Conclusion

Social media marketing has profoundly influenced consumer behaviour in the digital age. Through targeted advertising, engaging content, and interactive features, businesses can effectively shape consumer perceptions, preferences, and purchasing decisions. Social media platforms serve as powerful tools for building brand awareness, fostering customer engagement, and cultivating trust and credibility. Influencer endorsements, user-generated content, and social proof further enhance the persuasive impact of social media marketing on consumers. Additionally, the real-time nature of social media enables businesses to adapt quickly to changing trends and consumer preferences, ensuring relevance and effectiveness in their marketing strategies. As consumers continue to spend more time online and engage with brands through social media, the influence of social media marketing on consumer behaviour is expected to continue growing, making it an indispensable aspect of modern marketing strategies. Overall, businesses that harness the power of social media marketing effectively stand to gain a competitive edge in understanding, reaching, and engaging with their target audience, ultimately driving growth and success in the digital marketplace.

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A STUDY ON MICROFINANCE, SELF-HELP GROUPS (SHGs) AND OUTSTANDING BANK LOANS IN INDIA

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ABSTRACT

The performance of microfinance programs had been empirically analyzed in this research work. The secondary data had been used for conducting the research work. The software MS-Excel and Eviews have been used for conducting data analysis. The panel data analysis had been implemented to know about relationship between number of SHGs and outstanding loan amounts. The results in this research indicated that number of bank loans increased but amount disbursed had significantly decreased in microfinance programs. Further there is a noteworthy relationship between number of SHGs and bank loan outstanding amount. The insights from this study are helpful for stakeholders of microfinance sector for formulation of business strategy.

KEYWORDS: Microfinance, Bank Loans, Self-Help Groups, SHGs, Outstanding Bank Loans.

Introduction

Microfinance provides access to capital for persons who are financially underserved. If microfinance institutions were not offering loans to this section of the society, these groups would have resorted to borrowing money from friends or family members. The low income groups borrow small amount (micro loans) and tenure for repayment is small. Self-help groups (SHGs) are linked to bank for accessing microfinance and it was initiated in 1990 by National Bank for Agriculture and Rural Development (NABARD). Present in all parts of the world, microfinance can be seen as a key cog in the wheel which aims to provide financial inclusion in the form of affordable financial products, these products are not only limited to credit like personal loans and credit cards but also to in other products such as savings, fixed deposits and other banking services. It is one of the ways in which all round economic development can be achieved (Credit Mantri, n.d.). The most accepted and broad definition is one that defines microfinance as a micro credit offered to unemployed and those who get minimum wages as salaries. The institutions which participate in this system of micro credit are called micro finance companies.

Microfinance is a form of financial service which provides small loans and other financial services to poor and low-income households. It is an economic tool designed to promote financial inclusion which enables the poor and low-income households to come out of poverty, increase their income levels and improve overall living standards. It can facilitate achievement of national policies that target poverty reduction, women empowerment, assistance to vulnerable groups, and improvement in the standards of living (RBI, n.d.). Ensuring affordable banking and credit delivery services to the geographically and financially disadvantaged poor was a slow process till the conceptualization of the Self Help Group approach for building social capital to deliver savings and credit products. The group approach was dovetailed with the banking operations which gave birth to the concept of Self Help Group Bank Linkage Programme (SHG-BLP). This savings led group approach to deliver a bouquet of financial services at the doorstep is one of the most prominent and pioneering financial inclusion initiatives till date.

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Need of this Study

Microfinance had been perceived as important activity for economy growth and more particularly in developing part of the world. In India the microfinance had gained wide acceptance and many people from lower income groups are able to access urgent financial needs through microfinance. SHGs are linked with bank so that they get bank loan for the group and repayment is done as per the guidelines. However, there might be variation in accessing microfinance across the states. Hence this study described the existing status of microfinance activity in India.

Research Objectives

- To know the progress of microfinance loans and outstanding loans.
- To know the variance in number of SHGs across selected states and precisely in South India region.
- To determine the association between microfinance loans and outstanding loans.

Literature Review

Gangadhar *et al.*, (2017) had conducted on outcomes from microfinance schemes. Their discovered that microfinance programs have been victorious in improving the Health Awareness, but had a restricted impact on Legal Awareness and Political Awareness factors among the SC and ST women after participation in the SHG program. Their study results indicated that involvement in the SHG programmes by SC and ST women contributed to their on the whole empowerment.

Bali *et al.*, (2017) study on women empowerment through microfinance had revealed that in the southern states of India empowerment of women takes place through economic factors. For the other states, they have found a noteworthy association between women's empowerment and independence in women's decision-making and network, communication and political contribution respectively.

According to MK and Reddy (2019) had described the impact of interest free microfinance loans as a best alternative for traditional finance. Sangwan and Nayak (2019) had conducted study which observed the perseverance of interregional deviation in microfinance diffusion with larger attentiveness of loan portfolios and client base in the southern regions of India. They found empirical support to the likelihood of mission drift as microfinance providers are likely to favor comparatively developed states. In spite of some indications of poverty lending, the financial sustainability emerge to be the key factor behind the tilted regional distribution of both the microfinance providers, therefore warranting a robust regulatory system to triumph over the problem. Vassallo *et al.*, (2019) had investigated the role that various hybrid forms play in scaling established social innovations, especially under various bottom-of-the-pyramid market conditions. They opined that compared with not-for-profit and for-profit hybrids, quasi-profit hybrids have a tendency to become more widespread and attain greater usage in bottom-of-the-pyramid markets overall.

Samineni and Ramesh (2020) conducted a study on association between microfinance and women empowerment. Their study confirmed that the southern and eastern regions lead in dispersion (MD1) of funds, whereas microfinance access (MD2) is leading in southern and central regions, indicating comparatively high levels of economic augmentation. It is, thus, understood that microfinance in true spirit can be a helpful tool for achieving vivacious growth by tapering the non-performing assets (NPAs) of the SHGs and channelizing the funds into micro-level planning and preparation for self-sustenance. Walia *et al.*, (2020) had opined that sharing health messages in microfinance-based SHGs is connected with noteworthy increase in ANC practice. Their research results suggested that the potential of microfinance-based SHGs for improved maternal health services, the approach's sustainability needs to be further examined.

Purkayastha *et al.*, (2020) described that ecosystem of microfinance institutions (MFIs) in India is found to be very complex. The connections among numerous actors – who are core product or service providers, facilitators, client, beneficiaries, resource providers, competitors, corresponding organizations, regulators, opponents and powerful bystanders. Their research findings also observed that the capital infrastructure and context-setting factors such as policy, politics, media, economic and social conditions are uniformly crucial for the MFIs to survive and flourish. Furthermore, the ecosystem is also vibrant and could change with the ecological conditions and ingress of new entrants into the ecosystem.

Breza and Kinnan (2021) had found substantial consumption multiplier from credit that is likely driven by two channels—aggregate demand and business investment. They calibrated a simple two-period, two-sector model of the rural economy that includes both channels and presented that the extent

of wage results is reliable with the model's predictions. Sumesh and Surender (2021) had explained about growth of SHGs through microfinance along with need for reducing outstanding loans. Pati (2021) had explained about obvious change in their capital structure in India, with a well-built tilt towards financial sustainability among the regulated and professionally managed category, is being observed. Microfinance as a developmental instrument for combating poverty and economic impoverishment has been recognized globally.

Research Methodology

In this research study the variables used are number of SHGs, bank loan amount, outstanding bank loans, state wise SHGs, and state wise outstanding bank loans. The secondary data had been used for conducting the study. The reliable sources such as Indiatat.com had been used for accessing the information related to microfinance in India. The secondary data had been analyzed using MS-Excel and EViews. The student version of the EView software had been used to conduct panel data analysis. The study period is used in the panel data analysis is from 2016 to 2020 and eight states are selected for conducting the analysis. The MS-Excel software had been used to conduct descriptive statistics and charts for representing the trend related to microfinance.

Data Analysis

The self-help groups (SHGs) have increased during the study period (from 2010 to 2021). The bank loans also consistently increased from 2010 onwards till 2020. However in the year 2020-2021 there has been declined in number of SHGs and bank loan amount. However due to lockdowns and pandemic crisis the businesses irrespective of their sizes has reduced their operations. A bar chart has been developed to know the trend of bank loans and number of SHGs. It is observed that there is positive trend because the trend line is shown in upward direction. The number of SHGs and its association with loan amount disbursed and outstanding loan amount have been analyzed.

Table 1: SHGs and Bank Loans

Year	Number of Self-Help Groups	Bank Loans (INR in Cr.)
2010-2011	1,196,134	14,548
2011-2012	1,147,878	16,535
2012-2013	1,219,821	20,585
2013-2014	1,366,421	24,017
2014-2015	1,626,238	27,582
2015-2016	1,832,323	37,287
2016-2017	1,898,120	38,781
2017-2018	2,261,132	47,186
2018-2019	2,698,400	58,318
2019-2020	3,146,002	77,659
2020-2021	2,887,394	58,071

Source: Indiatat.com

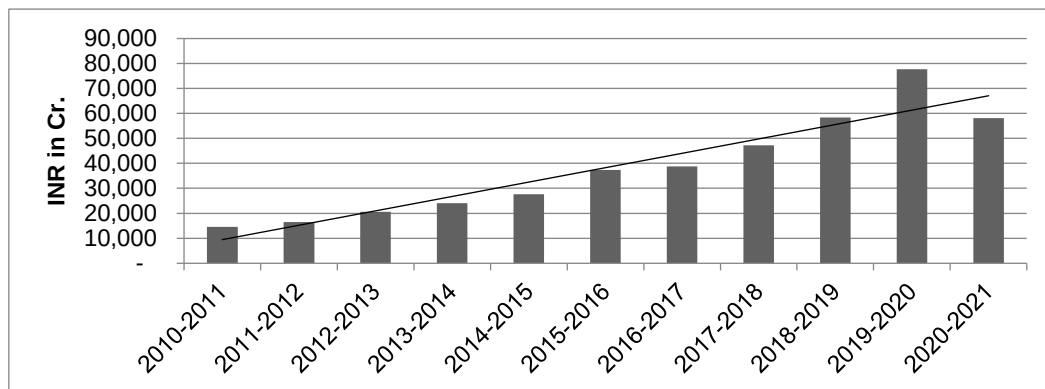


Figure 1: Bank Loans for SHGs

Source: Own creation from secondary data

Table 2: SHGs and Bank Loans Outstanding of Selected States/ UTs**(Rs. in Lakh)**

States/UTs	2016-2017		2017-2018		2018-2019		2019-2020 (Upto September 2019)	
	No. of SHGs	Loans Outstanding Amount	No. of SHGs	Loans Outstanding Amount	No. of SHGs	Loans Outstanding Amount	No. of SHGs	Loans Outstanding Amount
Andhra Pradesh	751,357.00	1,740,579.16	774,115.00	2,224,166.61	764,426.00	2,422,493.61	807,585.00	2,565,630.00
Karnataka	649,709.00	814,933.36	744,479.00	1,112,606.82	612,742.00	1,188,275.39	622,653.00	1,182,248.78
Kerala	142,923.00	289,658.89	173,832.00	372,335.51	197,154.00	510,708.56	237,549.00	556,019.25
Madhya Pradesh	91,730.00	50,877.98	88,698.00	44,031.87	91,861.00	52,368.46	96,203.00	54,353.11
Maharashtra	227,912.00	181,499.88	208,719.00	196,407.49	227,695.00	218,276.71	229,994.00	223,517.81
Odisha	220,662.00	212,682.04	232,945.00	226,206.76	262,326.00	242,502.84	294,279.00	304,533.53
Puducherry	5,613.00	9,785.06	7,284.00	12,384.97	7,157.00	13,664.21	6,855.00	12,567.02
Tamil Nadu	384,307.00	604,740.89	376,996.00	664,788.16	385,698.00	751,659.53	376,704.00	770,171.39
Telangana	607,443.00	1,205,261.16	562,707.00	1,376,206.23	570,911.00	1,540,719.18	644,917.00	1,627,209.62
India	4,848,287.00	6,158,130.36	5,020,358.00	7,559,845.12	5,077,332.00	8,709,815.43	5,217,378.00	9,101,807.73

Source: Lok Sabha Unstarred Question No. 20, dated 03.02.2020. through Indiatat.com

In Table II the number of self-help groups and loans outstanding amount had been presented for selected financial years. There are eight states and one union territory had been selected which belong to southern region of India. A convenient method had been implemented for selecting the states and union territory. The loan outstanding amount is high Puducherry followed by Madhya Pradesh. The outstanding loan amount is high in Andhra Pradesh followed by Telangana among the units selected for this study. From Table III it is found that there is no considerable increase in SHGs from 2016-17 to 2019-20 but the loans outstanding amount had considerably increased.

Table 3: Outstanding loans

Year	No. of SHGs	Loans Outstanding Amount (INR Cr.)
2016-17	4,848,287	6,158,130.36
2017-18	5,020,358	7,559,845.12
2018-19	5,077,332	8,709,815.43
2019-20 (Up to September, 2019)	5,217,378	9,101,807.73

Source: Secondary data from Indiatat.com

Table 4: Progress of Microfinance Programmes (2015-2016 to 2020-2021)**(Amount : INR in Crore)**

Year	Micro-Finance Institutions				Joint Liability Groups	
	Loans Disbursed		Loans Outstanding		Loans Disbursed	
	by Banks		with Banks		by Banks	
	Number	Amount	Number	Amount	Number (In Lakh)	Amount
2015-2016	647	20,796	2,020	25,581	5.7	6,161
2016-2017	2,314	19,304	5,357	29,225	7	9,511
2017-2018	1,922	25,515	5,073	32,306	10.2	13,955
2018-2019	1,933	14,626	5,488	17,761	16	30,947
2019-2020	4,762	20,226	15,197	29,289	41.8	83,103
2020-2021	28,562	12,739	61,181	22,602	41.3	58,312

Source: Reserve Bank of India. (ON2155) & Past Issues available at Indiatat.com

The number of loans disbursed in 2015-2016 are low (n = 647) and high in 2020-2021 (n = 28,562) as per Table IV. However, the loan amount disbursed in 2015-2016 is significantly high compared with 2020-2021. The number of outstanding loans has significantly high (n = 61,181) compared with previous years. There is four times increase in outstanding loans between 2019 and 2021. Hence it can be opined that pandemic had made the severe impact on microfinance programs.

Table 5: Heteroscedasticity and Breusch-Pagan Test

Heteroscedasticity	Variable	Coefficient	t	p-value
	No. of SHGs	2.220	17.897	0.000
Breusch-Pagan	Cross-section	Time	Both	
	27.262*	0.035	27.298*	

Notes: *Significant at less than 0.001

Source: Data Analysis

H₀: The number of SHGs does not have association with loans outstanding with banks.

H₁: There is an association between number of SHGs and loans outstanding with banks.

EVIEWS software had been used to know whether the data is suitable for panel data regression analysis. The Heteroscedasticity test had proved that the data is suitable for application of panel data analysis ($\beta = 2.220$, $t = 17.897$, $p = 0.000$). The Breusch-Pagan test had been conducted to know whether random effects or fixed effects method is appropriate. The Hausman test had confirmed random effects method is appropriate. There is significant impact of number of self-help groups (SHGs) on bank outstanding loan amount ($\beta = 2.640$, $t = 6.869$, $p = 0.000$) supporting alternative hypothesis H1.

Table 6: Panel Data Regression Analysis

Variable	Coefficient	t	p-value
C	-246836.900	-1.367	0.181
No. of SHGs	2.640	6.869	0.000
R Square	0.6909		
F-Statistic	46.903*		
Notes: *Significant at less than 0.001, dependent variable = outstanding loan amount			
Source: Data analysis			

Findings

The number of SHGs has significantly increased in the last one decade which shows the progress of the economy. From the other side the outstanding loans have increased in the last three years. The number of bank loans increased but disbursed loan amount had decreased considerably. There is some disturbance in smooth functioning of the microfinance programs and it can be due to diverse reasons such as pandemic and lockdowns. However the impact of crisis can be mitigated with formulation of strategic plans.

Conclusion

Microfinance had been more successful in India with an exception during the covid-19 crisis. The poor and lower income group people are able to access basic financial needs and are able to repay the loans. The confidence of people and more precisely in rural women had increased with microfinance loans. The bank linkage programs had made microfinance organizations and related institutions to make transactions with their respective customers. Overall there is relationship between number of self-help groups and loan outstanding amount.

Future Research

The microfinance performance can be evaluated by collecting primary data from the beneficiaries. The use of microfinance loans at the individual level and problems of SHGs need to be studied by future researchers. The model used in this study can be implemented to study the relationship between SHGs and outstanding loan amount in other states. The problems during repayment and in depth knowledge on interest rate can be analyzed by future researchers.

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CUSTOMER SATISFACTION IN BANKING: A STUDY ON RURAL CUSTOMERS

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ABSTRACT

Many rural people are not availing banking facilities due to poor infrastructure of banks. Rural customers prefer traditional banking more than online banking. The number of branches of banks in rural areas is inadequate. Banks in rural areas should adopt modern technology to deliver banking facilities properly to rural customers. Many people in rural areas avoid online banking due to lack of knowledge. Banks emphasize to increase customer satisfaction among rural customers. Banks provide financial assistance to rural masses including farmers, entrepreneurs, artisans. The study is based on primary data and secondary data. Primary data has been collected from the rural customers of banks in West Bengal. Secondary data has been collected from journal articles. In this paper, an attempt has been made to find out various aspects of customer satisfaction in banking.

KEYWORDS: Bank, Customer, Customer Satisfaction, Rural.

Introduction

Banks emphasize to increase banking habits among rural masses. Banks have inadequate number of branches in rural areas. Rural masses face difficulties in availing banking facilities due to poor infrastructure of banks. Bank employees must be properly trained so that they can deliver banking services appropriately to the rural people. Urban customers avail online banking facilities more than rural customers. Many people in rural areas avoid online banking due to inadequate knowledge. Educated people prefer online banking more than traditional banking. Many people in rural areas are not aware about the banking facilities. Banks focus on customer satisfaction to increase customer loyalty. Banks must take necessary steps to provide banking services properly to the rural masses. The number of branches of banks in rural areas should be increased. Private banks provide better facilities than public banks. Banks provide financial assistance to poor people of rural areas. Banks provide loan to small farmers and entrepreneurs. Banks should deliver banking services accurately to rural masses to increase the level of customer satisfaction. The objective of the study is to find out various aspects of customer satisfaction in banking.

Literature Review

The economy of India is based on agriculture. Rural economy plays vital role in Indian economy (Kher, 2013). Banks play very important role in economic system (Dhanraj and Saikumar, 2016). Regional rural banks play major role behind the development of rural economy (Karunakaran, 2020). The impact of banks of modern economic activities is significant (Nandini et al., 2021). Regional rural banks deliver banking services to rural people (Sharma et al., 2019). Increase in the number of bank branches in rural unbanked areas may reduce rural poverty (Burgess and Pande, 2005). Rural banking helps in the

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betterment of rural society (Singh, 2020). Financial activities in rural areas are based on rural banks (Deb, 2020). The purpose of regional rural banks is to enhance rural savings and to increase the banking habits among rural people (Tagariya and Panchal, 2016). The purpose of regional rural banks is to develop the economy of rural areas by providing financial assistance to small farmers, entrepreneurs and artisans (Barot and Japee, 2021). Rural banking system of India requires up-gradation (Kumar, 2018). Digital transaction in rural banking is not possible without the participation of rural masses (Das et al., 2017). Farmers, labourers and artisans of rural areas face difficulties in availing credit facilities (Ahmed, 2020). The role of regional rural banks is essential for the development of rural areas in India (Tigari and Gagandeepa, 2019). Rural banking is adopting modern technology so that customers can avail banking facilities easily (Parmar et al., 2013). E-banking is replacing traditional banking in rural areas of India (Puttaswamy, 2018). Many people have mobile phones but they are not interested in availing mobile banking services (Mohapatra et al., 2020). Rural people suffer in availing finance from banks (Pandi, 2019).

Methodology and Data Analysis

The study is based on primary data and secondary data. Primary data has been collected from the rural customers of banks in West Bengal. The sample size of the study is one hundred. 60% of the respondents are male and 40% of the respondents are female.

The infrastructure of banks in rural areas is very poor:

Agree	:	84%
Disagree	:	16%

84% of the respondents agree and 16% of the respondents disagree

Private banks provide better banking facilities than public banks in rural areas :

Agree	:	75%
Disagree	:	25%

75% of the respondents agree and 25% of the respondents disagree

Bank employees are not properly trained to deliver banking services properly to rural masses:

Agree	:	58%
Disagree	:	42%

58% of the respondents agree and 42% of the respondents disagree

Urban customers prefer online banking more than rural customers:

Agree	:	89%
Disagree	:	11%

89% of the respondents agree and 11% of the respondents disagree

Rural customers face difficulties to avail online banking due to poor internet service:

Agree	:	78%
Disagree	:	22%

78% of the respondents agree and 22% of the respondents disagree

The number of bank branches is inadequate in rural areas:

Agree	:	83%
Disagree	:	17%

83% of the respondents agree and 17% of the respondents disagree

Conclusion

Banks play vital role in the development of rural economy in India. Banks provide financial assistance to rural masses including farmers, entrepreneurs, artisans. Rural people face difficulties in availing banking facilities due to poor infrastructure of banks. Banks should take appropriate steps to increase the number of bank branches in rural areas. Many people in rural areas use mobile phone but they are not interested in online banking. Banks suffer due to poor internet service in remote areas of rural India. Banks should provide banking facilities to the rural customers properly to increase the level of customer satisfaction.

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UTILIZING VGG-16 FOR OBJECT DETECTION: HARNESSING DEEP LEARNING FOR VISUAL RECOGNITION

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ABSTRACT

The VGG-16 architecture, introduced in 2014, has become a leading choice in convolutional neural networks for image-related tasks. This paper explores its application in object detection, highlighting its role in autonomous driving, surveillance, agriculture, retail, robotics, manufacturing, environmental monitoring, augmented reality, sports analysis, text detection, and aiding individuals with visual impairments. VGG-16's deep layers and multiple filters enable precise object classification and localization, making it invaluable in various domains. Its impact extends to improving automation, enhancing safety, and enriching the human experience in a visually driven world. This paper underscores the versatility and effectiveness of VGG-16 in addressing diverse real-world challenges through computer vision.

KEYWORDS: VGG-16, Convolutional Neural Networks, Visual Impairment Assistance, Robotics, Automation.

Introduction

The VGG-16 architecture, initially introduced in the 2014 paper 'Very Deep Convolutional Networks for Large-Scale Image Recognition' by Karen Simonyan and Andrew Zisserman, has become a prominent choice in the realm of convolutional neural networks for image-related tasks [1]. Comprising 16 layers, which include convolutional, max pooling, and fully connected layers, this model has made significant contributions to fields like material recognition, image classification, localization, and more [2][3]. Its popularity stems from its deep and straightforward convolutional neural network design, enabling it to outperform previous models such as AlexNet, particularly in tasks demanding the extraction of diverse image feature representations [4].

Versatile Object Detection Applications of VGG-16

The VGG-16 model is utilized for tasks such as image classification, object detection, face recognition, medical image analysis, and more within the field of computer vision and image processing. For object detection tasks, model's deep layers and multiple filters allow it to effectively identify and localize objects of interest [5].

Leveraging VGG-16 for object detection plays a pivotal role in autonomous driving, enabling self-driving vehicles to precisely identify and pinpoint pedestrians, vehicles, traffic signs, and other road objects with accuracy [6].

In surveillance systems, where VGG-16 empowers security cameras to effectively recognize and track suspicious activities, intruders, or unauthorized objects in real-time. VGG-16's distinctive advantage lies in its ability to deliver precise object classification results while facilitating object localization within images and video frames, enhancing the accuracy and efficacy of scene monitoring and analysis [7].

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In the agricultural sector, VGG-16 finds application as a tool for farmers to identify and pinpoint pests, diseases, and weeds within their crops, enabling them to implement specific measures for damage control and yield enhancement [8].

VGG-16 can also be used in retail settings for object detection and tracking. By utilizing VGG-16, retail stores can accurately detect and track customer movements, analyze shopping patterns, and monitor product interactions. By doing so, retailers can gather valuable insights to optimize store layouts and enhance customer experiences. In the field of robotics, VGG-16 can also be applied for object detection tasks [5].

By integrating VGG-16 into robotic systems, robots can effectively detect and locate objects in their environment, enabling them to perform various tasks such as object manipulations, pick and place operations, and navigation. For instance, in industrial settings, robots equipped with VGG-16 can accurately identify and locate specific objects on assembly lines, facilitating seamless automation and improving production efficiency. This can reduce the need for manual intervention and minimize errors in the manufacturing process [9].

Furthermore, the VGG-16 architecture is highly applicable in the manufacturing industry for object detection applications. By incorporating VGG-16 into the manufacturing process, companies can streamline their production lines and enhance quality control. One key area where VGG-16 can be utilized is in defect detection. By training the model on a dataset of images depicting both defective and non-defective products, manufacturers can employ VGG-16 to accurately identify and flag any anomalies or faults in the production line. This can help prevent faulty products from reaching the market, increasing customer satisfaction and reducing costs associated with recalls or returns [10].

Moreover, VGG-16 and aerial imaging can be combined to enhance various applications. For instance, in the field of environmental monitoring, drones equipped with aerial cameras can capture high-resolution images of forests, rivers, or coastlines. By incorporating VGG-16 into the image processing pipeline, researchers can extract valuable information such as identifying different types of vegetation, monitoring changes in land cover, or detecting pollution levels in bodies of water. This information can be crucial for environmental assessments, conservation efforts, or disaster management [11]. Additionally, VGG-16 and aerial imaging can play a significant role in urban planning and infrastructure development [12].

In the field of augmented reality and virtual reality, object detection plays a crucial role in enhancing the overall user experience. By utilizing the VGG-16 model, which is pre-trained on large-scale datasets such as ImageNet and places365, we can effectively identify and localize objects within an image or a real-world environment [13]. This allows for the seamless integration of digital information onto real-world objects, making AR and VR applications more immersive and interactive [14]. By leveraging the deep layers and multiple filters of VGG-16, objects can be accurately classified and their positions precisely located. This enables users to interact with digital content in a way that feels natural and realistic. By employing the VGG-16 model in object detection for AR and VR, we can improve the overall user experience by recognizing real-world objects and overlaying relevant digital information onto them, creating a more engaging and interactive virtual environment [15].

One of these domains is sports analysis, where the VGG-16 network is used as a base feature extractor for tasks such as action recognition, player tracking, and event detection. By leveraging the pre-trained VGG-16 model on the ImageNet dataset, sports analysts are able to extract meaningful features from images or video frames and use them to analyze and understand various aspects of sports events [15]. These applications include identifying and classifying different types of sports actions, tracking the movement of players on the field, and detecting specific events like goals or fouls. By applying the feature maps of the VGG-16 network, sports analysts can gain deeper insights into the characteristics of sports events and enhance their understanding of the dynamics and patterns within the game [5]. This allows for more accurate and comprehensive sports analysis, leading to valuable insights that can inform coaching strategies, player performance evaluations, and audience engagement [16].

One of the notable applications of the VGG-16 network is in text detection. By leveraging the pre-trained VGG-16 model as a base feature extractor, researchers have been able to develop effective text detection algorithms [17]. The advantage of using VGG-16 for text detection lies in its ability to extract relevant features from input images. The convolutional layers of VGG-16 perform calculations to capture intricate details and patterns in the image, which are crucial for accurately detecting text regions [18]. The VGG-16 network has been applied to various research domains, including text detection, as the base feature extractor.

Object detection using VGG-16 is a valuable technology that can greatly benefit individuals with visual impairments. By utilizing wearable devices or mobile apps equipped with VGG-16 based object detection algorithms, individuals with visual impairments can have a greater understanding of their surroundings and navigate their environment more confidently [17]. This technology can identify and describe objects in real-time, providing audio feedback to the user. As a result, visually impaired individuals can gain more autonomy and social inclusion by being able to independently recognize objects and navigate their surroundings with greater ease [19]. Given the magnitude of the problem, the software community has developed numerous mobile applications and wearable technologies to aid visually impaired individuals in a multitude of tasks, including navigation, public transport use, scene understanding, person recognition, and even currency note recognition [20]. By integrating object detection technology based on VGG-16 into these applications and wearable devices, visually impaired individuals can receive real-time assistance in identifying objects and understanding their environment [17]. Additionally, this technology can also be integrated into wearable devices such as smart glasses, providing individuals with a hands-free and immersive experience [21].

Conclusion

In conclusion, the VGG-16 architecture, with its deep convolutional layers and versatile feature extraction capabilities, has proven to be a foundational tool in a multitude of fields and applications. From autonomous driving to surveillance, agriculture, retail, robotics, manufacturing, environmental monitoring, augmented reality, sports analysis, text detection, and aiding individuals with visual impairments, VGG-16's impact is far-reaching. The ability of VGG-16 to accurately classify and localize objects within images and video frames has led to significant advancements in these diverse domains. Its deep and straightforward design has consistently outperformed previous models, making it a go-to choice for tasks that demand the extraction of rich and diverse image features. This research paper highlights the adaptability and effectiveness of VGG-16 across a broad spectrum of applications, demonstrating its critical role in improving automation, enhancing safety and security, and enriching the human experience in an increasingly visual world. As technology continues to advance, VGG-16 remains a vital asset in harnessing the power of computer vision to address a wide array of real-world challenges.

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लेखांकन पेशे में कृत्रिम बुद्धिमत्ता: अवसर और चुनौतियाँ

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सार

कृत्रिम बुद्धिमत्ता (ए.आई.) का उपयोग तेजी से लेखांकन के क्षेत्र में बढ़ रहा है। कृत्रिम बुद्धिमत्ता तकनीक का उपयोग भूतपूर्व समकों के आधार पर भविष्य के अनुमान का विश्लेषण करने, मशीन लर्निंग एल्गोरिदम की सहायता से धोखाधड़ी का पता लगाने, समकों तक वास्तविक समय पर पहुंच (Real Time Access of Data)] वृहद् व जटिल समकों को समझने योग्य बनाने और उसका विश्लेषण करने इत्यादि के लिए लाभदायक है। इस शोध पत्र में मुख्यतः लेखांकन के क्षेत्र में लेखाकारों की बदलती भूमिका पर प्रकाश डाला गया है साथ ही आधुनिक युग में लेखाकारों और प्रौद्योगिकी के बीच समकालिक संबंधों पर चर्चा की गई है जो कि विशेष रूप से कृत्रिम बुद्धिमत्ता (ए.आई.) केंद्रित है। इस शोध पत्र में मुख्यतः कृत्रिम बुद्धिमत्ता (ए.आई.) की अवधारणा, यह कैसे कार्य करता है और वित्त एवं लेखांकन में इसका उपयोग आदि का विस्तृत वर्णन किया गया है। यह शोध पत्र कृत्रिम बुद्धिमत्ता (ए.आई.) के अवसरों के साथ-साथ उसकी चुनौतियों को भी दर्शाता है। यह अध्ययन लेखांकन के भविष्य के सबसे प्रमुख मुद्दे का उत्तर देने का भी प्रयास करता है। अन्त में यह पत्र इस निष्कर्ष पर पहुँचता है कि लेखांकन के समग्र विकास के लिए ए.आई. एक शक्तिशाली उपकरण है।

शब्दकोश: कृत्रिम बुद्धिमत्ता (ए.आई.), वित्त, लेखांकन, समक विश्लेषण एवं प्रौद्योगिकी

प्रस्तावना

कृत्रिम बुद्धिमत्ता (ए.आई.) में तेजी से हुई प्रगति का उद्योगों के साथ-साथ लेखांकन पर परिवर्तनकारी प्रभाव पड़ा है। लेखांकन के क्षेत्र में, ए.आई. प्रौद्योगिकियाँ जैसे मशीन लर्निंग, प्राकृतिक भाषा प्रसंस्करण और स्वचालित रोबोटिक प्रक्रिया लेखांकन में प्रभावशीलता व परिशुद्धता के साथ ही इस क्षेत्र में कार्यरत पेशेवरों/लेखाकारों की निर्णय लेने की क्षमता को भी विकसित करती है। लेखांकन सॉफ्टवेयर और सेवाओं के क्षेत्र में ए.आई. के उपयोग का वैश्विक बाजार में आने वाले वर्षों में तेजी से वृद्धि का अनुमान है। सॉफ्टवेयर अनुप्रयोग (Software Application) और प्रणाली जो कि मानव बुद्धि का अनुकरण करते हैं और ऐसे कार्य करते हैं जिनके लिए आमतौर पर मानव बुद्धि की आवश्यकता होती है, जैसे सीखना, तर्कता, समस्या-समाधान और निर्णय लेना इत्यादि के समान ही कृत्रिम बुद्धिमत्ता (ए.आई.) उपकरण भी कार्य करते हैं। वर्तमान युग में, कृत्रिम बुद्धिमत्ता उपकरणों के उपयोग से दुनिया भर में लेखांकन पेशेवरों के काम में उत्कृष्टता बढ़ रही है। दरअसल, कॉरपोरेट क्षेत्र को घोटालों और धोखाधड़ी की बढ़ती चुनौती का सामना करना पड़ रहा है, ऐसे जोखिमों से

* सहायक आचार्य, लेखाशास्त्र एवं व्यावसायिक सांख्यिकी विभाग, राजस्थान विश्वविद्यालय, जयपुर, राजस्थान।

प्रभावी ढंग से निपटने के लिए उन्नत उपकरणों और तकनीकों की आवश्यकता है। इन चुनौतियों के जवाब में, लेखांकन पेशेवर अपनी धोखाधड़ी का पता लगाने और रोकथाम क्षमताओं को मजबूत करने के लिए तेजी से ए.आई. उपकरणों की ओर रुख कर रहे हैं। ए.आई. उपकरणों के उपयोग से संभावित लाभ और चुनौतियाँ भी हैं। व्यवसाय की दुनिया लगातार विकसित हो रही है और इसके साथ ही लेखांकन पेशेवरों की भूमिका भी बदल रही है। आज के डिजिटल युग में, अपने ग्राहकों को बेहतर वित्तीय और सलाहकार सेवाएं प्रदान करने के लिए उन्नत तकनीकी उपकरणों से युक्त लेखांकन पेशेवरों की मांग बढ़ रही है। कृत्रिम बुद्धिमत्ता (ए.आई.) उपकरण जो कि वित्त और लेखांकन सहित कई उद्योगों का एक अनिवार्य हिस्सा बन गया है। ए.आई. उपकरण दक्षता, सटीकता और निर्णय लेने की क्षमताओं में सुधार करके लेखांकन पेशे में क्रांति लाने की क्षमता रखते हैं।

शोध के उद्देश्य

- कृत्रिम बुद्धिमत्ता की अवधारणा को समझना और इसके वित्त व लेखांकन के क्षेत्र में बढ़ते उपयोग का अध्ययन।
- लेखांकन क्षेत्र में कृत्रिम बुद्धिमत्ता को लेकर उपलब्ध अवसर और चुनौतियों को स्पष्ट करना।

शोध विधि

यह अध्ययन वर्णनात्मक प्रकृति का है जो कि ए.आई. और उनके प्रभावों के संदर्भ में उपलब्ध विविध साहित्य पर आधारित है। लेखांकन में ए.आई. के बढ़ते उपयोग से सम्बन्धित ज्ञान की बेहतर गहराई विकसित करने के लिए वर्णनात्मक शोध को प्राथमिकता दी गई है। यह अध्ययन द्वितीयक समंक/सूचनाओं और लेखांकन के क्षेत्र में ए.आई. का उपयोग कर अभ्यास करने वाले प्रतिष्ठित पेशावरों और लेखाकारों यथा सनदी लेखाकार, लागत व प्रबन्ध लेखाकार एवं कम्पनी सचिव इत्यादि के साथ की गई चर्चाओं के आधार पर किया गया है। ए.आई. से संबंधित जानकारी और सूचना विभिन्न ए.आई. सम्बन्धी प्रकाशित व अप्रकाशित रिपोर्टों/शोध रिपोर्टों से एकत्र/संकलित किया गया है। विस्तृत अध्ययन के लिए अन्य महत्वपूर्ण जानकारी/समंक/सूचना विभिन्न समाचार पत्रों व पुस्तकों, ऑनलाइन प्रिंट मीडिया, लाइव समाचार चैनलों, प्रकाशित शोध पत्रों एवं ए.आई. से सम्बन्धित अनेको वेबसाइट से एकत्र किया गया है।

शोध समीक्षा

स्मिथ और जॉनसन (2022) ने लेखांकन पेशे पर ए.आई. के प्रभाव पर बल दिया है साथ ही यह बताया है कि कैसे ए.आई. लेखांकन कार्यों में सटीकता एवं दक्षता बढ़ा सकता है। इसके अतिरिक्त, जोन्स एंड ग्रीन (2023) ने चर्चा की है कि कैसे ए.आई. लेखांकन के भविष्य को नया आकार दे रहा है तथा इस बात पर भी जोर दिया है कि आज के युग में लेखांकन पेशेवरों/लेखाकारों को अपने में ए.आई. से सम्बन्धित कौशल प्राप्त कर अपने लेखांकन क्षेत्र में दक्ष होना आवश्यक है।

कृत्रिम बुद्धिमत्ता (ए.आई.) की अवधारणा

ए.आई. कंप्यूटर विज्ञान का एक क्षेत्र है जिसका उद्देश्य ऐसी मशीनें/तकनीकें विकसित करना है जो कुछ ऐसे कार्य कर सकें जिनके लिए आमतौर पर मानव बुद्धि की आवश्यकता होती है। ए.आई. प्रणाली मानव बुद्धि का अनुकरण करने के लिए मशीन लर्निंग, प्राकृतिक भाषा प्रसंस्करण और कंप्यूटर विज्ञान जैसी विभिन्न तकनीकों का उपयोग करती है। हाल ही के कुछ वर्षों में ए.आई. उपकरणों ने काफी ध्यान आकर्षित किया है। भाषा-आधारित ए.आई. प्रणाली जो मानव भाषा को समझने और उस पर प्रतिक्रिया देने के लिए प्राकृतिक भाषा प्रसंस्करण (एन.एल.पी.) का उपयोग करती है। ए.आई. के क्षेत्र में एक प्रमुख अनुसंधान सुविधा ओपन ए.आई. ने चैट जी.पी.टी. विकसित किया है। चैट जी.पी.टी. की मूलभूत संरचना ट्रांसफॉर्मर आर्किटेक्चर पर आधारित है जो एक तंत्रिका नेटवर्क आर्किटेक्चर है जिसने विभिन्न एन.एल.पी. कार्यों, जैसे भाषा अनुवाद, सारांश और प्रश्न-उत्तर में प्रभावशाली परिणाम दिखाए हैं।

लेखांकन पेशेवरों/लेखाकारों के लिए ए.आई. उपकरणों का लाभ

ऐसे कई ए.आई. उपकरण हैं जो मानव भाषा को समझने और उस पर प्रतिक्रिया देने के लिए प्राकृतिक भाषा प्रसंस्करण (एन.एल.पी.) का उपयोग करते हैं। लेखांकन पेशेवरों/लेखाकारों द्वारा किए जाने वाले अनेकों नियमित कार्य यथा ग्राहकों के प्रश्नों का उत्तर देना, वित्तीय निर्णय लेना या अपने ग्राहकों को वित्तीय सलाह देना इत्यादि कार्य काफी हद तक ए.आई. उपकरणों के उपयोग से स्वचालित होते हैं। ए.आई. उपकरण वृहद स्तर के वित्तीय समकों का त्वरित और सटीक विश्लेषण करने में लेखांकन पेशेवरों की सहायता भी कर सकते हैं। यह वित्तीय समकों के आधार पर भविष्य के अनुमानों या रुझानों की पहचान कर सकता है, जो लेखांकन पेशेवरों व लेखाकारों को उचित और तर्क पूर्ण निर्णय लेने में मदद कर सकता है। अन्य शब्दों में, इन उपकरणों का उपयोग वित्तीय प्रतिरूप और पूर्वानुमान विकसित करने के लिए किया जा सकता है जो ग्राहकों/उद्यमियों को भविष्य के लिए योजना बनाने में मदद कर सकते हैं। यह संभावित वित्तीय जोखिमों और अवसरों की पहचान करने में लेखांकन पेशेवरों व लेखाकारों की सहायता भी कर सकता है, जिससे व्यवसायों को प्रतिस्पर्धा में आगे रहने में मदद मिल सकती है। ए.आई. उपकरणों के उपयोग से लेखांकन पेशेवरों व लेखाकारों को उनके ग्राहकों को प्रदान की जाने वाली सेवाओं से सम्बन्धित विभिन्न क्षेत्रों में महत्वपूर्ण लाभ हो सकते हैं, जिनमें आयकर, वस्तु एवं सेवा कर, अंकेक्षण, कम्पनी अधिनियम सम्बन्धी अनेकों अनुपालन और अन्य सेवाएँ शामिल हैं। शोध पत्र का यह खंड इस बात पर अत्यधिक बल देता है कि कैसे ए.आई. उपकरण अंकेक्षण, वित्त, आयकर और जी.एस.टी., कम्पनी अधिनियम अनुपालन जैसे क्षेत्रों में लेखांकन पेशेवरों व लेखाकारों की सहायता कर सकते हैं।

निम्नलिखित ऐसे क्षेत्र है जिनमें ए.आई. उपकरण लेखांकन पेशेवरों व लेखाकारों की सहायता कर सकते हैं:

अंकेक्षण में ए.आई.

कम्पनी अधिनियम के अन्तर्गत एक कम्पनी के लिए विभिन्न प्रकार के अंकेक्षण लागू होते हैं यथा चालू/सतत अंकेक्षण, आन्तरिक अंकेक्षण, वार्षिक अंकेक्षण, वैधानिक अंकेक्षण और विभिन्न प्रकार के अनुसन्धान इत्यादि। एक सनदी लेखाकार एक कम्पनी या संस्था के लेखों की जांच या अंकेक्षण करने में मानवीय क्षमता के अतिरिक्त ए.आई. उपकरणों का उपयोग करके बड़ी मात्रा में उपलब्ध समंक या सूचना का तेजी से और सटीक/सही विश्लेषण करके अंकेक्षण के उद्देश्य को प्राप्त कर सकता है। ये उपकरण वित्तीय समकों सूचनाओं में विसंगतियों की पहचान करने में मदद कर सकते हैं जो धोखाधड़ी, त्रुटियों या अन्य अनियमितताओं का कारण होती हैं। इसके अतिरिक्त, ए.आई. उन रुझानों/पूर्वानुमानों और अंतर्दृष्टि की पहचान कर सकता है जो अंकेक्षकों, लेखांकन पेशेवरों व लेखाकारों को तुरंत दिखाई नहीं दे सकते हैं, जिससे अंकेक्षण जोखिम कम हो जाता है और अंकेक्षण गुणवत्ता में भी सुधार होता है।

वित्त में ए.आई.

लेखांकन पेशेवरों व लेखाकारों द्वारा ए.आई. उपकरणों का उपयोग करके वित्तीय विश्लेषण और पूर्वानुमान को तुलनात्मक रूप से शीघ्र किया जा सकता है। चैट जी.पी.टी. कई स्रोतों से समकों/सूचनाओं के विश्लेषण में सहायता कर सकता है, सम्भावित रुझानों या पूर्वानुमानों और प्रवाहों की पहचान कर सकता है और सटीक वित्तीय अंतर्दृष्टि प्रदान कर सकता है। इसके अलावा, ए.आई. वित्तीय प्रतिवेदन और विश्लेषण को स्वचालित करने में सहायता कर सकता है, जिससे त्रुटियाँ कम होने के साथ-साथ विश्लेषण पर विश्वास में बढोतरी होती है और समय की भी बचत होती है।

वित्तीय विवरणों के विश्लेषण में ए.आई.

वित्तीय विवरण विश्लेषण के अन्तर्गत वित्तीय समकों का निष्कर्षण, वर्गीकरण और प्रवृत्ति विश्लेषण इत्यादि कार्य ए.आई. के माध्यम से स्वचालित और सुव्यवस्थित तरीके से किया जा सकता है। ए.आई. के उपयोग से एक कम्पनी के वित्तीय वर्ष की सूचनाओं से वित्तीय अनुपात को ज्ञात कर उनका विश्लेषण करके

उस कम्पनी की वित्तीय स्थिति का पता लगाया जा सकता है और उसके आधार पर कम्पनी की वित्तीय स्थिति को सुदृढ़ बनाने के प्रयास किये जा सकते हैं।

व्यवसाय और कम्पनी सम्बन्धी कानून में ए.आई.

पेशेवरों/लेखाकारों को ए.आई. की मदद से व्यवसाय और कानून में जो भी नवीनतम परिवर्तन/संशोधन होते हैं उनके बारे में आसानी से जानकारी प्राप्त की जा सकती है। इसके अलावा कानूनी दस्तावेजों का विश्लेषण करने और नियम व प्रावधानों के तहत आगे की जाने वाली कानूनी कार्यवाही के बारे में भी ए.आई. सहायक है। साथ ही इसकी सहायता से कानूनी कार्यवाही के लिए कागजात भी तैयार किये जा सकते हैं।

कराधान में ए.आई.

ए.आई. प्रौद्योगिकियां पेशेवरों/लेखाकारों को आयकर और जी.एस.टी. विवरणी तैयार करने में मदद करती हैं। ए.आई. वित्तीय व कर सम्बन्धी समकों का विश्लेषण करने, करदाता के लिए योग्य कटौती/छूट की पहचान करने और करदाता के लिए सही कर गणना करने में सहायता करता है। इसके अलावा, ए.आई. कर प्रणाली को स्वचालित करने में सहायता करता है, जिससे त्रुटियों में कमी के साथ ही सटीकता भी बढ़ती है और समय की भी बचत होती है।

वित्तीय पूर्वानुमान एवं निर्णय लेने में ए.आई.

विभिन्न ए.आई. उपकरण पूर्व के वित्तीय समकों और रुझानों का विश्लेषण करते हैं साथ ही वर्तमान बाजार स्थितियों के आधार पर पूर्वानुमान उत्पन्न करते हैं। इससे पेशेवर/लेखाकार को भविष्य के निवेश और व्यावसायिक रणनीतियों के बारे में उचित निर्णय लेने में सहायता मिलती है।

परियोजना प्रतिवेदन लेखन में ए.आई.

ए.आई. लेखांकन पेशेवरों को प्रोजेक्ट रिपोर्ट लिखने में मदद करती है। ए.आई. सही व संक्षिप्त रिपोर्ट तैयार कर सकता है जो बड़ी मात्रा में समकों का विश्लेषण करके लेखांकन पेशेवरों/लेखाकारों को वित्त/ऋण प्राप्त करने या इससे सम्बन्धित महत्वपूर्ण व्यावसायिक निर्णय लेने में सहायता करता है।

धोखाधड़ी का पता लगाने और जोखिम मूल्यांकन करने में ए.आई.

ए.आई. उपकरण बड़ी मात्रा में वित्तीय समकों का विश्लेषण करने और असामान्य प्रवाह/लेन-देन की पहचान करने के लिए कृत्रिम बुद्धिमत्ता पर आधारित एल्गोरिदम का उपयोग करते हैं जो धोखाधड़ी का संकेत दे सकते हैं। इससे लेखांकन पेशेवरों/लेखाकारों को धोखाधड़ी वाली गतिविधियों का शीघ्र पता लग जाता है और जिसे समय रहते रोकने में भी आसानी होती है, जिससे लेखांकन पेशेवरों के ग्राहकों लिए वित्तीय नुकसान का जोखिम कम हो जाएगा। वित्तीय समकों का विश्लेषण करने के साथ ही व्यावसायिक संचालन में संभावित खतरों की पहचान करके, ए.आई. जोखिम मूल्यांकन में भी सहायता करता है।

इसके अतिरिक्त, बाजार के रुझानों का विश्लेषण करने और भविष्य की बाजार स्थितियों का पता करने के लिए कृत्रिम बुद्धिमत्ता उपकरणों का उपयोग किया जा सकता है। यह लेखांकन पेशेवरों/लेखाकारों को परियोजना रिपोर्ट लेखन और वित्तीय पूर्वानुमान में सहायता कर सकता है। वे ए.आई. उपकरणों का उपयोग करके सटीक वित्तीय मॉडल भी बना सकते हैं और अपने ग्राहकों के लिए उचित निर्णय ले सकते हैं।

इस प्रकार, ए.आई. उपकरण का उपयोग लेखांकन पेशेवरों/लेखाकारों को उनके काम के विभिन्न क्षेत्रों में महत्वपूर्ण लाभ प्रदान करता है। इससे दक्षता, सटीकता और निर्णय लेने की क्षमताओं में सुधार होता है, जिससे लेखांकन पेशेवरों/लेखाकारों अपने ग्राहकों को उच्च गुणवत्ता वाली सेवाएं प्रदान कर सकेंगे। लेखांकन पेशेवर/लेखाकार ए.आई. उपकरणों को अपनाकर, लेखांकन के क्षेत्र में व्याप्त प्रतिस्पर्धा में आगे रह सकते हैं।

लेखांकन में ए.आई. की चुनौतियाँ और अवसर

लेखांकन में ए.आई. का उपयोग चुनौतिपूर्ण है। ए.आई. प्रणाली को सुव्यवस्थित तरीके से प्रबंधित करने के लिए नैतिक विचार, डेटा की गोपनीयता और कुशल लेखांकन पेशेवरों की आवश्यकता इत्यादि प्रमुख समस्याएँ हैं। इसके अतिरिक्त, परिवर्तन का विरोध और नौकरी व रोजगार पर संभावित प्रभाव आदि पर सावधानी से ध्यान देना आवश्यक है। हालांकि ए.आई. द्वारा प्रस्तुत अवसर यथा दक्षता लाभ, शुद्धता और रणनीतिक निर्णय लेना आदि ए.आई. की चुनौतियों पर भारी है इसलिए ए.आई. के अवसर भविष्य के विकास के लिए आशाजनक है। ए.आई. उपकरण एल्गोरिदम डेटा के आधार पर निर्णय लेते हैं, इसलिए नैतिक उपयोग सुनिश्चित करना और पक्षपात को रोकना अतिमहत्वपूर्ण हो जाता है। लेखांकन पेशेवरों/लेखाकारों को समंक उपयोग, एल्गोरिथम पारदर्शिता और निष्पक्षता से संबंधित नैतिक विचारों पर ध्यान देना आवश्यक है। संवेदनशील वित्तीय समंकों की गोपनीयता ए.आई. के लिए सबसे बड़ी चुनौती है और गोपनीयता की सुरक्षा के लिए कड़े उपायों की आवश्यकता है। लेखांकन में ए.आई. को अपनाना एक लेखांकन पेशेवर/लेखाकार के समक्ष अवसर और चुनौतियाँ दोनों प्रस्तुत करता है। एक लेखांकन पेशेवर/लेखाकार को नए कौशल हासिल करने और ए.आई. उपकरणों और प्रौद्योगिकियों का प्रभावी ढंग से उपयोग करने के लिए ज्ञान प्राप्त करना एक बड़ी चुनौती है। ए.आई. का लाभ लेने में लेखाकारों की बदलती भूमिका के लिए अतिरिक्त प्रशिक्षण व कौशल उन्नयन की आवश्यकता है। ए.आई. उपकरणों के माध्यम से कार्य स्वचालित होने लगे हैं जो कि लेखाकारों के द्वारा पारंपरिक रूप से किये जा रहे दोहराव वाले कार्यों पर लगाम लगाते हैं जिसके फलस्वरूप नौकरी में विस्थापन की चिंता उत्पन्न होने लगी है। दूसरी तरफ, लेखांकन में ए.आई. का उपयोग महत्वपूर्ण अवसर भी प्रदान करता है। ए.आई. से वित्तीय विश्लेषण की शुद्धता और गति में बढ़ोतरी होती है और ए.आई. एक लेखांकन पेशेवर/लेखाकार को निर्णय लेने एवं रणनीतिक योजना के लिए विश्वसनीय अंतर्दृष्टि प्रदान करता है। ए.आई. लेखांकन पेशेवर/लेखाकार को उच्च-मूल्य वाली गतिविधियों जैसे जटिल समंकों की व्याख्या करना, रणनीतिक सलाह प्रदान करना और नए व्यवसाय अवसर की पहचान करना आदि पर ध्यान देने के लिए सक्षम बनाता है। इसके अतिरिक्त, ए.आई. से युक्त प्रणाली धोखाधड़ी का पता लगाने, अनुपालन में सुधार करने और जोखिम प्रबंधन प्रथाओं को बढ़ाने में सहायता करती है। इस प्रकार, ए.आई. वित्तीय प्रक्रियाओं की समग्र अखंडता को मजबूती प्रदान करता है।

निष्कर्ष एवं सुझाव

मशीन लर्निंग और प्राकृतिक भाषा प्रसंस्करण में प्रगति के साथ ही ए.आई. उपकरण पहले से अधिक परिष्कृत एवं प्रदर्शनकारी सिद्ध हो रहे हैं जो कि जटिल से जटिल कार्य का भी बेहतर ढंग से समाधान प्रदान करते हैं। यह शोध पत्र इस बात पर अधिक बल डालता है कि ए.आई. का महत्वपूर्ण प्रभाव लेखांकन प्रक्रियाओं पर है जिनमें वित्तीय विवरण विश्लेषण, अंकेक्षण, धोखाधड़ी का पता लगाना और निर्णय लेना इत्यादि शामिल हैं। ए.आई. प्रौद्योगिकियों का एकीकरण लेखांकन पेशे में एक क्रांतिकारी परिवर्तन है जिसमें नियमित कार्यों को स्वचालित करना, शुद्धता/सटीकता में सुधार और लेखाकारों का ध्यान मूल्य वर्धित गतिविधियों पर केंद्रित करने में सक्षम बनाना इत्यादि शामिल हैं। लेखांकन में ए.आई. का उपयोग भविष्य में लेखांकन पेशे को बदलने की अपार संभावना रखता है। नियमित कार्यों को स्वचालित करना, उन्नत डेटा विश्लेषण प्रदान करने की क्षमताएं, अनुमानित विश्लेषण और धोखाधड़ी की पहचान को अधिक मजबूती प्रदान करना इत्यादि द्वारा ए.आई. लेखाकारों को लेखांकन पेशे से सम्बन्धित कार्य के साथ-साथ मूल्यवान अंतर्दृष्टि, निर्णय लेने की क्षमता आदि में और अधिक सशक्त करेगा। ए.आई. और इसके विकसित परिदृश्य को अपनाना इस डिजिटल युग में एक लेखाकार के लिए फलने-फूलने की कुंजी के समान है। परन्तु इसके अतिरिक्त, लेखांकन में ए.आई. को अपनाने के नैतिक, विनियामक, व्यावहारिक प्रभाव आदि पर और अधिक शोध की आवश्यकता है। विभिन्न लेखांकन क्षेत्रों में ए.आई. मॉडल की प्रभावशीलता, ए.आई. की सुशासन तरीके से स्थापना के लिए रूपरेखा विकसित करना, ए.आई. का लेखांकन पेशेवरों की भूमिका पर प्रभाव और उनके लिए आवश्यक कौशल आदि पर भविष्य में अध्ययन किया जाना चाहिए।

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चौमूँ ठिकाने में खादी वस्त्र उद्योग

रजनी मीना*
डॉ. सुनीता कुमारी**

सार

रोटी-कपड़ा-मकान मनुष्य की तीन मूलभूत आवश्यकताओं में आती हैं। खादी उद्योग ब्रिटिश औपनिवेशिक काल के बाद अधिक विकसित हुआ। प्रजामण्डल आन्दोलनों के फलस्वरूप खादी वस्त्र उद्योगों को बहुत बढ़ावा मिला। आजादी के पुजारियों के लिए खादी पहनना स्वतंत्रता का प्रतीक बन गया। जयपुर रियासत के प्रसिद्ध ठिकाने चौमूँ ने इस खादी उद्योग को बहुत बढ़ावा दिया तथा इसको पूरे भारत देश में प्रसिद्ध किया। चौमूँ ठिकाना नाथावत राजपूतों की कर्मभूमी रही है तथा इस ठिकाने के ठाकुरों ने खादी वस्त्र उद्योग को बढ़ाने में महत्वपूर्ण भूमिका निभाई। चौमूँ खादी संघ में निर्मित होने वाली खादी ने भी स्वतंत्रता एवं स्वदेशी का प्रतीक बनकर अपनी अलग पहचान कायम की है।

शब्दकोश: खादी, आन्दोलन, प्रजामण्डल, स्वतंत्रता, स्वदेशी, कमीशन, कुटीर, ग्रामोद्योग, ठिकाना, स्वतंत्रता-सेनानी, बुनकर, बेरोजगार, अप्रासांगिक।

प्रस्तावना

कपड़ा मानव की प्रमुख जरूरतों में से एक है। खादी उद्योग ब्रिटिश औपनिवेशिक काल के बाद अधिक विकसित हुआ। महात्मा गाँधी ने चरखे के प्रयोग पर बल दिया तथा स्वदेशी निर्मित वस्त्रों को पहनने का सन्देश दिया। गाँधीजी ने स्वदेशी का नारा देकर खादी वस्त्र के लिए धागे तैयार करना और उससे वस्त्र बनाने का देशवासियों को मूल मंत्र दिया। जयपुर प्रजामण्डल आन्दोलन की स्थापना के साथ ही जयपुर के आस-पास के क्षेत्रों में 'खादी वस्त्र' उद्योगों की स्थापना होने लगी।

चरखा संघ की विकेन्द्रित ईकाई के रूप में स्थापित 'राजस्थान संघ' का देश के खादी आन्दोलन में विशिष्ट स्थान रहा है। मध्यप्रदेश के पूर्व मध्य भारत में खादी का सूत्रपात करने में राजस्थान खादी संघ ने अहम भूमिका निभाई है। राजस्थान के लोगों में विशिष्ट व्यापारिक प्रतिभा है उसका बहुत अच्छा लाभ खादी आन्दोलन को प्राप्त हुआ। देश में लाखों गरीबों का रक्षण करने वाली खादी माता आज स्वयं गम्भीर अवस्था में है। हमारे सामने जैसे गौरक्षा का प्रश्न उपस्थित है वैसे ही खादी रक्षा का प्रश्न भी है। भारत का अस्तित्व स्वराज रक्षण, गौरक्षा और खादी रक्षा पर आधारित है। यदि हम देश में खादी को नहीं बचा सके तो गाँधीजी और विनोबा भावे अप्रासांगिक हो जायेंगे। भारत में खादी उत्पादन और उसका प्रयोग सभी जगहों पर हुआ है परन्तु स्वतंत्रता से पहले राजस्थान राज्य के एक विश्व प्रसिद्ध चौमूँ ठिकाने ने भी खादी उद्योग को बहुत बढ़ावा दिया। चौमूँ ठिकाने के महाराजा 'देवीसिंह जी' ने खादी ग्रामोद्योगों को बढ़ाने का भरसक प्रयास किया।¹

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राजस्थान में 1920 के दशक में चौमू ठिकाने के अमरसर कस्बे में महात्मा गाँधी द्वारा “राजस्थान चरखा संघ” स्थापित किया गया। चौमू के ‘बांसा’ नामक कस्बे में 1923 ई. में चरखा संघ की स्थापना की गई। यहाँ से उत्पादित होने वाली खादी बहुत ही प्रसिद्ध थी तथा इसकी मांग पूरे भारत में होने लगी। चौमू के गोविन्दगढ़ नामक स्थान से बड़ी मात्रा में खादी तैयार होने लगी थी। चौमू ठिकाने के खादी सेवकों ने असामान्य परिश्रम के द्वारा कुटीर और ग्रामोद्योग के संदेश को उनके साकार रूप को भारत के कोने-कोने में पहुँचाने का कार्य किया। चौमू ठिकाने में बनी खादी भारत के सभी स्थानों में निर्यात की जाती थी।²

अमरसर में स्थापित ‘राजस्थान खादी संघ’ के मंत्री श्री कृष्ण दास जाजू ने 1927 ई. में चरखा संघ के वारिस के रूप में अनेक गाँधी भक्तों व खादी में गहरी निष्ठा रखने वालों का मार्ग दर्शन किया तथा इनकी देख-रेख में चौमू ठिकाने के खादी उद्योग ने बहुत उन्नति की। चौमू में बनने वाली खादी उत्तरप्रदेश में बनने वाली खादी से गुणवत्ता की दृष्टि से अच्छी व कम मूल्य वाली थी।³

जयपुर प्रजामण्डल आन्दोलन के समय चौमू ठिकाने के गोविन्दगढ़ नामक स्थान पर बनने वाली खादी को अलग पहचान मिली। खादी संघ ने प्रदेश भर में खादी विचार का ही प्रचार नहीं किया बल्कि अपने सारे कार्यों को प्रखण्ड स्तर पर विकेंद्रित रूप से विकसित कर इसको प्रदेश के हजारों गाँवों तक व्यापक किया।⁴ लाखों गरीब कतवारियों, बुनकरों, कार्यकर्त्ताओं व कारीगरों को घर बैठे आर्थिक मदद ही नहीं पहुँचाई बल्कि गाँधीवादी विचार भी खादी के जरिए उन तक पहुँचाया। जिसके फलस्वरूप आज राजस्थान में गाँधी विचार व खादी कार्य की विशेष जानकारी रखने वाले कार्यकर्त्ताओं की सबसे बड़ी जमात चौमू खादी संघ के साथ है। चौमू खादी संघ ने खादी जगत को नई दिशा देने के लिए शिवदासपुरा (जयपुर) में विद्यालय कायम किया। जिसने खादी कमीशन के सहयोग से आज तक राजस्थान में ही नहीं बल्कि देशभर के हजारों नवयुवकों को खादी ग्रामोद्योग के जरिए गाँधीवादी विचार के जानकार कार्यकर्त्ताओं द्वारा प्रशिक्षण देकर इस कार्य के लिए तैयार किया जाता था।⁵



भारत खादी कमीशन ने खादी के विकास के लिए जब-जब नया कदम उठाने की प्रेरणा खादी संस्थानों को दी, उन कदमों में चौमूँ खादी संघ सर्वप्रथम चला, चाहे वह अम्बर चरखा हो मुक्त बुनाई योजना हो, नये यंत्रों का प्रयोग हो, चाहे खादी ग्रामोद्योगों का विकेन्द्रित विकास हो या सद्-साहित्य प्रचार हो।⁶

चौमूँ खादी संघ ऐसा संगठन है, जिसने गाँधीजी के हर रचनात्मक कार्य को आगे बढ़ाने में सदा सक्रिय योगदान दिया। राजस्थान में सन्त विनोबा भावे के भूदान आन्दोलन से लेकर कर ग्राम स्वराज आन्दोलन तक संघ बराबर सहयोग करता आया है।⁷ इस प्रकार चौमूँ खादी संघ ने प्रदेश भर में कार्यरत छोटी-बड़ी संस्थाओं को राजस्थान खादी ग्रामीण संघ के रूप में विकसित करने में भी सक्रिय सहयोग व योगदान दिया। जिसके फलस्वरूप आज प्रदेश में ही नहीं अपितु देशभर में चौमूँ खादी संघ का उत्पादन विकेन्द्रित स्वरूप व केन्द्रीय संगठन प्रेरणा के प्रतीक बने हुए हैं।⁸



राजस्थान खादी संघ के मंत्री श्री छीतरमल जी गोयल ने खादी संघ की स्वर्ण जयन्ती पर खादी के विषय में कुछ विचार दिये— “जहाँ तक मुझे स्मरण है पहला खादी भण्डार 1922 ई. में सीकर में स्वर्गीय जमनालाल जी बजाज ने शुरू किया।⁹ 1923 ई. में चरखा संघ की शाखा चौमूँ या गोविन्दगढ़ में शुरू हुई थी। चौमूँ खादी संघ में रामेश्वर जी अग्रवाल (सचिव) का महत्वपूर्ण योगदान रहा। खादी ग्रामोद्योग संस्था संघ की जयपुर में स्थापना भी उन्हीं के प्रयासों से हुई है। चौमूँ में उत्पादित खादी की बिक्री में श्री कर्पूरचन्द्र जी पाटनी विशेष रूप से भाग लेते थे।”¹⁰

चौमूँ खादी संघ के प्रमुख उद्देश्य

चौमूँ में स्थापित ‘राजस्थान खादी संघ’ का प्रमुख उद्देश्य वास्तव में गाँवों की गरीबी, बेरोजगारी का उन्मूलन करने के साथ-साथ गाँधीजी के आदर्शवादी विचारों का प्रचार करना था।¹¹ इस हेतु यह जरूरी था कि गाँवों की जनता में अपने पैरों पर खड़ा होने की भावना जगाई जाये ताकि वे कृषि-पशुपालन के अलावा खादी ग्रामोद्योग के माध्यम से अपने गाँव के बेरोजगार व्यक्तियों को रोजगार दिला सके।¹² जयपुर महाराजा मानसिंह द्वितीय व चौमूँ के देवीसिंह जी के समय खादी वस्त्र उद्योग बहुत विकसित हुआ। इनके प्रयासों के फलस्वरूप खादी वस्त्र उद्योग विकसित अवस्था में आया। जयपुर क्षेत्र में अंग्रेजी शासन के बनाये वस्त्रों को पहनकर आजादी के दीवाने अपने आप को गुलामी की जंजीरों में बंधा हुआ पाते थे। चौमूँ क्षेत्र के गोविन्दगढ़, महार, बांसा आदि क्षेत्रों में खादी उद्योग स्थापित किये गये थे।¹³ गोविन्दगढ़ खादी भण्डार वर्तमान में भी संचालित अवस्था में है। चौमूँ ठिकाने के नाथावत राजपूतों ने स्थानीय स्तर पर खादी वस्त्रों के निर्माण की संभानाएँ विकसित की।¹⁴



चौमूँ ठाकुरों ने खादी वस्त्रों को बढ़ावा इसलिए भी दिया कि, चौमूँ की जनता स्वतंत्रता प्रिय थी और स्वदेशी की भावना उनके मन मस्तिष्क में बसी हुई थी। चौमूँ ठाकुरों ने जनता को रोजगार दिलाने और चौमूँ में निर्मित खादी को विश्व-प्रसिद्ध करने में ‘चौमूँ खादी संघ’ की वित्तीय रूप से और अन्य सभी परिस्थितियों से सहायता की।¹⁵ चौमूँ के अलीसर, अमरपुरा, अणतपुरा, महार, बांसा, सामोद में खादी वस्त्र निर्माण की अनुकूल

दशाएँ थी। यहाँ की जनता को रोजगार के अवसर प्राप्त हुए। खादी वस्त्र राजघराने के साथ-साथ जन सामान्य में भी बहुत प्रिय थे। चौमूँ क्षेत्र की 30 प्रतिशत जनसंख्या को खादी वस्त्र उद्योग से रोजगार मिलता था। भारत खादी कमिशन ने चौमूँ खादी संघ का कई बार अवलोकन किया तथा इसकी भरसक प्रशंसा की।¹⁶ बड़े-बड़े स्वतंत्रता सेनानियों ने चौमूँ खादी बाग का अवलोकन किया तथा इसको बढ़ावा देने के लिए वित्तीय सहायता प्रदान की। इन स्वतंत्रता सेनानियों में हरिभाऊ उपाध्याय, हीरालाल शास्त्री, गोविन्द वल्लभ पंत, मोहनलाल सुखाड़िया, गोकुलभाई भट्ट आदि प्रमुख हैं।¹⁷

चौमूँ खादी संघ का प्रमुख उद्देश्य गाँधीजी के आदर्शों को जीवन्त बनाये रखना व आम जनता को रोजगार के अवसर मुहैया कराना था।¹⁸ खादी संघ को बढ़ावा देने में व जनता को रोजगार दिलाने में चौमूँ महाराज देवीसिंह जी का अद्वितीय योगदान रहा है। खादी हमारे देश की स्वतंत्रता का प्रतीक रही है।¹⁹ चौमूँ संघ की खादी जयपुर रियासत की शान बन कर उभरी तथा इसने पूरे राजस्थान के साथ-साथ पूरे भारत में अपनी पहचान बनाई। वर्तमान में भी चौमूँ खादी संघ संचालित अवस्था में है तथा अभी भी खादी का उत्पादन उत्तम अवस्था में हो रहा है।²⁰

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ग्रामीण क्षेत्रों में माइक्रो फाइनेंस : रोजगार संवर्धन की संभावनाएं एवं परिलक्षित चुनौतियाँ

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डॉ. आलोक सिंह**

सार

वैज्ञानिक दृष्टिकोण से दृष्टिगत करने में कोई भी समस्या ऐसी नहीं होती है जिसका निराकरण न किया जा सके। वर्तमान में बेरोजगारी एक ऐसी समस्या है जिसकी झलक राष्ट्रीय व अंतराष्ट्रीय दोनों स्तर में देखने को मिलती है, हालांकि इस समस्या के निराकरण के लिए अलग-अलग देश अपने-अपने स्तर पर सामयिक तौर पर काम करते रहते हैं। कई ऐसी वैश्विक संस्थाएं भी हैं जो समस्त विश्व को इस समस्या के उपचार के लिए सुझाव देती रहती हैं। भारत भी इस समस्या के निपटान के लिए अपने यहाँ कई युक्तियों से कार्य करता रहता है। उन्हीं युक्तियों में से एक युक्ति माइक्रो फाइनेंस भी है चूँकि माइक्रो फाइनेंस मूलतः गरीबों एवं वंचितों के लिए सेवाएं देता है इसलिए माइक्रो फाइनेंस भी रोजगार संवर्धन में एक अहम् भूमिका निभा सकता है। भारत में एकीकृत रूप में रोजगार संवर्धन की संभावना व माइक्रो फाइनेंस के समक्ष उपस्थित चुनौतियों पर अत्यल्प ही शोध हुए हैं। अतः यह शोध अध्ययन भारतीय परिदृश्य में व्याप्त रोजगार परिस्थिति को जानना, माइक्रो फाइनेंस का रोजगार संवर्धन में वर्तमान भूमिका को जानना, माइक्रो फाइनेंस के द्वारा रोजगार संवर्धन की संभावनाओं को जानना एवं परिलक्षित चुनौतियों को जानने के प्रति समर्पित किया गया है। इस अध्ययन में माइक्रो फाइनेंस के समक्ष उत्पन्न चुनौतियों के निपटान के लिए आवश्यक सुझावों पर भी ध्यानकर्षण किया गया है। परिणामतः माइक्रो फाइनेंस का रोजगार संवर्धन में एक जीवंत भूमिका प्रतीत हुई है और उसके समक्ष ज्ञात चुनौतियों को कम करके रोजगार संवर्धन की गति को बढ़ाया जा सकता है।

शब्दकोश: माइक्रो फाइनेंस, माइक्रो फाइनेंस संस्थाएं, रोजगार, चुनौतियाँ।

प्रस्तावना

माइक्रो फाइनेंस एक ऐसी वित्तीय सुविधा है जो विशेष तौर पर गरीबों व निम्न आय वर्ग के लोगों को आर्थिक सुविधा मुहैया कराती है। माइक्रो फाइनेंस समाजिक ढाँचे में जो लोग हासिये पर स्थिरावस्था में हैं उनको गति प्रदान करके मुख्य धारा में लाने के लिए प्रयासरत है। माइक्रो फाइनेंस मूलतः एकल उद्देशीय परियोजना न होकर अपितु बहुउद्देशीय परियोजनाओं में से एक है क्योंकि यह माइक्रो ऋण, माइक्रो क्रेडिट, माइक्रो बचत, माइक्रो बीमा आदि की सुविधा अपने ग्राहकों को प्रदान करती है। माइक्रो फाइनेंस प्रत्यक्ष व अप्रत्यक्ष दोनों तरीकों से रोजगार सृजन में भी महत्वपूर्ण भूमिका निभाती हैं। नाना प्रकार की माइक्रो फाइनेंस

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** सहायक आचार्य, वाणिज्य विभाग, श्यामा प्रसाद मुखर्जी राजकीय डिग्री कॉलेज, इलाहाबाद विश्वविद्यालय, प्रयागराज, उत्तर प्रदेश।

संस्थाएं अपनी सेवाओं को संभावित व अपेक्षित ग्राहकों तक पहुंचाने के लिए विभिन्न कौशल एवं गैर-कौशल वाले मानव संसाधनों का भी बड़े पैमाने पर प्रयोग करती हैं फलतः वृहत मात्रा में लोगों को प्रत्यक्ष रोजगार की प्राप्ति होती है। वहीं दूसरी ओर माइक्रो फाइनेंस संस्थाओं द्वारा दिए गए माइक्रो क्रेडिट, माइक्रो ऋण, माइक्रो बचत आदि का प्रयोग उत्पादक कार्यों में करने से अप्रत्यक्ष रोजगार की स्थितियां सृजित हो जाती हैं।

भारत विश्व की पांचवी बढ़ती हुयी अर्थव्यवस्था है और यह हाल ही के कुछ अनुमानों के अनुसार जनसंख्या के मामले में भी सबसे आगे है, हालाँकि किसी भी देश की जनसंख्या उस देश के लिए आर्थिक संसाधन के रूप में माने जाते हैं जो देश के विकास के लिए अत्यंत आवश्यक है। भारत के पास श्रम संसाधन के रूप में जनांकिकीय लाभांश प्राप्त है लेकिन श्रम का मांग एवं पूर्ति में सन्तुलन देखने को नहीं मिलता है। श्रम संसाधन के मांग एवं पूर्ति में एक बहुत बड़ी रिक्तता देखने को मिलती है जो बेरोजगारी की समस्या को जन्म देती है। भारत में बेरोजगारी की समस्या के निराकरण के लिए केंद्र व राज्य सरकारें अपने-अपने स्तर पर कुछ महत्वपूर्ण योजनाएं, अभियान, दिवस, मेला आदि सामयिक तौर पर आयोजित करते रहते हैं, चूँकि भारत गाँवों का देश है और यहाँ की लगभग दो-तिहाई जनसंख्या आज भी गाँवों में निवास करती है। अतः सरकार को बेरोजगारी की समस्या के निराकरण के लिए गाँवों पर ध्यान केंद्रित करना चाहिए।

माइक्रो फाइनेंस 20वीं सदी के अंतिम दशक की एक ऐसी योजना है जो अधिकतर गरीबों एवं वंचित वर्गों को अपनी सेवाएं प्रदान करने में प्राथमिकता देती है। कई शोध अध्ययन भारतीय सन्दर्भ में माइक्रो फाइनेंस से रोजगार संवर्धन तथा माइक्रो फाइनेंस के विकास में परिलक्षित चुनौतियां आदि पृथक रूप से किये जा चुके हैं।

यह बात सर्वविदित है कि कोई एक योजना बेरोजगारी की समस्या का निवारण नहीं कर सकती है अपितु कई सारे आयामों को अपनाकर अलग-अलग स्तर में एक आनुपातिक रूप से ही इस समस्या का हल संभव है। माइक्रो फाइनेंस उन सभी आयामों में से एक है जिससे बेरोजगारी की समस्या को काफी हद तक कम किया जा सकता है। चूँकि माइक्रो फाइनेंस अब भी अपने विकास के चरण में ही है और इसकी सहायता से प्रत्यक्ष व परोक्ष दोनों रूपों से रोजगार संवर्धन किया जा सकता है और माइक्रो फाइनेंस की राह में आने वाली समस्याओं को पहचानकर उनको कम किया जा सकता है। यह शोध अध्ययन माइक्रो फाइनेंस के द्वारा रोजगार संवर्धन के संभावनाओं को जानने तथा राह में आने वाली समस्याओं को समझने पर केंद्रित है। इसमें माइक्रो फाइनेंस की रोजगार संवर्धन में भूमिका का भी वर्णन किया गया है।

साहित्य पुनरावलोकन

टी0 मालती लता (2016) ने अपने शोध अध्ययन में माइक्रो फाइनेंस की वृद्धि एवं वर्तमान स्थिति का अध्ययन किया तथा साथ ही साथ भारतीय परिदृश्य में माइक्रो फाइनेंस के क्षेत्र में उभरती मुख्य समस्याओं एवं चुनौतियों का भी अध्ययन किया उन्होंने अपने अध्ययन में पाया कि ग्रामीण अर्थव्यवस्था के सतत विकास एवं वृद्धि के लिए माइक्रो फाइनेंस की सुविधा में कमियों का निरंतर सुधार होते रहना चाहिए और यदि माइक्रो फाइनेंस संस्थानों से कमियों को दूर करने में सफलता प्राप्त होती है तो यह देश की अर्थव्यवस्था पर एक सकारात्मक प्रभाव डालेगा जो हजारों गरीबों के जीवन स्तर एवं उनके कार्य कुशलता में सुधार करेगा।

अब्दुल मजीद एवं दल्पादल (2019) ने अपने शोध अध्ययन में ग्रामीण भारत के सन्दर्भ में माइक्रो फाइनेंस व माइक्रो क्रेडिट की भूमिका का अध्ययन किया है जिसके लिए उन्होंने प्राथमिक समकों का प्रयोग किया। उन्होंने अपने अध्ययन में पाया कि 80% माइक्रो फाइनेंस अपने लक्ष्य की प्राप्ति में असफल रहे हैं। जिसके पीछे दोषपूर्ण परियोजनाओं एवं इन्साइडर ट्रेडिंग को कारण माना गया है। उन्होंने यह भी निष्कर्षतः पाया कि माइक्रो फाइनेंस ग्रामीण क्षेत्रों में गरीबी व बेरोजगारी जैसे मुद्दों के निराकरण पर पर्याप्त रूप से सफल सिद्ध हुई है।

श्री मोयी दत्ता एवं तारकनाथ (2020) ने अपना शोध अध्ययन प्राथमिक डाटा के आधार पर किया जो क्रॉस सेक्शनल शोध विधि पर आधारित था। यह शोध अध्ययन माइक्रो क्रेडिट के द्वारा रोजगार संवर्धन (विशेष तौर पर महिलाओं के प्रति) के प्रभाव को जानने पर समर्पित था। इस अध्ययन में निष्कर्षतः यह ज्ञात होता है कि रोजगार सृजन और सशक्तिकरण की स्थिति दोनों में माइक्रो क्रेडिट के द्वारा सकारात्मक बदलाव होता है। माइक्रो क्रेडिट का उत्पादकीय कार्यों में प्रयोग करने से आर्थिक, मनोवैज्ञानिक, राजनीतिक व समाजिक आयामों सहित सशक्तिकरण में सकारात्मक सहयोग प्राप्त होता है।

डॉ० आर मयकानन (2020) ने अपने शोध अध्ययन में भारतीय सन्दर्भ में माइक्रो फाइनेंस के क्षेत्र में हाल ही के वर्षों में उभरते समस्याओं एवं चुनौतियों पर ध्यान केंद्रित किया है। जिसके लिए उन्होंने द्वितीयक समंको का सहयोग लिया है। उन्होंने अपने अध्ययन में पाया कि भारतीय सन्दर्भ में माइक्रो फाइनेंस का वितरण अभी भी असमान है। माइक्रो फाइनेंस के पात्र अधिकाधिक लोगों में आज भी माइक्रो फाइनेंस के प्रति अनभिज्ञता है। उन्होंने सुझाव दिया कि माइक्रो फाइनेंस के कार्यों में पारदर्शिता होनी चाहिए तथा स्वस्थ प्रतिस्पर्धा लाकर माइक्रो फाइनेंस संस्थाओं में सेवाओं की लागत में कमी लानी चाहिए।

डॉ० जुबैर अहमद एवं अबू सलेट (2023) ने अपने शोध अध्ययन में भारतीय परिदृश्य में माइक्रो फाइनेंस की राह में विद्यमान चुनौतियों व अवसरों पर ध्यान केंद्रित किया है जिसके अध्ययन के लिए उन्होंने द्वितीयक समंको का उपयोग किया है। निष्कर्षतः इस शोध अध्ययन में यह दृष्टिगत हुआ कि भारत में माइक्रो फाइनेंस आज भी अनेक चुनौतियों का सामना कर रहा है जिसके निराकरण के लिए भारत सरकार को एक रणनीतिक नीति के विकास की महती आवश्यकता है। ताकि माइक्रो फाइनेंस आर्थिक विकास में महत्वपूर्ण भूमिका निभा सके।

उद्देश्य

- भारतीय परिदृश्य में वर्तमान की, विशेष तौर पर ग्रामीण क्षेत्रों की, रोजगार स्थिति को जानना।
- ग्रामीण बेरोजगारी को कम करने में माइक्रो फाइनेंस की भूमिका को जानना।
- ग्रामीण बेरोजगारी को दूर करने में माइक्रो फाइनेंस की राह में आने वाली चुनौतियों को दृष्टिगत करना।

शोध-प्रविधि

यह शोध-अध्ययन व्याख्यात्मक प्रकृति का है जिसमें द्वितीयक समंको का प्रयोग किया गया है। उन समंको का एकत्रीकरण प्रकाशित लेखों, विभिन्न वेबसाइट्स, सरकारी प्रतिवेदनों, पुस्तकों, शोध ग्रन्थों एवं अन्य द्वितीयक स्रोतों से किया गया है।

विश्लेषण

भारतीय परिदृश्य में रोजगार की स्थिति

कोई भी देश फिर चाहे वह विकासशील हो या विकसित उसे अपनी आर्थिक संवृद्धि के लिए सदैव अपने आर्थिक संसाधनों से अद्यतन रहना चाहिए ताकि वह उन संसाधनों का अनुकूलतम प्रयोग करके आर्थिक संवृद्धि की ओर निरंतर बढ़ता रहे। यह बात सर्वविदित है कि किसी भी देश के पास आर्थिक संसाधन सीमित मात्रा में ही होते हैं। भारतीय सन्दर्भ में श्रम संसाधन की उपलब्धता वर्तमान समय में एक ऐसी मात्रा में है जिसमे अधिकाधिक श्रम संसाधन को कार्यशील बनाकर वर्तमान उपलब्ध जॉब दशाओं में समायोजित करना दुष्कर है। भारतीय परिदृश्य में रोजगार स्थिति की पुष्टि सामयिक तौर पर राष्ट्रीय व अंतराष्ट्रीय स्तरों पर संस्थाएं करती रहती हैं जिनमे से कुछ संस्थाओं की रिपोर्ट इस प्रकार है—

• अंतर्राष्ट्रीय श्रम संगठन (ILO) और मानव विकास संस्थान (IHD) द्वारा जारी भारतीय रोजगार रिपोर्ट 2024

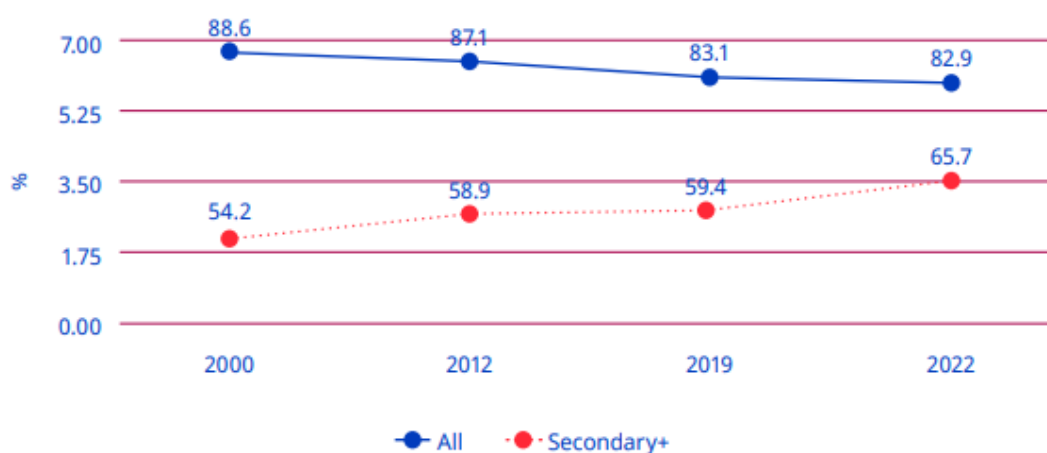
अंतर्राष्ट्रीय श्रम संगठन संयुक्त राष्ट्र संघ की एक त्रिपक्षीय एजेंसी है इसकी स्थापना सन् 1919 में वर्साय की संधि के तहत हुई थी। आई एल ओ का प्रमुख कार्य कामगारों के हितों का ध्यान रखना है, जिसके अंतर्गत यह अनुबंधों एवं संस्तुतियों के रूप में अंतर्राष्ट्रीय श्रम मानकों की स्थापना करता है।

मानव विकास संस्थान की स्थापना सन् 1998 में इंडियन सोसाइटी ऑफ लेबर इकोनॉमिक्स (ISLE) के तत्वाधान में की गयी थी, जिसका उद्देश्य एक ऐसे समाज के निर्माण में योगदान देना है जो समावेशी विकास को बढ़ावा देता हो और एक समावेशी सामाजिक, आर्थिक व राजनीतिक व्यवस्था को महत्व देता हो जो गरीबी एवं आभावों से मुक्त हो।

हाल ही में आई एल ओ एवं आई एच डी ने संयुक्त रूप से भारत रोजगार रिपोर्ट के प्रकाशनों के अनुक्रम में तीसरा संस्करण जारी किया। यह रिपोर्ट उभरते आर्थिक मुद्दे, श्रम बाजार, शैक्षिक एवं कौशल परिदृश्य व विगत दो दशकों में हुए बदलावों के सन्दर्भ में युवाओं के रोजगार के सम्मुख खड़ी चुनौतियों की जांच करती है।

भारत रोजगार रिपोर्ट 2024 के अनुसार, भारत में सर्वाधिक बेरोजगारी शिक्षित आयाम वाली है अर्थात् माध्यमिक व उच्च स्तर की शिक्षा प्राप्त युवाओं की बेरोजगारी अधिकाधिक है। भारत के बेरोजगार कार्यबल में लगभग 83 प्रतिशत का अनुपात केवल युवाओं का है। विगत दो दशकों में भारतीय नौकरी बाजार में तो कुछ श्रम संकेतांकों में सुधार तो परिलक्षित हुआ है लेकिन अभी भी समग्र रोजगार की स्थिति चुनौतीपूर्ण बनी हुई है। रिपोर्ट के मुताबिक, भारतीय युवाओं में गुणवत्तापूर्ण डिजिटल साक्षरता कौशल में कमी हुई है जिसमें लगभग 75 प्रतिशत युवा आवश्यक संलग्नक के साथ ई.मेल भेजने में असमर्थ पाए गए, 60 प्रतिशत युवा फाइलों को कॉपी और पेस्ट करने में अक्षम पाए गए तथा 90 प्रतिशत युवाओं को गणितीय सूत्रयुक्त स्प्रेडशीट के कार्यों को करने में असमर्थ पाया गया।

कुल बेरोजगारी व शिक्षित बेरोजगारी की स्थिति



स्रोत: <https://www.jansatta.com/jansatta-special/india-youth-account-for-almost-83-percent-of-the-unemployed-workforce-ilo-report/3277410/>

नोट: उपर्युक्त प्रदर्शित रेखाचित्र में यह स्पष्ट दृष्टिगत हो रहा है कि सन् 2000 से 2022 तक शिक्षित बेरोजगारी निरंतर बढ़ रही है जो 54.20 (2000) प्रतिशत से 65.70 (2022) प्रतिशत तक पहुँच गयी है।

भारत रोजगार रिपोर्ट 2024 में यह तथ्य भी दृष्टिगोचर किया गया है कि लोग कृषि रोजगार को छोड़कर वृहत मात्रा में गैर-कृषि रोजगार की ओर अग्रसर हुए हैं लेकिन गैर-कृषि क्षेत्र अपने यहाँ रोजगार देने में स्वयं को मांगानुसार परिवर्तित नहीं कर पाया है अर्थात् गैर-कृषि क्षेत्र कृषि कार्यों से विस्थापित लोगों को रोजगार नहीं दे पाया है।

• सेंटर फॉर मॉनिटरिंग इंडियन इकॉनमी (CMIE)

यह एक ऐसी संस्था है जिसकी स्थापना सन् 1976 में एक प्राइवेट लिमिटेड संगठन के रूप में की गयी थी। सी एम आई ई एक आर्थिक थिंक टैंक के रूप में कार्य करता है यह भारत की अर्थव्यवस्था और निजी क्षेत्र की कंपनियों पर डेटाबेस तैयार करके गहन विश्लेषण करता है। सी एम आई ई का मुख्यालय मुंबई है।

शहरी एवं ग्रामीण बेरोजगारी की स्थिति

माह	शहरी बेरोजगारी दर	ग्रामीण बेरोजगारी दर
जनवरी 2024	8.9%	5.8 %
फरवरी 2024	8.5%	7.8%

स्रोत : आंकड़ें सी एम आई ई की वेबसाइट से लिए गए हैं।

नोट : सी एम आई ई की रिपोर्टनुसार, भारत में बेरोजगारी दर जनवरी 2024 की अपेक्षा फरवरी 2024 में बढ़ी है जो क्रमशः 6.8 प्रतिशत से बढ़कर 8.1 प्रतिशत हो गयी है।

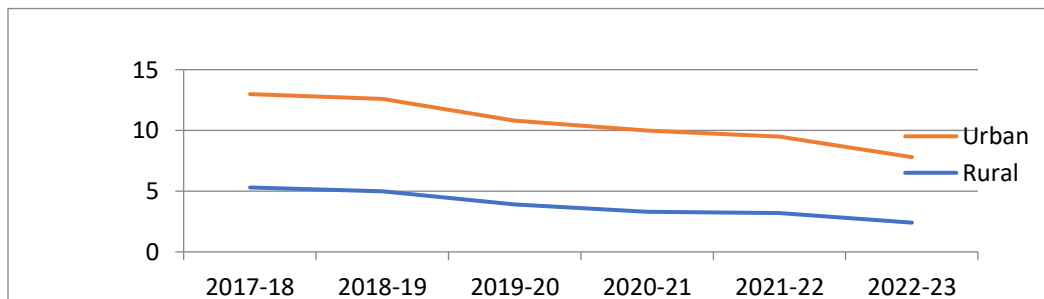
• राष्ट्रीय नमूना सर्वेक्षण कार्यालय (NSSO)

राष्ट्रीय नमूना सर्वेक्षण कार्यालय (NSSO) भारत सरकार के तहत एक प्रमुख संगठन है, जो देश में विभिन्न सामाजिक, आर्थिक और औद्योगिक स्थितियों का सर्वेक्षण और डेटा संग्रहण करता है। NSSO की स्थापना 1950 में हुई थी। इसका मुख्य उद्देश्य देश भर में विभिन्न प्रकार के सर्वेक्षण करना और विश्वसनीय और अद्यतन आंकड़े प्रदान करना है, जो नीति निर्धारण और अनुसंधान के लिए महत्वपूर्ण होते हैं।

समान्य स्थिति के आधार पर बेरोजगारी दर

(15 वर्ष तथा इससे अधिक उम्र के व्यक्ति शामिल)

Year	Rural	Urban
2022-23	2.4	5.4
2021-22	3.2	6.3
2020-21	3.3	6.7
2019-20	3.9	6.9
2018-19	5.0	7.6
2017-18	5.3	7.7



स्रोत: आंकड़ें प्रेस इन्फार्मेशन ब्यूरो की वेबसाइट से लिए गए हैं।

नोट: उपर्युक्त डाटा के अनुसार बेरोजगारी दर वित्तीय वर्ष 2017-18 से 2022-23 के दौरान निरंतर कम होते प्रदर्शित हो रही है जो बेरोजगारी दर को एक घटती हुई प्रवृत्ति में दिखा रहा है।

ग्रामीण बेरोजगारी कम करने में माइक्रो फाइनेंस की भूमिका

नाबार्ड द्वारा जारी माइक्रो फाइनेंस स्थिति रिपोर्ट 2022-23 के अनुसार, माइक्रो फाइनेंस संस्थानों में लगभग 2 लाख सेविवर्गीय कार्यरत थे जिनमें से लगभग 13 प्रतिशत महिलायें थीं।

त्रैमासिक माइक्रो फाइनेंस रिपोर्ट 2023-24 के अनुसार, माइक्रो फाइनेंस संस्थानों के 74 प्रतिशत ग्राहक ग्रामीण क्षेत्रों के ही होते हैं जबकि 26 प्रतिशत ग्राहक शहरी क्षेत्रों के होते हैं। गैर बैंकिंग फाइनेंस कम्पनीज-माइक्रो फाइनेंस संस्थानों, गैर बैंकिंग फाइनेंस कम्पनीज, प्राइवेट लिमिटेड कम्पनियाँ, सेक्शन 8 कम्पनियाँ एवं अन्य एनजीओ माइक्रो फाइनेंस संस्थानों (इसमें सोसाइटी, ट्रस्ट, को-ऑपरेटिव इत्यादि शामिल) के एकल इकाई के रूप में ग्रामीण ग्राहकों का अनुपात क्रमशः 75%, 54%, 53%, 85%, 77% है। छोटे आकार वाली माइक्रो फाइनेंस संस्थानों व सेक्शन 8 कम्पनीज विशेष तौर पर ग्रामीण केंद्रित माइक्रो फाइनेंस संस्थान मानी जाती हैं।

माइक्रो फाइनेंस संस्थानों के कुल स्टॉफ का 61% स्टॉफ फील्ड स्टॉफ के रूप में कार्य करता है। यह स्पष्ट रूप से यह संकेत देता है कि माइक्रो फाइनेंस उद्योग एक श्रम-अभिमुखी है अतः इसमें उच्च शिक्षा प्राप्त व्यक्तियों की जरूरत अपेक्षाकृत कम होती है। वहीं दूसरी ओर शेष 39% स्टॉफ पेशवर या प्रशासकीय स्टॉफ के रूप में कार्यरत है जो समान्यतया कार्यालय सम्बन्धी कार्यों को करने में संलग्न रहते हैं।

भारत माइक्रो फाइनेंस रिपोर्ट 2017 के अनुसार, 168 माइक्रो फाइनेंस संस्थानों की 10,233 शाखाओं में कुल 89,785 कर्मचारी कार्यरत थे जो लगभग 3 करोड़ से अधिक ग्राहकों तक पहुंच संभव बनाये थे तथा कुल ऋण पोर्टफोलियो 46,842 करोड़ रुपये था, जिसमें ध्यातव्य यह है कि लगभग 85% ऋण उत्पादकीय कार्यों के लिए ही दिया जाता था जो ऋण की पुनर्वापसी व अधिकाधिक रोजगार के विकास की संभावना सुनिश्चित करता था।

सा-धन, जो एक सामुदायिक वित्त संस्थानों का एक संघ है, प्रत्येक 2 वर्ष में भारत में विद्यमान माइक्रो फाइनेंस संस्थानों की एक डायरेक्टरी निर्गमित करती है। माइक्रो फाइनेंस संस्थानों की डायरेक्टरी के पांचवे संस्करण के अनुसार, माइक्रो फाइनेंस संस्थानों में प्रत्यक्ष रूप से लगभग 2,07,000 कर्मचारियों की नियुक्ति थी। चूंकि ये संस्थान अधिकाधिक तौर पर ग्रामीण क्षेत्रों में कार्य करती हैं जिससे कई क्षेत्रीय व्यक्तियों को भी प्रत्यक्ष या परोक्ष रूप से कार्य मिल जाता है।

ग्रामीण बेरोजगारी को दूर करने में माइक्रो फाइनेंस के समक्ष आने वाली चुनौतियाँ

यह बात सत्य है कि माइक्रो फाइनेंस अपनी तीन दशकीय यात्रा पूरी कर चुका है लेकिन आज भी कई आधारभूत समस्याओं से माइक्रो फाइनेंस ग्रसित है जो उसके मुक्त रूप से विकास में बाधा बनी हुयी हैं। उनमें से प्रमुख समस्याओं का वर्णन निम्न है -

- **आधारभूत संरचना में कमी** - यह समस्या माइक्रो फाइनेंस संस्थानों की मुख्य समस्याओं में से एक है। आज भी कई ऐसे ग्रामीण क्षेत्र हैं जहाँ अच्छी सड़कें, जल व्यवस्था, बिजली व्यवस्था, इंटरनेट कनेक्टिविटी आदि आधारभूत संरचनात्मक ढांचों की कमी है। इस प्रकार की विद्यमान समस्या से कई सुदूर क्षेत्रों में माइक्रो फाइनेंस संस्थानों की सुविधा पहुँचाना दुर्लभ हो जाता है।
- **विद्यमान एवं संभावित ग्राहकों में साक्षरता की कमी** - माइक्रो फाइनेंस संस्थानों के लक्षित ग्राहकों में अधिकांशतया ग्रामीण जनसँख्या होती है। 2011 की जनगणना के अनुसार ग्रामीण साक्षरता दर 71.42% थी। भारत में एक ओर साक्षरता दर में कमी तथा दूसरी ओर जो साक्षर भी हैं उनमें अधिकतर लोगों में वित्तीय साक्षरता की कमी प्रमुखतया देखने को मिलती है। अतः इस प्रकार की कमी माइक्रो फाइनेंस ग्राहकों में माइक्रो फाइनेंस की सुविधा प्राप्त करने व उसका उचित उपयोग करने में असमर्थता को दिखाता है।

- **उच्च संचालन लागत** – माइक्रो फाइनेंस संस्थानों को स्थापित करने में स्थायी पूंजी की बड़ी मात्रा का निवेश करना पड़ता है तथा इस प्रकार के संस्थानों में सौदे कम मात्रा में तथा कम आवर्तक प्रकृति के होते हैं। आधारभूत ढांचे की कमी से सम्भार तंत्र लागत व फील्ड वर्क की लागत भी अधिक हो जाती है।
- **नियामक ढांचों की सीमितता** – माइक्रो फाइनेंस संस्थानों को शासित करने के लिए रिजर्व बैंक ऑफ इंडिया समय-समय पर अपने दिशा-निर्देशों को निर्गमित करती रहती है, वहीं दूसरी ओर कई ऐसे स्व-नियामक संगठन जैसे- माइक्रो फाइनेंस इंस्टीट्यूशन नेटवर्क, एसोसिएशन ऑफ कम्युनिटी डेवलपमेंट फाइनेंस इंस्टीट्यूशन आदि भी होते हैं जो माइक्रो फाइनेंस संस्थानों के संचालन को विनियमित करने में महत्वपूर्ण भूमिका वहन करते हैं।
इन सभी नियामक संस्थाओं के बावजूद भी माइक्रो फाइनेंस के क्षेत्र में कई जगह ठोस नियमों को अपनाने की जरूरत पड़ती है। सरकार आज भी माइक्रो फाइनेंस संस्थानों के लिए एक सुदृढ़ कानून व नियामक संस्थानों के निर्माण में असफल है।
- **तकनीकी अनुप्रयोज्यता** – माइक्रो फाइनेंस संस्थानों में आधुनिक दृष्टिकोण से तकनीकी संसाधनों व कुशलता अन्य वित्तीय संस्थानों से अपेक्षाकृत अत्यंत कमजोर स्थिति में देखने को मिलता है। फलतः साइबर सुरक्षा में कमजोरी, उच्च लागत, डाटा विश्लेषण में कमी आदि प्रकार के नकारात्मक लक्षण विद्यमान होने लगते हैं जिससे माइक्रो फाइनेंस संस्थानों की वृद्धि एवं विकास में कमी होने लगती है।
- **उच्च ब्याज दर** – माइक्रो फाइनेंस संस्थान आज भी उच्च ब्याज दर पर अपनी सेवाओं को देते हैं। हालांकि माइक्रो फाइनेंस संस्थानों में ब्याज दर संस्थावार परिवर्तित रहती है लेकिन फिर भी एक अनुमान के मुताबिक, माइक्रो फाइनेंस संस्थान अपने ग्राहकों से औसतन रूप में 25% तक ऋण पर ब्याज वसूलती है जिससे माइक्रो फाइनेंस संस्थानों के ग्राहकों द्वारा ब्याज व मूलधन पुनर्भुगतान करने में समस्या होती है।
- **ग्रामीण लोगों पर अधिक ध्यान** – माइक्रो फाइनेंस संस्थान अपनी सेवाओं को मुख्यतया ग्रामीण स्तर में ही संचालित करती है जबकि वंचित एवं गरीब लोगों का एक बहुत बड़ा हिस्सा शहरों में भी निवास करता है परन्तु गांवों की अपेक्षाकृत शहरों में माइक्रो फाइनेंस संस्थान कम ही देखने को मिलते हैं।
- **नवाचार एवं विविध माइक्रो फाइनेंस के उत्पादों से अनभिज्ञता** – माइक्रो फाइनेंस संस्थान के प्रति समाज में एक अफवाह भी है कि वे केवल ऋण की ही सेवाएं उपलब्ध करवाती हैं जबकि यह सही नहीं है। आधुनिक समय में माइक्रो फाइनेंस संस्थान माइक्रो क्रेडिट के साथ-साथ माइक्रो बीमा, मनी हस्तांतरण, कार्यशील पूंजी ऋण, सेविंग्स ऋण आदि की सेवाएं भी उपलब्ध कराती हैं।
- **माइक्रो फाइनेंस संस्थानों का बैंकों पर अधिक निर्भरता** – लगभग 80% माइक्रो फाइनेंस संस्थान अपने कोषों की प्राप्ति के लिए बैंकों पर निर्भर रहती है। विशेष तौर पर ऐसे बैंक अधिकतर निजी क्षेत्र के होते हैं। फलतः ऐसे बैंक ब्याज की दर को माइक्रो फाइनेंस संस्थानों से अधिक वसूल करते हैं जिससे माइक्रो फाइनेंस संस्थानों की सेवाएं अपने ग्राहकों को महंगे पड़ने लगती हैं।
- **सीमित संपार्श्विकता** – माइक्रो फाइनेंस संस्थान अपने ग्राहकों को सेवाएं प्रदान करने के बदले न के बराबर संपार्श्विक सम्पत्ति को लेते हैं फलतः डिफॉल्ट एवं अशोध्य ऋण का जोखिम बढ़ जाता है। चूंकि माइक्रो फाइनेंस संस्थानों के पास कोई ऐसी विशेष ऋण वसूली की रणनीति नहीं है और न ही एक प्रबल नियामक है फलतः ऋण डिफॉल्टर्स की संख्या में बढ़त हो जाती है।

निष्कर्ष

माइक्रो फाइनेंस की अवधारणा का उदय प्राथमिक रूप से तत्कालीन उपलब्ध वित्तीय संस्थाओं की सेवाओं से वंचित एवं गरीब वर्गों को वित्तीय सेवाएं प्रदान करने लिए हुआ था और परिणामतः यह अपने उद्देश्य को प्राप्त करने में काफी हद तक सफल भी सिद्ध हुआ है। प्रत्येक देश को अपनी उन्नति के लिए राष्ट्रीय व अन्तराष्ट्रीय मुद्दों एवं समस्याओं से सदैव अद्यतन रहना चाहिए ताकि समस्या गंभीर होने से पूर्व ही सक्रिय होकर उसका निराकरण किया जा सके। बेरोजगारी वर्तमान में राष्ट्रीय व अन्तराष्ट्रीय स्तर पर व्याप्त एक जटिल समस्या है जिसके निराकरण के लिए माइक्रो फाइनेंस भी अपने स्तर पर एक अहम् भूमिका निभा सकता है। पूर्ववर्णित विवेचनाओं के आधार पर माइक्रो फाइनेंस वर्तमान में रोजगार संवर्धन में एक अच्छे खिलाड़ी के रूप में भूमिका निभा रहा है। माइक्रो फाइनेंस संस्थाओं में 2 लाख से अधिक कर्मचारी प्रत्यक्ष रूप से कार्यरत हैं चूँकि माइक्रो फाइनेंस के द्वारा दिये जाने वाले ऋणों का उपयोग अधिकांशतः उत्पादकीय कार्यों में प्रयोग किया जा रहा है। फलस्वरूप परोक्ष रूप से भी माइक्रो फाइनेंस के द्वारा रोजगार संवर्धन में अहम् योगदान दिया जा रहा है। गौरतलब है कि माइक्रो फाइनेंस के क्षेत्र में विविध प्रकार की समस्याओं का प्रवेश उसके वृद्धि एवं विकास के राह में बाधा बन रही है जैसे— उच्च संचालन लागत, उच्च ऋण ब्याज दर, तकनीकी उपकरणों के अनुप्रयोगों में पिछड़ापन आदि। हालाँकि ये ऐसी समस्याएं हैं जिनका उपचार किया जा सकता है जिसके लिए सरकार रिजर्व बैंक ऑफ इंडिया, स्व-नियामक संगठन तथा विभिन्न प्रकार के माइक्रो फाइनेंस संस्थाएं अपने-अपने स्तर पर उचित कदम उठा सकते हैं। निष्कर्षतः यह कहा जा सकता है कि माइक्रो फाइनेंस रोजगार संवर्धन में मील का पत्थर साबित हो सकता है क्योंकि यह अपनी सेवाएं ही केवल और केवल गरीबों एवं वंचितों को देता है। यदि माइक्रो फाइनेंस की राह में आने वाली चुनौतियों को कम किया जा सके तो माइक्रो फाइनेंस और अधिक तेज गति से रोजगार संवर्धन में सहयोग प्रदान कर सकता है।

सुझाव

- माइक्रो फाइनेंस प्रोग्राम व समूह निर्माण को पेशेवर तौर पर कुशल सेविवर्गीय व्यक्तियों के हाथों सौंपा जाना चाहिए।
- सूचना एवं संचार प्रौद्योगिकी को विभिन्न क्रेडिट प्रोग्राम के कार्यान्वयन के लिए अपनाया जाना चाहिए। माइक्रो फाइनेंस संस्थानों को नयी तकनीक, सॉफ्टवेयर आदि का प्रयोग करना चाहिए।
- वित्तीय स्रोतों के कोषों में विविधीकरण किया जाना चाहिए अर्थात् वित्त के स्रोत में सरकार, निवेशकों, सरकारी योजनाओं एवं अंतर्राष्ट्रीय वित्त प्रदाताओं से वित्त प्राप्त करना चाहिए।
- सरकार, रिजर्व बैंक ऑफ इंडिया, स्व-नियामक संगठनों आदि को अपने नियमों एवं शर्तों पर उचित मानक रखना चाहिए।
- माइक्रो फाइनेंस संस्थानों, सरकार आदि को वित्तीय साक्षरता बढ़ाने के लिए शिक्षा व जागरूकता कार्यक्रमों का आयोजन करना चाहिए।
- माइक्रो फाइनेंस संस्थानों को अपने उत्पादों में अधिकाधिक विविधीकरण करना चाहिए ताकि ग्राहकों की संख्या व उत्पादों में बढ़ोतरी हो सके।
- माइक्रो फाइनेंस संस्थानों को अपने स्थानीय वातावरण से अवगत जरूर रहना चाहिए ताकि वह अपने ग्राहकों की समस्याओं एवं जरूरतों को समझ सके।
- माइक्रो फाइनेंस संस्थानों को अपने ग्राहकों से एक उचित दर पर ब्याज वसूलने का प्रयास करना चाहिए तथा ऋण वापसी की एक रणनीतिक नीति अपनानी चाहिए ताकि गैर-निष्पादित संपत्ति में कमी की जा सके।

सीमाएं

- इस शोध-प्रपत्र के लेखन में डेटाबेस— गूगल स्कॉलर एवं रिसर्च गेट के मुक्त पहुँच वाले शोध-अध्ययनों का प्रयोग किया गया है।
- इसमें केवल द्वितीयक समकों का ही प्रयोग किया गया है।
- डेटाबेस के अलावा कुछ अधिकृत वेबसाइट्स एवं वार्षिक तथा सरकारी रिपोर्ट का सहारा लिया गया है।

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INVESTIGATION OF THE IMPACT OF HR PRACTICES ON EMPLOYEE JOB SATISFACTION AND PRODUCTIVITY IN THE CONSTRUCTION INDUSTRY

Dr. R. Ganapathi*

ABSTRACT

This study investigates the relationship between human resources management practices and job satisfaction among employees in the construction industry. The descriptive statistics reveal significant insights into the demographics, job satisfaction parameters, and challenges faced within the industry. ANOVA tests were conducted to determine the significance of differences in job satisfaction and HR practices across various factors such as gender, hierarchy, and income levels. The results indicate significant differences in several HR practices and job satisfaction parameters based on these factors, providing a comprehensive understanding of the dynamics in the construction sector.

KEYWORDS: Human Resources Management, Job Satisfaction, Construction Industry, ANOVA.

Introduction

The human resources management is a typical approach of personnel management, which aims to achieve a competitive advantage, by employing efficient and committed workforce, as well as through the use of matrix of integrated culture, structural construction and techniques for the staff (Palmer, 2006). Concept of human resource management passed through the end of the last century and the beginning of this century at different stages of developmental thought and applicable practices that crystallized this concept of human resource management. HRM is a broader and more comprehensive than personnel management, which is a function consists of a range of activities for individuals employed in the organization; it is wider than those being interested in the management of personnel management in the organization (Alindaoui, 2009).

Human resource is known as an important part and parcel of an organization. In today's world of wide spread industrialization and increasing demand on the organization to enhance the competitive position of workforce is a pervasive concern for employers and the employees too. Human Resource Management (HRM). Function seeks to encapsulate and evaluate those factors exigently which is prevalent in the internal environment of organization affecting the degree of level of satisfaction and their commitment towards job. The present research paper has studied the various such human resource management practices being followed in the Chhattisgarh State Power Distribution Company Ltd. Raipur and their impact on the level of job satisfaction among 250 employees working at various levels. Among the HRM practices the job definition and team work have been rated high, implying these practices have high impact on job satisfaction of workers. It shows that the employees have clear job description and contains all the duties performed by them, also the employees' teams are encouraged to form team members so as to solve their individual problem and firms makes an effort to get workers opinions and ideas. Compensation, employee participation and performance appraisal are the factors having low impact on the level of job satisfaction perceived by employees.

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Many of the changes was emerged in respect of businesses and performance since the beginning of the twentieth century, and the most important of which, technological development, the evolution of electronic communications, and the development of the ways business performance of the organizations, the technical and technological development made the change of the human resources perception. Resources was viewed as production tools, became the most important resource in the organization, including the thought and knowledge carried by its members, generated as a result of their contact to work, which brought attention to human resource management, and considered as the most important function of organization, and a cornerstone in which to focus on attracting and qualifying their human being, and to carry out planning process, selection and training that resource which is important to ensure efficiency and continuity of his work through incentives and evaluation, organization efficiency and its success depends upon the efficiency of the human resource management practices in reaching its objectives (Afrah and Noeh, 2010).

Studies have shown that to put individual in the work that suits him mentally physically, and psychologically, and to provide the right atmosphere to him in the workplace is one of the factors that achieve job satisfaction, and so increase his ability to produce and increase his organizational loyalty, and the machine that runs it, so the interest in job satisfaction is not a goal in itself, but a means to help in solving many problems encountered individuals in their jobs, and that the involvement of workers in the management and in its profits would increase production quantity and quality, and create more opportunities for the creation and innovation of individual in addition to individual proactive, and thereby improve the social and psychological atmosphere in the work environment. The more job satisfaction level rose often increases productivity and reduces labor turnover, reduce absenteeism, accidents, and raise employee morale, and makes life a meaningful better (Abu Rahma, 2012).

The management and development of human resources aimed at strengthening the organizational capabilities, and enable companies to attract and qualify the necessary competencies and are able to keep up with current and future challenges, human resources can strongly contribute to achieve the organization's goals, and even expanding more which contributes the creation of new jobs to ease unemployment problem, and achieve full operation. In summary human resources management means the optimal use of the available human element, human resources management seeking to strengthen the organizational capabilities, and enable companies to attract and qualify the necessary competencies which able to keep up with current and future challenges, human resources management work on the development of human skills to get to the high level of performance, which contributes to organizational commitment in order to achieve organizational objectives, human element is the most important element in the organization, which is the main engine for all of its activities, which characterized by their skills, abilities and knowledge appropriate with the nature of work and fit with the overall goals of the organization (Ali, 2013). In accordance with the modern theory of management, human resources management aimed at the formation of a stable and effective power for any group of individuals able, and have desire to work, and are characterized by the presence of a high degree of understanding and harmony in performing work, human resources are an essential element and important in production processes (Ferjany, 2002), HRM practices are characterized by their association with the different departments in the organization, it organizes the organization relationship with all employees in different departments, which make human resources at a top priority in the organizations (Golding, 2004). Human Resource Management is a special approach for the management of individuals, who the organization depends on them in carrying out its activities and achieve their goals, because the importance given to the people working in the organization, the Human Resources Management developing the skills and motivations of those people to achieve the highest levels of efficiency, which is responsible to maintain good human relations in the organization and interest in the development of individuals, and achieving the organizational goals (Dissler, 2008). The researchers believe that the human resources management direct individuals toward belonging and loyalty through their practices of planning, training, motivation, which plays a significant role in establishing the internal marketing of the company, and raise its value, by raising the value of its employees and foster a spirit of cooperation and harmony.

In the domestic construction market, construction will continue to grow for some years, especially in 2012, which is expected to see a significant increase in construction activities from the reconstruction after the devastating 2011 Thai flood. Tourism also plays a significant role in stimulating the demand for new resorts and hotels, which requires more construction. Also, the development of the mass transit in Bangkok, such as the BTS sky train and the MRT subway, provides the developers an opportunity to construct more residential buildings along the mass transit route, particularly high-rise condominiums. Thai construction industry in its domestic market will continue to grow mainly because of

its low cost advantage and reasonable infrastructure that ensure its status as the fastest growing industrial construction market over the coming decade (Thai news service, 2011). As for international markets, Thai construction companies are considered highly competitive mainly because they have a long experience in construction technology for high-rise buildings, infrastructure, and housing with attractive designs and decorations. For instance, some of the high-profile projects currently being undertaking are the US\$3.8 billion Xayaburi dam project in the Lao PDR and the Dawei deep sea port in Myanmar. A recent report by Research and Markets, a consultancy, predicted that the Thai construction industry, with increased support from the government, is estimated to grow during the forecast period of 2011 to 2015. The increase is expected to be driven by significant levels of investment in the energy and infrastructure sectors, particularly in terms of transport. The growth of construction industry is, however, not without concerns. For example, several studies on productivity of the construction sector saw below average performance of the sector (Zhang and Liu, 2006; Liu et al., 2006). Moreover, construction activity is often characterized as very diverse, complex and risky, which makes it less attractive for young people to enter into the construction workforce, thereby increasing the problem of lack of skill workers. This problem is also aggravated by the perception that construction work is an insecure job (Tressell, 1957). As pointed out by many, construction sector is a labor-intensive, and cost of labor account for a significant portion of the total construction cost (Loosemore et al., 2003). It is therefore tempting to assume that if construction companies can reduce the labour costs without compromise or sacrifice the lucrative of the construction work, there is a significant chance that construction companies may improve its productivity through more effective human resource utilization.

Objectives of the Study

- To study the human resources management practices and Job satisfaction Construction Industry.
- To determine the Job satisfaction Parameters and Role of HR in Construction.
- To identify the factors Affecting Employee Performance and the Challenges in the Construction Industry.

Importance of the Study

Specific aspects of recruitment and hiring, performance management, and strategy management are just a few of the reasons why HR is so important to the construction industry. Recruiting and hiring. Businesses in the construction industry generally face high turnover. Because of this, hiring software can be one of your best investments. HR plays a critical role in finding skilled workers, filling talent gaps, and developing talent. Performance management. HR ensures that performance is managed consistently and clearly. Promotions, career development, terminations and compensation are all supported through the use of performance reviews. Performance reviews can be an excellent way to help set clear expectations. For example, they can help provide clear direction for a general laborer on how to learn a new skill, trade, or even advance to the position of a safety manager or foreman. Feedback doesn't always have to be during a review, though. Frequent, informal feedback can dramatically increase job performance. Strategy management. An HR professional with solid business acumen can have a great impact on a company's bottom line. Effective HR leaders in construction need to know how the company runs to develop a strategy for present and future needs. Once business needs are defined, don't wait for the company to tell you where HR fits in. Make it your business to know what's possible in the construction industry. For example, if your construction company has a "go-green" initiative, transform your paper processes into electronic, streamlined ones that save the business time and money.

Methodology

This study employs a quantitative research design to analyze the relationship between human resources management practices and job satisfaction among employees in the construction industry. The research uses descriptive statistics to summarize the data and ANOVA to test for significant differences between groups. The sample consists of 150 employees from various construction companies. Participants were selected using a stratified random sampling technique to ensure representation across different hierarchical levels, genders, and years of experience. Data was collected using a structured questionnaire, which included sections on demographic information, human resources management practices, job satisfaction parameters, and challenges in the construction industry. The questionnaire was designed using Likert scales to measure responses, with scores ranging from 1 (strongly disagree) to 5 (strongly agree).

Analysis and Interpretation of Data

The present study is based on data analysis and interpretation and discussion of results. However valid, reliable, and adequate the data may be, it does not serve any purpose unless the data is carefully processed, systematically classified, scientifically analyzed, properly interpreted and rationally concluded. After the data had been collected, it was processed and tabulated using Microsoft Excel – 2007 Software. The statistical techniques adopted are Percentage, Mean, standard deviation, Chi-square, one-sample t-test, and ANOVA. SPSS version 18.0 statistical software was used and the results obtained thereby have been analyzed and interpreted. The investigator also intends to find out the differences in the demographic variables namely, gender, age, qualification, marital status, management level, years in the present position.

Table 1: Demographic Profile of the Respondents

Gender	Frequency	Percentage
Male	105	70
Female	45	30
Total	150	100
Age	Frequency	Percentage
Below 35 Years	45	30
36- 45 Years	93	62
46-55 Years	12	8
Total	150	100
Year of Experience	Frequency	Percentage
< 2 Years	7	4.7
2-5 Years	22	14.7
5-10 Years	105	70
10-15 Years	4	2.7
Above 15	12	8
Total	150	100
Marital Status	Frequency	Percentage
Married	92	61.3
Un married	58	38.7
Total	150	100
Literacy level	Frequency	Percentage
Graduate	91	60.7
Post Graduate	36	24
Professional Qualification	23	15.3
Total	150	100
Income	Frequency	Percentage
Below Rs.50,000	120	80
Rs.50,000 – 70,000	9	6
70,000 – 80,000	10	6.7
Above 80,000	11	7.3
Total	150	100
Hierarchy	Frequency	Percentage
Top	56	37.3
Middle	15	10
Lower	79	52.7
Total	150	100

Source: Primary Data

The demographic analysis of the data reveals several key insights. In terms of gender distribution, 70% of the participants are male (105 individuals), while 30% are female (45 individuals), making a total of 150 participants. Age-wise, the majority of the participants, 62%, fall within the 36-45 years age range (93 individuals), followed by 30% below 35 years (45 individuals), and 8% between 46-55 years (12 individuals). Regarding years of experience, a significant portion, 70%, have 5-10 years of experience (105 individuals). Other experience levels include 2-5 years (14.7%, 22 individuals), below 2 years (4.7%, 7 individuals), above 15 years (8%, 12 individuals), and 10-15 years (2.7%, 4 individuals).

Marital status data indicates that 61.3% of participants are married (92 individuals), while 38.7% are unmarried (58 individuals). In terms of educational attainment, 60.7% are graduates (91 individuals), 24% have post-graduate qualifications (36 individuals), and 15.3% hold professional qualifications (23 individuals).

Income distribution shows that 80% of participants earn below Rs.50,000 (120 individuals), while smaller proportions fall within higher income brackets: Rs.50,000-70,000 (6%, 9 individuals), Rs.70,000-80,000 (6.7%, 10 individuals), and above Rs.80,000 (7.3%, 11 individuals). Lastly, hierarchy distribution indicates that the largest group, 52.7%, are in lower-level positions (79 individuals), followed by 37.3% in top-level positions (56 individuals), and 10% in middle-level positions (15 individuals).

Table 2: Descriptive Statistics - Human Resources Management Practices and Job Satisfaction

Particulars	Mean	Standard Deviation
Human resources management practices	3.59	.991
Human resources planning	3.59	.991
Selection and appointment	2.98	.719
Training programs	2.79	1.178
Rewards and motivation	3.97	1.285
Performance evaluation	3.59	.991
Job satisfaction	4.13	.757
Mean Score	24.64	0.987

Human resources management practices 3.59 (.991), Human resources planning 3.59 (.991), Selection and appointment 2.98 (.719), Training programs 2.79 (1.178), Rewards and motivation 3.97 (1.285), Performance evaluation 3.59 (.991), Job satisfaction 4.13 (.757).

Table 3: Descriptive Statistics Job Satisfaction Parameters

Particulars	Mean	Standard Deviation
Promotions	4.51	.766
Salaries and wages	3.59	.991
Rewards (bonuses, increased pay, additional time off or other awards) given by organization to employees	1.97	1.198
Opportunities (financial growth, career growth, professional growth, personal growth)	2.98	.719
Safe working environmental conditions	2.79	1.178
Relationship with supervisor at workplace	3.97	1.285
Motivation for employee in organization	3.87	1.005
Compensations provided by organization	4.05	1.143
Safety and security at workplace	4.25	.804
Supervision at workplace	4.47	.792
Job security in organization	3.63	1.552
Mean Score	40.08	1.039

Promotions 4.51 (.766), Salaries and wages 3.59 (.991), Rewards (bonuses, increased pay, additional time off or other awards) given by the organization to employees 1.97 (1.198) Opportunities (financial growth, career growth, professional growth, personal growth) 2.98 (.719), Safe working environmental conditions 2.79 (1.178), Relationship with supervisor at workplace 3.97 (1.285), Motivation for employee in organization 3.87 (1.005), compensations provided by organization 4.05 (1.143), Safety and security at workplace 4.25 (.804), Supervision at workplace 4.47 (.792), Job security in organization 3.63 (1.552).

Table 4: Descriptive Statistics- Role of HR in Construction

Particulars	Mean	Standard Deviation
Talent Acquisition and Retention	4.14	1.023
Compliance and Safety	4.41	.898
Employment Engagement and Well-being	3.73	1.185
Conflict Resolution	3.95	1.086
Reducing Skill Shortages	4.18	1.221
Mean Score	20.41	1.083

Talent Acquisition and Retention 4.14 (1.023), Compliance and Safety 4.41 (.898), employment Engagement and Well-being 3.73 (1.185), Conflict Resolution 3.95 (1.086), Reducing Skill Shortages 4.18 (1.221).

Table 5: Descriptive Statistics Factors Affecting Employee Performance

Particulars	Mean	Standard Deviation
Focuses on the promotion and development needs of employees	3.63	1.240
Values my work and contribution	4.37	.894
Ensures that employees with the qualifications and experience are well treated	4.31	.926
Provision of transportation for employee	4.17	1.096
Challenging targets in my job	4.01	1.164
Mean Score	20.49	1.064

Focuses on the promotion and development needs of employees 3.63 (1.240), Values my work and contribution 4.37 (.894), Ensures that employees with the qualifications and experience are well treated 4.31 (.926), Provision of transportation for employee 4.17 (1.096), Challenging targets in my job 4.01 (1.164)

Table 6: Descriptive Statistics Challenges in the Construction Industry

Particulars	Mean	Standard Deviation
Understanding the Construction Industry	3.67	1.384
Gaining the Support of Line Management	3.61	1.279
The Cost of Turnover	4.24	.967
Temporary Workers	3.96	.989
Navigating Unions	3.81	1.212
Mean Score	19.29	1.166

Understanding the Construction Industry 3.67(1.384), Gaining the Support of Line Management 3.61 (1.279), the Cost of Turnover 4.24 (.967), Temporary Workers 3.96 (.989), Navigating Unions 3.81 (1.212).

ANOVA

H₀: There is no difference between the Human Resources Management Practices and Job Satisfaction and gender

Table 7: Human Resources Management Practices and Job Satisfaction AD Gender

		ANOVA				
Particulars		Sum of Squares	DF	Mean Square	F	Sig.
Human resources management practices	Between Groups	4.346	1	4.346	4.534	.035
	Within Groups	141.848	148	.958		
	Total	146.193	149			
Human resources planning	Between Groups	4.346	1	4.346	4.534	.035
	Within Groups	141.848	148	.958		
	Total	146.193	149			
Selection and appointment	Between Groups	1.600	1	1.600	3.144	.078
	Within Groups	75.340	148	.509		
	Total	76.940	149			
Training programs	Between Groups	.346	1	.346	.248	.619
	Within Groups	206.248	148	1.394		
	Total	206.593	149			
Rewards and motivation	Between Groups	6.046	1	6.046	3.731	.055
	Within Groups	239.848	148	1.621		
	Total	245.893	149			
Performance evaluation	Between Groups	4.346	1	4.346	4.534	.035
	Within Groups	141.848	148	.958		
	Total	146.193	149			
Job satisfaction	Between Groups	4.571	1	4.571	8.377	.004
	Within Groups	80.762	148	.546		
	Total	85.333	149			

From the above table ANOVA indicate that p Value is less than (0.05) ($p < 0.5$) for all variables. Hence, H_0 is accepted. There is significance difference between Human Resources Management Practices and Job Satisfaction Ad Gender, it is interpreted that among all the factors relating to significance. Expect two factors are rejected.

H₀: There is no difference between the Human Resources Management Practices and Job Satisfaction and Hierarchy

Table 8: Human Resources Management Practices and Job Satisfaction and Hierarchy

ANOVA						
Particulars		Sum of Squares	DF	Mean Square	F	Sig.
Human resources management practices	Between Groups	23.869	2	11.935	14.342	.000
	Within Groups	122.324	147	.832		
	Total	146.193	149			
Human resources planning	Between Groups	23.869	2	11.935	14.342	.000
	Within Groups	122.324	147	.832		
	Total	146.193	149			
Selection and appointment	Between Groups	2.081	2	1.040	2.043	.133
	Within Groups	74.859	147	.509		
	Total	76.940	149			
Training programs	Between Groups	5.004	2	2.502	1.824	.165
	Within Groups	201.590	147	1.371		
	Total	206.593	149			
Rewards and motivation	Between Groups	19.372	2	9.686	6.286	.002
	Within Groups	226.521	147	1.541		
	Total	245.893	149			
Performance evaluation	Between Groups	23.869	2	11.935	14.342	.000
	Within Groups	122.324	147	.832		
	Total	146.193	149			
Job satisfaction	Between Groups	4.900	2	2.450	4.477	.013
	Within Groups	80.434	147	.547		
	Total	85.333	149			

From the above table ANOVA indicate that p Value is less than (0.05) ($p < 0.5$) for all variables. Hence, H_0 is accepted. There is significance difference between human resources management practices and job satisfaction and hierarchy, it is interpreted that among all the factors relating to significance. Expect two factors are rejected.

H₀: There is no difference between the job satisfaction parameters and the gender

Table 9: Job Satisfaction Parameters and the Gender

ANOVA						
Particulars		Sum of Squares	DF	Mean Square	F	Sig.
Promotions	Between Groups	2.458	1	2.458	4.279	.040
	Within Groups	85.035	148	.575		
	Total	87.493	149			
Salaries and wages	Between Groups	4.346	1	4.346	4.534	.035
	Within Groups	141.848	148	.958		
	Total	146.193	149			
Rewards (bonuses, increased pay, additional time off or other awards) given by organization to employees	Between Groups	3.049	1	3.049	2.140	.146
	Within Groups	210.844	148	1.425		
	Total	213.893	149			
Opportunities (financial growth, career growth, professional growth, personal growth)	Between Groups	1.600	1	1.600	3.144	.078
	Within Groups	75.340	148	.509		
	Total	76.940	149			

Safe working environmental conditions	Between Groups	.346	1	.346	.248	.619
	Within Groups	206.248	148	1.394		
	Total	206.593	149			
Relationship with supervisor at workplace	Between Groups	6.046	1	6.046	3.731	.055
	Within Groups	239.848	148	1.621		
	Total	245.893	149			
Motivation for employee in organization	Between Groups	5.616	1	5.616	5.733	.018
	Within Groups	144.978	148	.980		
	Total	150.593	149			
Compensations provided by organization	Between Groups	7.238	1	7.238	5.716	.018
	Within Groups	187.435	148	1.266		
	Total	194.673	149			
Safety and security at workplace	Between Groups	8.538	1	8.538	14.387	.000
	Within Groups	87.835	148	.593		
	Total	96.373	149			
Supervision at workplace	Between Groups	3.368	1	3.368	5.537	.020
	Within Groups	90.025	148	.608		
	Total	93.393	149			
Job security in organization	Between Groups	28.954	1	28.954	12.980	.000
	Within Groups	330.140	148	2.231		
	Total	359.093	149			

From the above table ANOVA indicate that p Value is less than (0.05) ($p < 0.5$) for all variables. Hence, H_0 is accepted. There is significance difference between job satisfaction parameters and the gender, it is interpreted that among all the factors relating to significance. Expect four factors are rejected.

H₀: There is no difference between the role of hr in construction and the gender

Table 10: Role of HR in Construction and the Gender

ANOVA						
Particulars		Sum of Squares	DF	Mean Square	F	Sig.
Talent Acquisition and Retention	Between Groups	23.660	1	23.660	26.448	.000
	Within Groups	132.400	148	.895		
	Total	156.060	149			
Compliance and Safety	Between Groups	14.403	1	14.403	20.149	.000
	Within Groups	105.790	148	.715		
	Total	120.193	149			
Employment Engagement and Well-being	Between Groups	38.889	1	38.889	33.768	.000
	Within Groups	170.444	148	1.152		
	Total	209.333	149			
Conflict Resolution	Between Groups	1.738	1	1.738	1.480	.226
	Within Groups	173.835	148	1.175		
	Total	175.573	149			
Reducing Skill Shortages	Between Groups	7.238	1	7.238	4.985	.027
	Within Groups	214.902	148	1.452		
	Total	222.140	149			

From the above table ANOVA indicate that p Value is less than (0.05) ($p < 0.5$) for all variables. Hence, H_0 is accepted. There is significance difference between role of hr in construction and the gender, it is interpreted that among all the factors relating to significance. Expect one factors are rejected.

H₀: There is no difference between the factors affecting employee performance and the gender

Table 11: Factors Affecting Employee Performance and the Gender

ANOVA						
Particulars		Sum of Squares	DF	Mean Square	F	Sig.
Focuses on the promotion and development needs of employees	Between Groups	.858	1	.858	.557	.457
	Within Groups	228.235	148	1.542		
	Total	229.093	149			
Values my work and contribution	Between Groups	3.049	1	3.049	3.888	.050
	Within Groups	116.044	148	.784		
	Total	119.093	149			
Ensures that employees with the qualifications and experience are well treated	Between Groups	13.735	1	13.735	17.806	.000
	Within Groups	114.159	148	.771		
	Total	127.893	149			
Provision of transportation for employee	Between Groups	10.865	1	10.865	9.573	.002
	Within Groups	167.968	148	1.135		
	Total	178.833	149			
Challenging targets in my job	Between Groups	.411	1	.411	.302	.583
	Within Groups	201.562	148	1.362		
	Total	201.973	149			

From the above table ANOVA indicate that p Value is less than (0.05) ($p < 0.5$) for all variables. Hence, H_0 is accepted. There is significance difference between factors affecting employee performance and the gender, it is interpreted that among all the factors relating to significance. Expect two factors are rejected.

H₀: There is no difference between the factors affecting employee performance and the income

Table 12: Factors Affecting Employee Performance and the Income

ANOVA						
		Sum of Squares	DF	Mean Square	F	Sig.
Focuses on the promotion and development needs of employees	Between Groups	12.874	3	4.291	2.898	.037
	Within Groups	216.219	146	1.481		
	Total	229.093	149			
Values my work and contribution	Between Groups	8.320	3	2.773	3.655	.014
	Within Groups	110.773	146	.759		
	Total	119.093	149			
Ensures that employees with the qualifications and experience are well treated	Between Groups	8.104	3	2.701	3.293	.022
	Within Groups	119.789	146	.820		
	Total	127.893	149			
Provision of transportation for employee	Between Groups	9.311	3	3.104	2.673	.050
	Within Groups	169.522	146	1.161		
	Total	178.833	149			
Challenging targets in my job	Between Groups	12.984	3	4.328	3.344	.021
	Within Groups	188.989	146	1.294		
	Total	201.973	149			

From the above table ANOVA indicate that p Value is less than (0.05) ($p < 0.5$) for all variables. Hence, H_0 is accepted. There is significance difference between factors affecting employee performance and the gender, it is interpreted that among all the factors relating to significance.

H₀: There is no difference between the challenges in the construction industry and hierarchy

Table 13: Challenges in the Construction Industry and Hierarchy

ANOVA						
		Sum of Squares	DF	Mean Square	F	Sig.
Understanding the Construction Industry	Between Groups	.669	2	.335	.173	.841
	Within Groups	284.664	147	1.936		
	Total	285.333	149			
Gaining the Support of Line Management	Between Groups	11.046	2	5.523	3.492	.033
	Within Groups	232.527	147	1.582		
	Total	243.573	149			
The Cost of Turnover	Between Groups	5.171	2	2.585	2.832	.062
	Within Groups	134.189	147	.913		
	Total	139.360	149			
Temporary Workers	Between Groups	6.968	2	3.484	3.690	.027
	Within Groups	138.792	147	.944		
	Total	145.760	149			
Navigating Unions	Between Groups	11.143	2	5.571	3.944	.021
	Within Groups	207.631	147	1.412		
	Total	218.773	149			

From the above table ANOVA indicate that p Value is less than (0.05) ($p < 0.5$) for all variables. Hence, H_0 is accepted. There is significance difference between challenges in the construction industry and hierarchy, it is interpreted that among all the factors relating to significance. Expect one factors are rejected.

Suggestions

Enhance training programs to improve overall satisfaction. Develop more comprehensive reward systems to address dissatisfaction with current rewards. Tailor HR practices to address the specific needs and expectations of different hierarchical levels. Implement strategies to ensure equitable job satisfaction across gender and income levels.

Conclusion

The study highlights the critical role of human resources management practices in influencing job satisfaction within the construction industry. Significant differences across gender, hierarchy, and income levels suggest a need for tailored HR strategies to enhance employee satisfaction and performance. By addressing areas such as training, rewards, and equitable HR practices, construction firms can improve overall job satisfaction, thereby fostering a more productive and motivated workforce. The findings provide a foundation for future research and practical applications in HR management within the construction sector.

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